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**POPULATION-ENVIRONMENT DYNAMICS:
TRANSITIONS AND SUSTAINABILITY**



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PREFACE

This electronic monograph, is a volume of the individual works of thirteen students enrolled in a cross-listed course NR 545 (EIH 575). The focus of this course, like prior years, is captured in its title "*Population-Environment Dynamics: Toward Building a Theory*". This year's (1999's) subtitle, *Transitions and Sustainability* captures some element of the content of each selection. The course began with an examination of alternative theoretical constructs useful in studying the interaction between human populations and the environment. Also, at the beginning of the course, each participant was asked to select a topic of inquiry and a geographical setting for their study. This selection then became their major focus for the entire semester.

Students participating formally in the course this fall had a delightful mixture of backgrounds and interests. Schools and colleges represented included the School of Natural Resources and Environment, School of Public Health, College of Architecture and Urban Planning, and College of Literature Sciences and Arts. Disciplines and areas of interest represented included area studies, business and economics, sociology, architecture and urban planning, public health, and natural resources. Participants in this year's seminar included colleagues from around the world.

A very important element in the seminar was the use of data sources that recently have become available in machine-readable form. These data sources permitted the students to quickly gain experience in handling longitudinal datasets, especially those that were not amenable to modeling with linear functions. The most useful and user-friendly dataset provided participants was The World Resources Institute Data System (1996-97). Another tool used in the course was state-of-the-art PC-based Geographic Information Systems. The GIS package selected as most helpful this year, was Atlas GIS version 3.03. Extensive use also was made of information from the Digital Chart of the World. Another device used this semester for the second time was the simulation software, Stella 5. Gayl Ness, a colleague at The University of Michigan, provided a guest lecture on a brief and concise introduction to Stella that included examples from his ongoing research in Population-Environment Dynamics. John Nystuen and Frank Zinn, also colleagues at The University of Michigan, gave a guest lecture on their field experience dealing with population-environment dynamics and fiscal systems in Indonesia. This year's seminar also saw a heightened use of data and documents coming directly from the World Wide Web. Dr. Sandra Lach Arlinghaus, Adjunct Professor of Mathematical Geography and Population-Environment Dynamics in The School of Natural Resources and Environment, co-taught the course, as she has in the six previous years.

The success of the course resulted largely from the enthusiasm of the participants. As in previous years, extra sessions were held near the end of the semester, which often extended beyond scheduled meeting times. Feedback from fellow participants was provided in these sessions. In addition, each student was asked to develop a brief synopsis of how their study related to the other participants in the class. These thoughtful remarks are presented as the main body of the concluding chapter. This monograph was published during the winter term in the academic year 1998-99.

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POPULATION-ENVIRONMENT DYNAMICS: TOWARD BUILDING A THEORY

INTRODUCTION

This volume is a collection of separate but related studies focusing on the relationship between human populations and the environment. The effort consists of this introduction, a set of abstracts, a set of thirteen chapters each written by a seminar participant which investigates a different aspect and geographic setting of the population-environment dynamic, and a concluding set of statements, by the seminar participants as a group, examining the relationships among the chapters.

In this introduction we present a synopsis of the common framework, which we call a family of transitions. In addition to the common framework, this introductory chapter presents the abstracts for each ensuing chapter. Readers of the monograph reporting work from prior years should note that the material in the following section on a family of transitions is repeated here for background and therefore can be skipped.

1. A FAMILY OF TRANSITIONS

One way of viewing the complex dynamic relationships between population and the environment is to visualize them as a family of transitions. That is, not only is there a demographic and epidemiologic transition but also a deforestation, toxicity, agricultural, energy and urbanization transition as well as many others. In this chapter it is argued that for each transition there is a critical period when society is especially vulnerable. During that period, rates of change are high, societal adaptive capacity is limited, in part, due to this rapid change, and there is a greater likelihood that key relationships in the dynamic become severely imbalanced. The trajectory society takes through a transition varies, depending upon many factors operating at local and national levels. Transitions not only are occurring in many different sectors but also at different scales, both temporal and spatial. At times, a society experiences several transitions simultaneously, which can raise social vulnerability because of how they amplify each other.

1.1 TYPES OF TRANSITIONS

The Demographic Transition

Let us begin with a review of the ideas behind the widely accepted demographic transition. At the onset of this transition, births and deaths are both high and are in relative equilibrium with each other.

Historically, births exceed deaths by small amounts so total population rises only very gradually. Occasionally, famine or an epidemic causes a downturn in total population but in general, changes in rates are low.

During the transition, however, death rates drop dramatically, usually due to a change in the health condition of the population. This change in health is caused by many, often interrelating factors. After some time lag, the birth rate begins to drop and generally declines until it is in approximate balance with the death rate again.

The Epidemiological Transition

The term epidemiologic transition was coined to describe the changing source of mortality and morbidity from infectious diseases occurring primarily in the younger age groups to degenerative diseases in older age groups. As with the demographic transition, there is considerable volatility during the transition. At the onset, infectious diseases begin their decline usually due to extensions of health care and sanitation by the national or local government. Single vector programs such as malaria control and immunization programs are often the first implemented because they are capable of ready extension and do not require as heavy a commitment to education and other sustained infrastructure - especially in rural areas. These single vector programs are then followed by broader-based health care which demand heavier investment in infrastructure. But an entirely successful move through this transition does not always happen. At times, other sectors in transition overpower the health care delivery system.

The Agricultural Transition

For several hundred years, worldwide agricultural production has been rising in relative harmony with population. Overall, increases in production have kept up with and even outpaced growth in population. The two factors that have been responsible for these increases are 1) extensions of land under cultivation and 2) improvements in productivity. At times changes have been dramatic. Formulating an agricultural transition reflects the condition that, in general, sources of increase in production shift from extending land to intensifying production on land already under cultivation.

The Forestry Transition

At the onset of the forestry transition generally a large percentage of a region is under forest cover. Rapid deforestation occurs during the transition and finally forest cover stabilizes at a lower level determined by many factors such as the local region's needs, the state of the local and national economy, climate and soil characteristics. In most settings this transition will end in a steady state equilibrium balancing growth and harvest. Again, how society handles the vulnerable transition period often determines in a profound way the quality of life for the region.

The Toxicity Transition

The toxicity transition can be considered a composite of many transitions: global atmospheric, local air pollution, surface water, ground water and solid waste to name a few. Again, there are at least two sets of factors operating in tandem. The transition begins with low levels of industrial or agricultural production and correspondingly low levels of toxins. As production and population increase, toxic byproducts increase to levels which eventually become unacceptable to the general public. This in turn, causes a public demand for pollution abatement. After an environmentally costly time lag, remediation steps are taken which helps to bring pollution under control.

The Urbanization Transition

The urbanization transition is driven by the dual forces of rural to urban migration and central city population growth. The early stages of the transition are characterized by rapid growth of urban population; however, in later stages, growth declines and may reverse. Rural to urban migration is a product of many forces - both "pull" and "push". In terms of the population-environment dynamic, the urbanization transition often acts as an amplifier as it interacts with other transitions.

The Fossil Fuel Transition

The fossil fuel transition is a special case of the energy transition. Historically, many energy transitions have already occurred in different regions and time periods. Significant transformations began in the sixteenth century brought about by sail and later, by steam power. Today, we are now in the most universal and perhaps critical energy transition: fossil fuels. Studying this transition is especially instructive because the record on different societies' passage through the vulnerable period is varied and appears to be heavily influenced by public policy.

1.2 GENERAL CHARACTERISTICS OF TRANSITIONS

Similarity of Trajectory Across Sectors

We have attempted to show in the seven example sectors discussed earlier that the notion of transitions apply across all sectors of investigation. Each class of transition, whether it be demographic, toxicity, forestry, agriculture, urbanization, energy or epidemiological have similar patterns. It is this perception that has caused us to posit the existence of a family of transitions possessing some common attributes useful in analysis. The first common attribute of all transitions is their trajectory. They all begin in reasonable stability, then move to the volatile transition period where change is rapid, and finally return again to relative balance. Analytically, these are clearly nonlinear systems but

ones which have properties that lend themselves to well-understood mathematical functions.

Applicability of Transitions Across Scales

The second attribute has to do with scale. One of the most interesting and at the same time vexing aspects of studying population-environment dynamics is that many phenomena manifest themselves at all levels of geographic and temporal scale. For example, data depict one demographic transition for an entire continent, a different one for a country within that continent and still other different transitions at the regional level. Local conditions may delay or advance the onset and or completion of the transition in relation to the larger body. Thus, moving through the demographic transition can take more or less time as the scale changes. This same variation seems to exist in all other population-environment transitions that have been investigated. True, national or regional-level determinants often set the stage for the local dynamic, but in the end it is these local conditions which determine the timing, magnitude and specific trajectory of the overall transition.

One can think of our world, seeming to be chaotic, but instead consisting of a multitude of well defined transitions in many sectors, each with its own local characteristic. Different transitions begin at different times and places, but ebb and flow in an overlapping way, sometimes reinforcing one another and at other times dampening their dynamic. As adjustment occurs, occasionally useful niches are created which are then exploited by stressed elements of the ecosystem. Unfortunately, at other times, different sectors interact with each other in a harmful way to broaden and extend the susceptible period.

Societal Vulnerability

During transitions there seems to be a special vulnerability borne by society. Ample evidence indicates that key relationships are most likely to become out of balance during the transition. A primary cause of this vulnerability is the rapidity of change during the high velocity portion of the transition. Adaptive capacity is impeded because there is little time for systems to adjust and often there are limited feedback mechanisms operating which otherwise could help this process. Another contribution to social vulnerability during a transition is the amplifying effects created by transitions occurring simultaneously in several sectors. Rapid rates of change in several sectors could more easily overpower the available infrastructure which leads us to the next source of vulnerability during transitions: capital availability.

Capital or investment capacity can either amplify or reduce societal

vulnerability during a transition. If there are financial resources available to deal with the effects of rapid change, remediation is easier to implement. Africa which is trying to deal with a difficult demographic transition has almost no capital available for its use and will therefore undergo great hardship. The Soviet Union and Eastern Europe are struggling to find financial resources to deal with their flawed toxicity transition. Another dimension of transitions which affects societal vulnerability is the degree of interconnectedness. How closely is the local village connected to the regional and national economy? How much does what happens in one location determine what happens in another? There is no question that interconnectedness is increasing worldwide. We also know that under some circumstances linkage creates dependencies which in turn, increase vulnerability. However, it can work in the opposite direction as well. These very same links to a larger domain can also act as a safety net. If there are connections, resources can be brought to the stressed area more easily to mitigate the local adversity. The final and perhaps most important dimension of transitions affecting vulnerability is feedback.

Analytic Properties of Transitions

We have seen that many characteristics of transitions are common across all sectors and geographic scales. The question then, is whether there are analytic techniques which might be useful in describing this family of transitions. If so, these techniques may be helpful in portraying transitions in a way that facilitates comparison and thereby increases our understanding. In this quest we are especially interested in techniques and functions which reduce complexity and at the same time provide a reasonably accurate portrayal of reality.

Functions which are candidates for consideration include exponential, exponential to the limit L , logistic, Gompertz, and the power function. Bounded functions which fit data more precisely but cannot be used for predictive purposes may also be helpful in uncovering patterns.

1.3 POLICY IMPLICATIONS OF TRANSITION THEORY

But what does it gain us to fit an exponential or logistic or for that matter any function to transition data? The answer lies in our ability to gain insights by relating different transitions to each other. First, consider the transitions within a given sector and at a given scale. We know there are transitions in a sector which some societies have already experienced while others have yet to endure. If the nature of these experiences can be captured in general form, it is more likely that knowledge can be transferred to other settings where a transition is first starting. Of course, each civilization or local culture has its own unique

characteristics but any one emerging transition may be comparable to one or more of those which have occurred before because conditions are similar.

Second, there may be useful comparisons across different scales. We already surmise that a national-level transition, perhaps now in process, is actually comprised of a myriad of local transitions also in process or which have recently occurred. But there may be other locales in the region for which the transition has yet to happened. If similar patterns emerge because of similar local conditions, a useful prediction could be made about the nature of the passage through the transitions yet to appear. Third, there may be insights gained simply by the process of fitting a function to historical data. Different mathematical functions often have very specific underlying characteristics which can provide useful ideas. The next potential use of transition theory is to facilitate analysis across sectors. There is, of course, no good reason to expect the trajectory of, say, a forestry or agricultural transition to mimic an epidemiologic transition. However, for any society at a given time, there may be similarities in the rates of change across sectors. Developed economies have slower rates of change in their agriculture sector than developing economies when conditions are favorable. Rural based cultures may be expected to have urbanization transitions which are steeper than non-rural cultures. In short, it is worth testing to see if patterns can be empirically determined which would be helpful in predicting the shape of future transitions, given a stated level of intervention.

We have already mentioned the special societal vulnerability associated with several sectors being in rapid transition simultaneously. From a modeling perspective this simultaneity a very difficult condition to describe and analyze, which may be why less progress has been made in this area to date. However, being able to portray these multiple transitions with specific functions could be helpful. There is no question that each transition interacts with the other. And to the analyst this means that a reliable model must be structured as a set of simultaneous relationships. Describing transitions as functions facilitates this manipulation.

Another potential benefit of transition theory lies in the identification of lead indicators. If success is achieved in fitting transition data to an appropriate function, then for a given condition and point in time, the future trajectory can be predicted more accurately. Identifying lead indicators is facilitated because with an orderly function, only one, or at most, two parameters need to be determined to define the trajectory. This advantage is even more evident when several functions are considered

simultaneously.

Finally and perhaps most importantly, transition theory may permit more informed public and private intervention. At one level we find ourselves believing that the trajectory of a transition is somehow fixed by an immutable law of nature. But at another level we know that this is not the case. Public and private policy can make a difference as we have seen from some of the cases discussed in this book. Rates of change can be influenced by policy redirection and consequent resource allocation. To the extent that we can link historical rate differentials with historical policy implementation, a better determination can be made about which intervention mix works best in dealing with problems facing society today.

ABSTRACT

Marnie Boardman

Tucson and its surrounding region have seen a great deal of growth in recent decades. With this growth has come increasing demands on the aquifer system that supplies this region with almost all of its water. Evidence of hydrological and ecological transitions may, in part, be related to transitions in population. Water management agencies have implemented policies to bring the current "overdraft" of groundwater use into balance with aquifer recharge rates. Policies and innovations to bring the Tucson AMA into a state of safe-yield have had some impact, but goals to balance the water budget by 2025 seem increasingly difficult to achieve. The author observes that the Tucson AMA will only achieve safe-yield through drastic but rational change at the policy level, the water provider service level, and the consumer level. This paper explores the dynamics of the water crisis in Tucson in order to identify possible policy adjustments. The paper also explores the resonance between hydrological transitions, population transitions and political transitions.

ABSTRACT

Louis Garvin

The Grameen Bank is a non-governmental organization in Bangladesh which has pioneered the practice of microcredit, in which small loans are given to the rural poor in order to build entrepreneurial activity and economic assets. The Grameen Bank has won international acclaim for its success in alleviating poverty in Bangladesh, which is one of the world's poorest countries. Poverty cannot be considered in isolation, however. Population growth and poverty are mutually reinforcing problems in Bangladesh. For example, population growth increases poverty by reducing the per capita availability of resources such as land and food and by magnifying the impact of natural disasters such as floods.

This research project describes this relationship between population growth and poverty, and suggests that the Grameen Bank should look at the two problems together instead of focusing only on poverty. The Grameen Bank's programs already make a large contribution to reducing population growth by improving economic conditions. Also, by focusing on women for its microcredit programs, the Grameen Bank raises their economic and social status, which are conditions that lead to having fewer children. The Grameen Bank can do more, however. It should adapt its programs to specifically address population growth by promoting family planning and education programs. It should look for and address regional causes of population growth in regions where population density is a critical issue. By expanding its vision to include population issues, the Grameen Bank can better achieve its end goal of poverty alleviation.

ABSTRACT

Zeynep Asligul Gocmen

Rapid urbanization is a phenomenon that most developing countries are experiencing. There are many studies that show the characteristics of urbanization in developing countries and the differences between those and the developed ones. Developing countries generally experience the early stages of the urbanization transition, high increases in the share of the urban population, growth of large metropolises and urban primacy, deficiency in the urban housing, infrastructure, and employment, and problems with urbanization and regional development issues. However, the differences among developing and developed nations are not very apparent in some cases.

This research investigates the urbanization transition and the factors shaping the urban pattern in a developing country, Turkey. It also intends to suggest the consequences on Turkey's urbanization transition in the case that it joins the European Union (EU). Therefore, it also examines the transition in EU, although in less detail than Turkey.

The study found out that there are vast differences in the urbanization transition and other indicators between Turkey and most members of the European Union in various aspects. The findings of the simple analysis on the European Union also suggest that there is no evidence of a significant relation in the urbanization transition and joining EU.

An area for further research is the effect of globalization in investments in larger cities both in developing and developed countries. This is a key in suggesting the future shape of urban Turkey in the case it joins EU. Furthermore, the study suggests that national policies should concentrate more on the betterment of the smaller size cities in Turkey to mitigate migration patterns and the negative impacts of over-crowdendness in the larger metropolises.

ABSTRACT

Taufik Hanafi

Interventions to improve health status are an important policy instrument in Indonesia's overall strategy in alleviating poverty and improving the welfare of the country's population. The system for planning and financing public services including health care in the country, as in many developing countries, is highly centralized. Growing awareness of the obstacles associated with this centralized structure has generated much interest and a number of government initiatives in decentralization. The decentralization policy is advocated as a means to promote efficiency and responsiveness of the government programs and to strengthen community participation. This paper attempts to assess the extent of decentralization efforts in Indonesia and its impacts on sustainability of health care services at local levels.

There have been numerous decentralization initiatives in planning and fiscal programs implemented by the government of Indonesia in the last three decades. An important political effort of the Government of Indonesia in promoting the decentralization was reached in 1974, when Law No.5, titled "The Republic of Indonesia: Elucidation of Basic Principles of Administration in the Regions" was established. The law outlines the main principles for the development of regional autonomy and provides legal basis for regional administration including for broad involvement of subnational units in provision of public services including public health care. In the early 1970s the Government of Indonesia initiated a broader grant program chartered by the Presidential Instruction (INPRES) intended for social and economic development expenditure.

The Indonesian experience demonstrates the decentralization has taken the form mainly of limited delegation, with little 'real' decentralization (devolution). Elements of deconcentration and devolution exist, however, through general purpose grant, specific grant, and local governments' own funds. The central transfer for health, education, and infrastructure has contributed significantly in improving equity of health facilities and health status. The centrally-directed, one-size-fits-all program of public health service development, mainly financed by the central transfer program, has been instrumental in achieving the national goal of ensuring that certain basic health infrastructure is available throughout the country. However, once such primary needs have been met, it will become increasingly difficult to formulate a uniform health program that satisfies local needs in such a varied country as Indonesia. In addition, the demographic, economic, epidemiological transitions experienced by the country in the last four decades have contributed to the complexity. Underutilized health facilities, prevalence of unequal health outcomes, and the low cost recovery are main constraints of the centralized structure that might impede the sustainability of the health care delivery.

A number of pilot programs of decentralization in health care delivery implemented by the government have indicated potential benefits --more equitable, more efficient and better cost recovery--which are important elements in sustaining the public service at local levels. Sustainability of the health care delivery in the country can be potentially achieved by providing a greater degree of decentralization in planning and fiscal to local governments.

Given current political conditions demanding a higher degree of local autonomy and common the obstacles to recent decentralization efforts in sustaining the provision of health care at local levels, further decentralization policies should continue to emphasize: (1) providing more expenditure responsibilities to local governments in the provision of public services including public health, (2) improving regional resource mobilisation by providing more local revenue responsibilities, (3) promoting equitable development by involving widespread regional participation in health planning activities, (4) improving the intergovernmental transfer by increasing proportion of the general block grant, (5) strengthening local capacity in human resources and institutions; and (6) promoting private participation in provision of health care.

ABSTRACT

Natalie Henry

The demographic transition still in progress in Mexico began early in the twentieth century, and seems likely to continue into the next. The country has experienced astronomical growth in population, which can be linked to a decreasing morbidity rate and until the late 1960's, a relatively high birth rate. The nation has also experienced a rapid movement toward urbanization that has improved healthcare, increased accessibility to clean water and sanitary facilities to the nation as a whole, but at the same time, exacerbated health and environmental issues in concentrated areas.

Rapid population growth in the absence of adequate investment and planning to support it has been linked to environmental degradation, unbalanced spatial and economic growth, and large-scale deprivation of land, housing, jobs, and transportation. It is my contention that the existence of these conditions in Mexico, largely resulting from its rapidly growing population, can be linked to specific national governmental policies that have been implemented over the last century. This study is focused on five states that have exhibited the largest percentage change in population for the period beginning 1910 and ending in 1995. By examining the growth within these states during specific time periods, I attempt to isolate some of the driving factors contributing to the growth of the state's population. This study explores the impact of the government's policy promoting population growth in effect until the early 1970's, as well as the impact of agricultural reform and pro-industrial policy as an impetus for regional growth. Today, even as environmental degradation, overcrowding and the spread of disease reach alarming levels, the government continues to struggle with promoting economic development and effectively managing the outcomes. Identifying those causal relations may allow the Mexican government to effectively focus attempts at intervention, and provide guidelines for future policy development as the country continues its' economic development.

ABSTRACT

Martha Masterman

This paper focuses on the prospects for developing Indonesia's cash crop sector, particularly in light of the financial crisis of the last two years. The transitional nature of rice as a primary crop has led to the need for crop diversification. Additionally, the increased value of cash crops on the world market with the weakened rupiah has created a boon for rural farmers and exporters of these crops. Many of these crops are early in their transitional stages, and thus are prime candidates for assistance as they have the potential for increased yields and productivity.

In light of these two issues -- the need for diversification away from rice and the recent refocus on the agricultural sector -- this paper will concentrate on cash crop development for export to Western developed countries (i.e. U.S. and Western Europe). In the short term, developed Western markets are the most viable targets for export due to the current recession of Japan and the general economic malaise of the Southeast Asian region. Thus, for the purpose of this study, the target crops should meet the following criteria: 1) dominated by smallholders, 2) growing demand by developed (Western) countries, and 3) have the potential to increase productivity i.e. are in early stages of agricultural transition.

In addition to identifying those crops which have potential to stimulate Indonesia's economy, it is also important to analyze how rural small-landholders can integrate with urbanizing communities to realize growth and equitable economic gain. There exists an opportunity to develop the rural agricultural population, but in order to create sustainable growth of this sector, policy alternatives should be considered carefully. This requires a close study of the value chain, from the producer to marketing the product to consumers. Currently, there are several intermediaries in the process of getting the coffee cherry to the coffeepot, for example, which may or may not have inefficiencies. Additionally, it will be helpful to review past government policies in both the rice sector and cash crop sector, both to provide a context for future development and to avoid past mistakes.

Finally, other models of rural agricultural development may serve as positive examples that could be transferable to Indonesia. In particular, this paper will explore the development of cocoa farming in Sulawesi, and coffee production in Kenya. These models identify policies and systems that helped to integrate the rural farming sector into the national, and ultimately, the world economy.

ABSTRACT

Sujata Narayan

Originally conceived in the 1960's in response to declining environmental and economic conditions throughout the Developing World, ecotourism is described as tourism that has a low-impact on the environment, contributes to the local economy, engenders cross-cultural exchange, and fosters environmental education. Costa Rica, with its rich biodiversity and extensive ecosystem, is inarguably one of the leaders in this type of tourism.

To be sure, the promotion of ecotourism in Costa Rica has led to several desirable outcomes including income-generation and employment, at both the national and local levels; greater natural resource conservation in the form of state-protected areas and private lands; and heightened emphasis on environmental education. However, recent studies also indicate that ecotourism has resulted in disruption of natural habitat, pollution, litter, and deterioration of trails and sites.

Given these trade-offs, several questions arise. Namely, how long can this practice sustain itself? Is ecotourism sustainable? The purpose of this paper is to explore these questions. Specifically, this paper examines ecotourism's impact on the economy and environment of the country. For that purpose, tourism, environmental, and economic transitions are studied, with an emphasis on how these transitions interrelate. Findings and conclusions around the benefits and disadvantages of ecotourism are presented. Based on these findings, this paper then attempts to articulate creative and proactive policy measures for mitigating the drawbacks associated with ecotourism.

ABSTRACT
Mark Schmidt

Transition dynamics describes a process of development. It is characterized by a sigmoid curve in which there is at first a stage of slow, relatively stable growth. Following is a period of exponential, volatile growth, and finally leveling off towards a more stable level. This paper investigates how transitions have led to the emergence and spread HIV/AIDS.

The first cases were recognized in 1981, and HIV/AIDS has quickly become one of the biggest public health concerns in human history. Currently, 30.6 million people are infected; 20.8 million of whom live in sub-Saharan Africa. Uganda has over 2 million people infected, with the majority of the burden being felt by the younger ages.

The origin of the current epidemic has to be understood in the context of many factors occurring in Uganda throughout the century. The history and politics of the country, as well as transitions in urbanization and industrialization give a framework in which to study the three major hypotheses of HIV/AIDS emergence.

To study the impact of HIV/AIDS in the future of Uganda, it is also necessary to consider other variables. In particular, the population transition and the structure of the African family will serve to influence and be influenced by the current disease epidemic.

Due to limits in available resources, current policy recommendations addressing the HIV/AIDS epidemic are focused on interventions preventing the spread of the virus. However, to fully address the problem, it is necessary to look at more basic factors as well as the influences of different transitions.

ABSTRACT

Chandra Sivakumar

There are over 100 million children around the world who spend the majority, if not all, of their time, working, eating and sleeping on urban streets. They are faced with many challenges in the course of their day and the situation only seems to be getting worse. The factors contributing to this global phenomenon are as complex as they are insidious. This paper provides a basic overview of the problem and describes innovative interventions in use in various countries. In addition, data collected from a street children school in Ghana will be analyzed within the greater context of Ghana's socio-political structure. Finally, an intervention will be described that is based in part upon the Civilian Conservation Corps of the 1930's. This intervention will attempt to provide a working model for the rehabilitation of street children.

ABSTRACT

Jennifer Talbot

The Air Tenere National Nature Reserve in the Republic of Niger, West Africa was formed in 1988 to preserve aridland fauna and their habitat. This IUCN/WWF conservation and development project was designed to work with the local Tuareg people in the management of the area through conservation, rural development, and ecotourism activities. In 1991 a civil war broke out between the Tuareg people and the Niger government. In 1992 the director of the project was kidnapped and presumably killed. After this event the project was temporarily suspended. However, local people took the initiative to restart the project once the fighting left the Reserve area. A peace accord was signed between the rebels and the Niger government in 1994, however, there are still rebel attacks in the region. These conditions have all but eliminated the flow of tourists to the area and thus most ecotourism activities. The conservation and rural development activities, however, have continued because they rely on appropriate technology and local materials. This shows the need to integrate local people and appropriate rural development technologies into the management of biodiversity conservation projects especially in politically unstable regions.

ABSTRACT

Michael Tiefel

Vietnamese National Minorities confront many obstacles to their well-being, including poor infrastructure development, demands for their land, educational deficiencies and population density pressures. This project studies three problems facing the ethnic minorities of Vietnam's northern highlands: population density, agricultural development and education. After an introduction, the paper is divided into three sections of analysis and a final section on policy recommendations. The first point of analysis is the demographic transition in Vietnam and how this will affect northern ethnic minorities. While the overall population growth rate is slowing to lower than 2 percent a year, population density continues to rise throughout the country. The northern highlands have been seen as an open frontier by the Vietnamese government for the relocation of people living in overpopulated areas. However, the highlands are already overcrowded because of physical constraints on development. A second section of analysis focuses on the agricultural transition of Vietnam. Since the introduction of *doi moi* reforms, large tracts of arable land have been divided among private farmers. Privatization has helped the rural economy of Vietnam; however, population pressures may soon force cultivated land to be taken out of production to make way for residential developments. Agricultural constraints will continue to be more pronounced in the northern mountains since farmers face physical constraints beyond population pressures. The third section of analysis traces the educational transition of Vietnam. There are encouraging signs for education in the country. Vietnam has a very high literacy rate; the government has made improvements to the educational system and began allocating more of the national budget to education in the early 1990s. Yet, the education of northern minorities lags behind levels for the rest of the country. This is usually because ethnic minority students do not have the same opportunities as students in the lowlands. The final section is a list of four policy suggestions to help Vietnamese northern mountain people. Multicultural understanding and better education are crucial for improved relations between northern minorities and the national government. Another policy recommendation is the creation of a special commission for minority issues. This commission would have three major functions. First, it would advise the government on important policy decisions affecting ethnic minorities. Second, it would oversee implementation of government minority policies; and third, it would supply feedback to the government about the success of these policies. Finally, the Vietnam Bank of Agriculture must be expanded. This bank supplies small loans to farmers for agricultural improvements. Unfortunately, the bank must turn away numerous applicants because it does not have enough assets. Therefore, an infusion of public and private capital could be used to help minority farmers implement refined agricultural techniques.

ABSTRACT

Christina Welter

Uganda is a country stuck in transition. In the past decade, improvements have been made throughout sectors of country. However, development theorists and political economists argue that Uganda must overcome local and global power dynamics in order to break free from poverty and move forward on a path of development. This paper will first review transition patterns in Uganda within the economic, epidemiological, demographic, and educational sectors. First, this will provide an overview of past changes and future projections, highlighting problems within each sector. Secondly, this paper will discuss the local and global factors that may inhibit Uganda from improving living standards for its people. It is these powers and inequalities that prevent Uganda's future development. Finally, this paper concludes with several policy changes that could be used as a catalyst for change in Uganda.

ABSTRACT

Moira Zellner

The Reconquista River Basin is located in the Province of Buenos Aires (Argentina). This area expands to the northwest of the Metropolitan Area of Buenos Aires (MABA). The waterhead of this basin is located in a predominantly agricultural and agro-industrial area. Towards the river's mouth, urban and industrial density increases, as well as its pollution levels. Most of the basin lacks sanitation infrastructure, and the main water supply are the underground aquifers and water tables nearer the surface, in some cases contaminated with fecal bacteria and industrial pollutants.

The purpose of this study is to propose policies that allow for equitable water allocation between competing activities in the Reconquista River Basin. To accomplish this objective, it is necessary to understand the underlying interaction of population in environment, in terms of different types of transitions and their stabilization. Critical areas are defined in terms of water use and water quality. This study aims to define sustainable levels of use of water resources, and to propose allocation between activities. Policies that might be applied to the river basin cover the areas of education and behavior patterns, economic activity, increasing the provision of sanitary services through water supply from surface waters such as the Rio de la Plata, and expansion of sewer systems. These policies should be coordinated between all the interested parties in the basin.

CHAPTER 1
Population Migration and Water Use in Tucson, Arizona:
Transitions in Resource Supply and Resource Management Policies
by
Marnie Boardman

Introduction

Communities in the southwestern United States face today the prospect of serious water shortages in the near future. Many water conservation efforts concentrate their focus around increasing the efficiency of current water supply systems, while also hoping to reduce water consumers' demands on the system. But solutions that advocate for *limits to growth* in these communities run counter to the liberal philosophy that pervades the U.S. free market system (Cahn, 1995). It would indeed be deeply "un-American", if not illegal, to build a virtual fortress around a city and refuse any entrance to more people and more economic development, even if such isolationism were intended to protect the walled community from depleting vital resources. And yet cities in the southwestern United States are running up against walls of their own: they are encountering natural limits to growth in the form of depleted aquifers. Tucson, Arizona has drawn from groundwater sources beneath the city for the entire 20th century, and for much of the latter half of this century, many people have been aware of the limitations to ground water supplies. But it has been only during the last two decades that government has begun to ask a critical question: what can be done to avoid hitting the groundwater supply's natural limit? This question is complicated by the significant population increase in Tucson and its neighboring townships in Pima County. It is complicated even further by the fact that the growth engine that drives free-market enterprises runs counter to the limited development inherent to sustainable growth (Cahn, 1995; Hawken, 1993).

The problem is not unique to Tucson, Arizona. Its water crisis represents a small piece of the world picture where growing communities are trying to guard against future water shortages:

In the wake of burgeoning
populations, water development
is being driven
beyond the absolute limits of
guaranteeable supplies and past
the point of long-
term sustainable livelihoods,
thus, preparing the ground for
future crises
throughout the world (Roberts,
1993).

Water crises in the southwestern United States should not be looked upon as problems to be suffered and solved only by the people who have chosen to live there, but instead as an opportunity for all U.S. cities to learn from. The water management choices and innovations made in southwestern cities like Tucson may be the testing ground for future water practices all over the United States. If the governments, businesses and citizens in Tucson and Pima County can successfully learn to manage and reverse the path of their water crises, the region may become a model for thousands of other communities.

This paper seeks to explain the transitions that the communities in Tucson and surrounding Pima County will experience as it approaches the natural limits to groundwater supplies in the aquifers under the region. While water quality issues figure prominently in the decision-making process of Tucson's water management leaders, this paper focuses specifically on the transitions related to water supply, not quality. Some general hydrological concepts and dynamics will be laid out, after which the population transition in the region will be discussed. The paper will then describe the characteristics of water demand in the region, and the possible effects of population growth upon that demand. An exploration of the possibility of a political transition will then be presented. Finally, the paper will discuss policy solutions and other recommendations.

Theoretical Framework

This paper explores the changes taking place in Tucson's aquifers and in the larger Tucson community in the context of theory about transitions. This paper defines "transition" in the spirit that Drake has used, describing "a specific period of time which spans the shift from slow to rapid change in the sector and then usually a return again to relative stability" (Drake, 1993). Drake notes that not just one transition, but a "family of transitions" can be identified where great change is affecting the population-environment dynamic. That is to say, transitions in different sectors occur in relation to one another. This paper explores the family of transitions occurring in the hydrological, demographic and political sectors. The importance of examining families of transitions is revealed when one considers the limitations of "societal adaptive capacity," with the understanding that increased rates of change as well as multiple changes can make communities more vulnerable to those changes (Drake, 1993). The interaction of transitions and the scale of transitions have, Drake points out, further implications for how to describe change, and how to measure the impact of change on societies (Drake, 1993). This paper will seek to frame the water crisis in the Tucson region in these terms with the intent to identify interactions between transitions and the impact of this resonance between sectors in transition on the Tucson community.

Geography and Water Resources in the Tucson Region

Arizonans pull water from a variety of sources. Mountainous regions provide snow run off; monsoon seasons fill many of Arizona's dry "washes" or stream beds with a seasonal surge of water; the Colorado River, running through the Grand Canyon and south along Arizona's western border, provides water via the "Central Arizona Project" CAP. But the most significant source of water for Tucson, Arizona lies

underground in a vast system of rock, gravel, sand and water called "aquifers."

Hydrological Terms and Concepts

The term "groundwater" may be interchanged with "aquifer," although "aquifer" generally implies a large, *usable* source of groundwater. Water that percolates into the ground slowly works its way through gravel, sand, silt and clay layers (alluvial deposits), filling each pocket of space between ever denser layers of earth. Eventually, the water reaches layers of igneous and other rock known as "bedrock," which is mostly impervious to water, and thus serves as a lower limit to an aquifer. The "water table" is the level of water closest to the earth's surface, as defined by the top of the "saturation zone," or the zone in which water fills every pore in the vast layer of alluvial deposit.

[\[Click here for generalized picture of alluvial fill in aquifer\]](#)

[\[Click here for in further discussion of aquifers on WCCR's homepage\]](#)

Much of southern Arizona draws its water from aquifers in the "Basin and Range" aquifer system. The Basin and Range aquifer system, comprised of roughly 400 alluvial basins, extends from the southwest corner of New Mexico, across southern Arizona, through Nevada, Utah and eastern California, and touch southern Oregon and parts of Idaho (Groundwater Atlas, 1995). The structural environment of this aquifer system developed during the Quaternary and Tertiary periods, and is geologically "young" compared to the systems that make up some of the 5 aquifers that neighbor the Basin and Range system in the southwest United States. Aquifers made of Quaternary and Tertiary deposits, then, to be more permeable than those consisting of older, more consolidated fill. The alluvial deposits that house Southern Arizona's aquifers can reach from roughly under 400 feet to sometimes in excess of 10,000 feet beneath the earth's surface. (Cooley, 1973; Groundwater Atlas, 1995) Bedrock in the Basin and Range system is highly variegated, lying not only underneath alluvial deposits, but, in many places, surrounding aquifer systems. A map of water stored throughout the [Basin and Range Aquifer](#) appears mottled, like the hide of a cheetah.

[\[Click here for Basin and Range Aquifer in Pima County only\]](#)

Tucson's Groundwater Source

Tucson, Arizona draws all of its water from an aquifer system that lies underneath the city and is a part of a larger aquifer sub-system. Referred to as the Tucson Active Management Area (or Tucson AMA), this area looks like a little like a wishbone, running North to South through Pima County. The area is not coterminous with Pima County, however; people living outside the Tucson AMA pumping area draw from different but adjacent aquifers from the Basin and Range system. The implications for this disjunction between Pima County land use planners and Tucson Active Management Area water use planners will be discussed later. See **Figure A** below for a picture of the Tucson AMA. At the bottom of the picture, a small silhouette of the Tucson AMA is superimposed on Pima County and the other

counties of Arizona.

Dynamics of an Aquifer

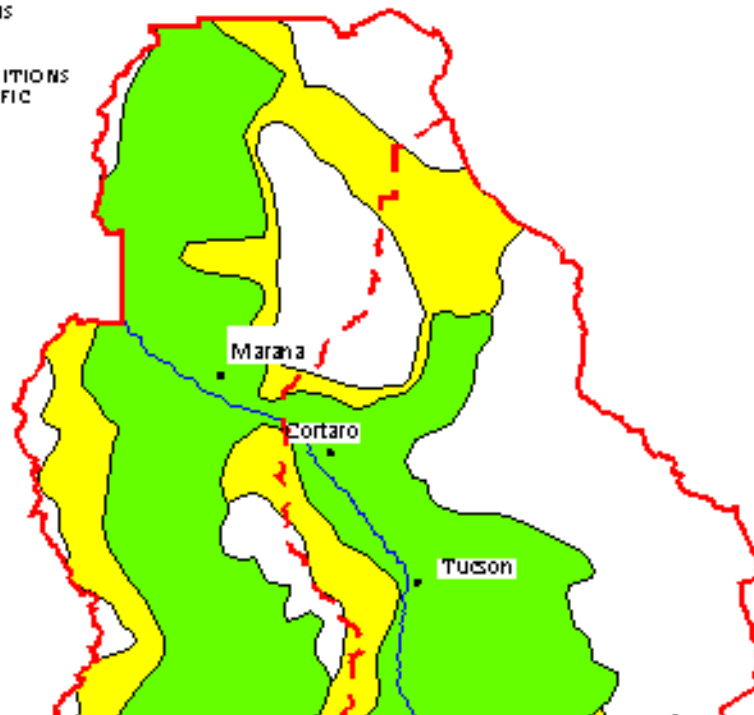
While an aquifer system is, in one respect, continuous, one cannot think of it as an enormous flat-bottomed vat from which water withdrawals are evenly distributed. Rather, some wells must be dug deeper than others to reach the alluvial deposits that contain water. Conversely, wells in one area of an aquifer may dry up at the same time that other wells are yielding increased amounts of water. Still, groundwater does slowly flow through the aquifer system, such that withdrawals and recharges in one region can eventually affect the amount and quality of water in another region (Groundwater Atlas, 1995).

"Recharge" is a term describing the process of replenishing aquifers with water, while "discharge" describes the ways in which water is extracted from the aquifer. Natural aquifer recharge occurs in streambeds (*streamflow infiltration*), at the seam between mountains and flat land (called *mountain-front recharge*), and also simply through the ground surface. As mentioned above, water can also move from basin to basin, although recharge from *inter-basin flow* is limited and very slow. Man-made systems can also recharge aquifers through *direct injection* well sites and through more *passive irrigation* systems.

Discharge occurs through *stream runoff*, *inter-basin outflow*, *evapotranspiration* (evaporation of water through plants) and, most significantly in southern Arizona, through man-made wells. Tucson (and much of Arizona) has operated for many years in a state of groundwater "overdraft", in which the rate of discharge outpaces recharge.

SOURCE: MODIFIED FROM USGS ANNUAL
SUMMARY OF GROUND-WATER CONDITIONS
IN ARIZONA SPRING 1984 TO SPRING 1985

NOTE MAP DEPICTS GENERALIZED CONDITIONS
AND SHOULD NOT BE USED FOR SITE SPECIFIC
HYDROLOGIC INTERPRETATIONS



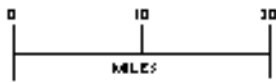
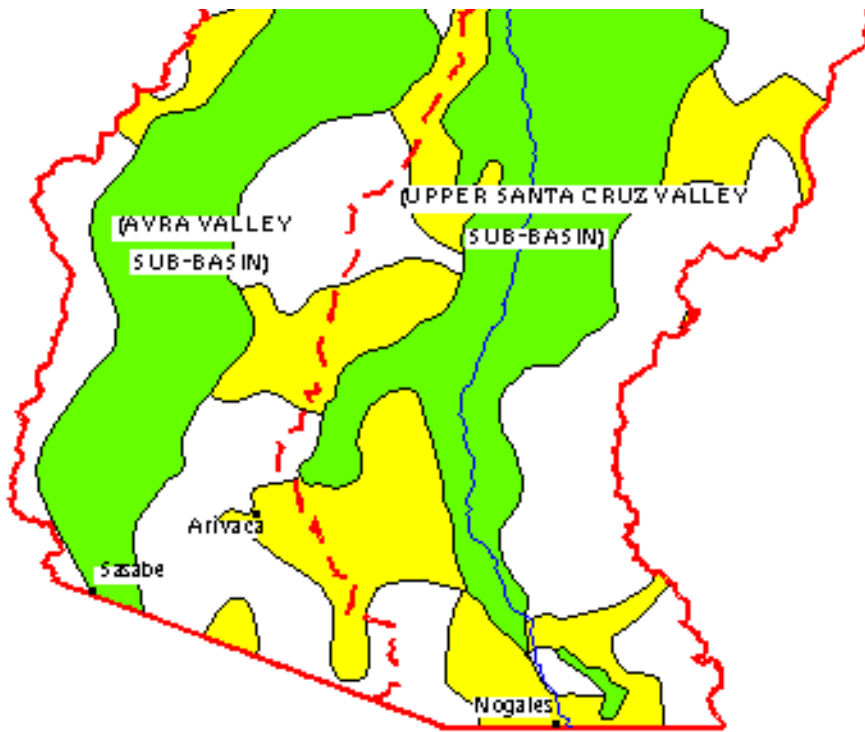
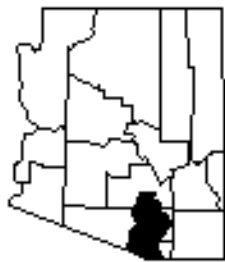


FIGURE 19

POTENTIAL WELL YIELD



TUCSON AMA

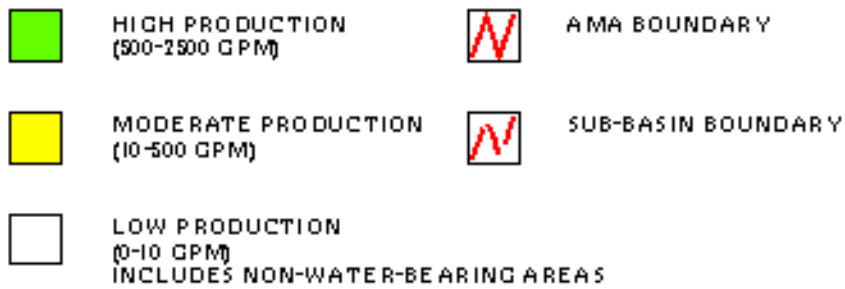


FIGURE A

Effects of Groundwater Decline

When the water-table drops in an aquifer, one can expect transitions to occur in the hydrology of the aquifer system, as well as in ecological systems that depend upon particular hydrological conditions. Transitions in both of these realms have resultant impacts on society's infrastructure and livelihood. Therefore, each of the effects listed below should be considered not only as individual impacts, but also as events that trigger further changes in a system.

Hydrological Transitions

The hydrological transitions that take place in an aquifer when water tables drop manifest invisibly within the underground structure of the aquifer itself and visibly at the land's surface. Reduced inter-basin and within-basin outflow and inflow occurs at a macro level. The system does not bring in as much new water from other basins and cannot provide as much to others, such that the network of the larger aquifer system is diminished. At a micro level, one discovers that smaller patterns of flow can alter when less water flows through the system (Groundwater Atlas, 1995). Imagine a wave gently cresting over one tide pool, over a small ridge of sand, and into a second tide pool. As the tide ebbs, the amount of water flowing into the first tide pool decreases, and there is suddenly not enough water or inertia to get the waves over the ridge into the second tide pool. This analogy help to visualize the micro directional flow patterns that can change in an aquifer as water levels decline.

Aquifer compaction, land subsidence and earth fissures, the visible hydrological and geological effects of declining water tables, serve as dramatic indicators of shifts occurring underground. Water in an aquifer supports the structure of the alluvial basin. As water within the pockets and crannies of the aquifer system is drawn out, the alluvial fill dries, and the weight of the land above the aquifer cannot be supported. The upper levels of the aquifer system crumble and compress, a phenomena known as *aquifer compaction*. The impact of compaction on the hydrology of an aquifer presents a negative geometric feedback loop because compaction causes permanent damage to the aquifer, reducing its overall storage capacity. Further, compaction inhibits recharge to the aquifer because surface water cannot as readily penetrate the condensed top layer of the compacted aquifer to deeper regions. The following chart shows compaction relative to water table decline at one well site (Groundwater Atlast, 1995). [[Chart of compaction at well site.](#)]

Compaction is evidenced above ground by *cones of depression*, *land subsidence* and *earth fissures*. As sediments of the aquifer dry up and compact, the land sinks. The most severe land subsidence in Arizona has resulted in a 15 foot decrease in elevation, while most highly developed areas experience between 1-5 feet of subsidence and most of remaining land in Arizona has subsided between 0 – 12 inches (Groundwater Atlas, 1995). Land subsidence leads to the appearance of fissures in the earth's surface, cracking open like the surface of a baked pumpkin pie. These small cracks can eventually open up to become gullies ten feet wide and deep. The picture below shows a gully cutting across an Arizona highway (Groundwater Atlas, 1995). [[Earth fissure in Eloy, AZ, 73KB](#)]

Ecological Transitions

Hydrological transitions can perpetrate a host of ecological transitions. The full array of ecological impacts caused by aquifer depletion can only be estimated, since each change in the ecological system can spur change in another system. Roberts lists reduced streamflow, drying streambeds, general vegetation die-off and resultant desertification as being direct results of declining water tables (Roberts, 1993). The water table directly influences stream flow, because saturation at stream bed elevation feeds water into the stream. As the saturation zone falls beneath stream bed elevation, this source of water no

longer flows into the stream. Indirectly, then, declining water tables impact riparian habitats that rely upon the water in stream beds. Water table declines also impact vegetation directly. As plants with shallower roots (e.g., grasses) can not access vital water supplies, they die-off, which results in regional desertification and erosion.

Impacts on Society

Hydrological transitions also result in costs to society. As water tables decline and the vertical pumping lift to draw up water increases, well pumps must increase exerted downward pressure to force the water in the aquifer up to the surface. This incurs higher costs for pumping, so ground water mining becomes more expensive as water tables drop. Additionally, land subsidence and earth fissures can damage building foundations, water delivery systems, well casings and sewage systems, which not only impose monetary costs but also threaten water quality and water supply itself.

Public health may also be threatened by the mere fact that depletion of the aquifer can impact water quality. As water levels decline, saline concentrations may increase and total dissolved solid (TDS) concentration and composition change at deeper levels of the aquifer. Chemicals and minerals not found at upper levels of the aquifer may appear in lower reaches and have negative ramifications for public health.

One cannot dismiss the costs of increased conflict between individuals, neighborhoods and regions on the private, corporate and government stage as costs for water, damage to water supply systems and degradation of water quality increases. The cost of the infrastructure loss and the arguments over these costs may weigh as heavily upon society as the scarcity of water itself.

Population Transitions in Tucson, Pima County and the Tucson AMA

Despite, or perhaps because of, the arid climate in the southwestern United States, this region sees sizable rates of growth every year relative to other areas in the country. Growth in these areas during the early 20th century was limited in part by accessible water supplies (or lack thereof). However, improved technology in the 40s and 50s allowed cities to more efficiently tap into the huge volumes of water stored in the aquifers of the southwest, which in turn drew more infrastructure, companies and people to the area (ADWR, 1998; Roberts, 1993). Most of Arizona has seen steady population increases since the 1950's. Maricopa County (home to Phoenix) rated second in the nation for population growth between 1980 and 1986, and third for national growth between from 1980 to 1992 (U.S. Bureau of the Census, 1988, 1994). Tucson has also seen high rates of growth, though its population base is significantly smaller than that of Phoenix.

The following graphs depict population growth in Pima County and Tucson. Historic data for population within the bounds of the Tucson AMA (Tucson metro area's water management district) are not available since this area was politically defined only in recent years. However, predictions for population growth within the Tucson AMA are provided. [[Click here for graph of population growth in](#)

[Pima County during the 20th century.](#)]

FIGURE B (bar graph) and FIGURE C (line graph) follow.

Tucson Metro Population Growth 1969 - 1996

from Regional Economic Information System based on U.S. Dept. of Commerce data

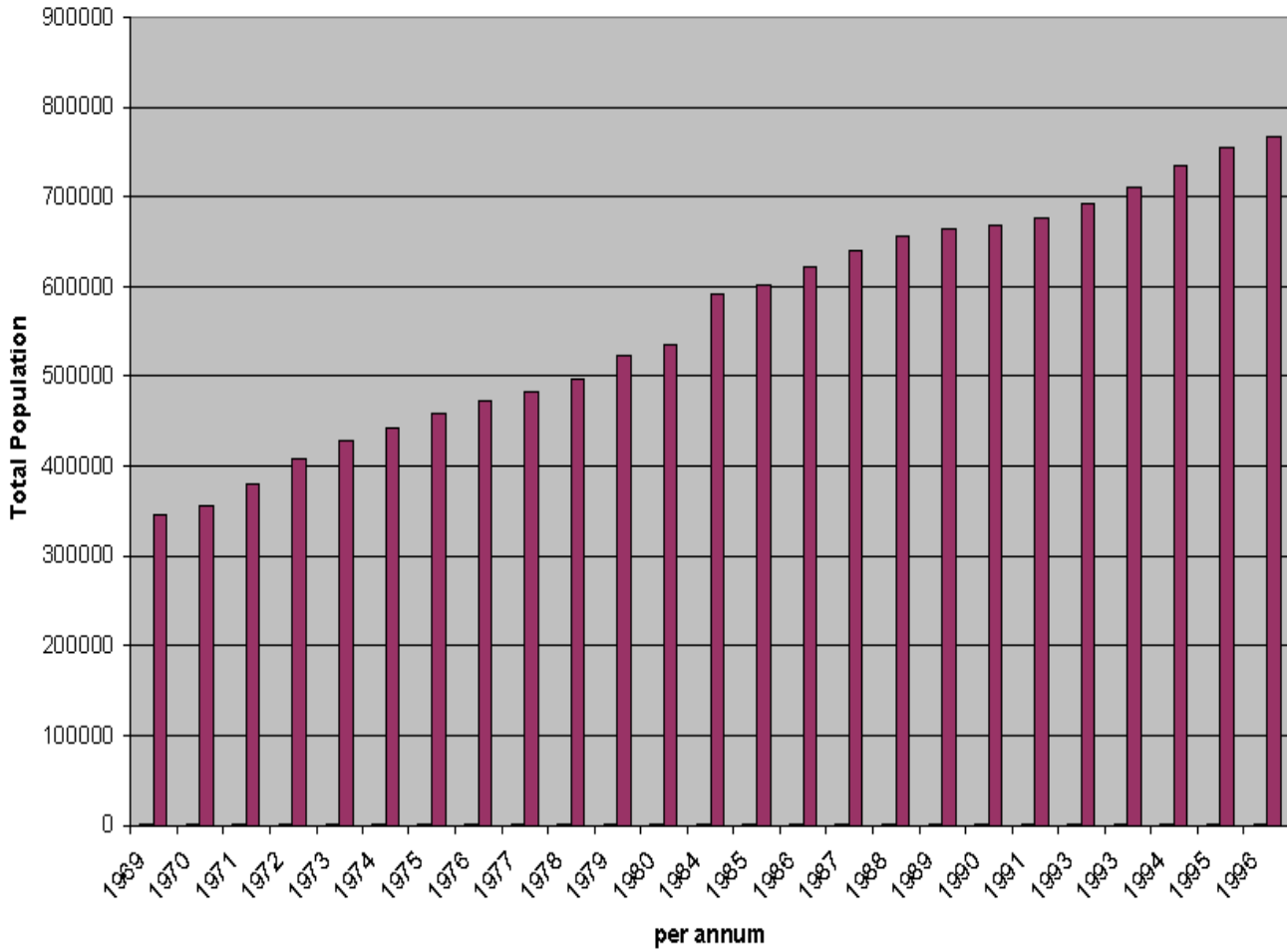


FIGURE B, above: Bar graph of Tucson Population Growth

Tucson AMA Projected Population to 2025

from ADWR Third Management Plan (1998)

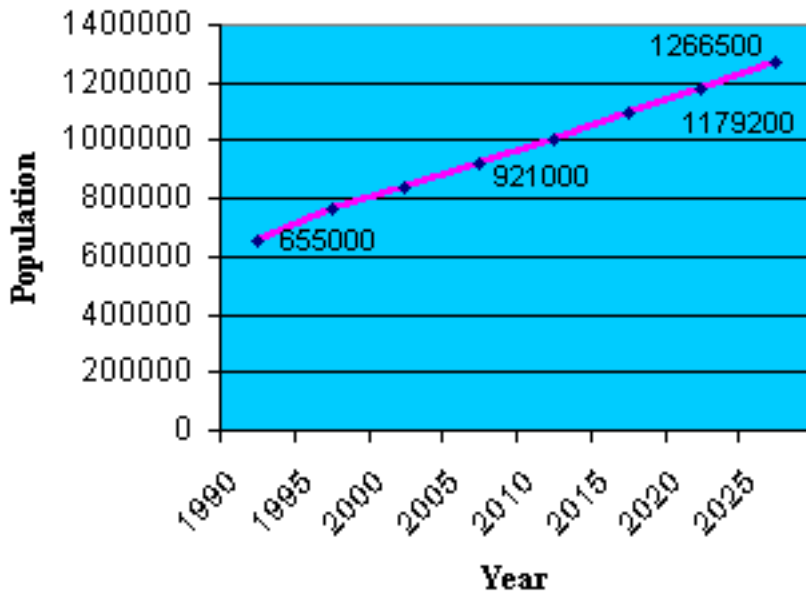


FIGURE C, line graph above: Population growth in the Tucson AMA

As one would expect, both birth rates and migration contribute to population growth in Tucson and the surrounding regions. Migration, however, has accounted for the majority of growth in the area, with a significant portion of migrants originating in other states. While the following data is not complete, it does show that the majority of growth in Pima County has traditionally be attributable to migration into the area.

TABLE 1

Pima County Population Growth

From the *U.S. County and City Data Book, 1967, 1973, 1977, 1988*

Change in Years	1950-60	1960-70	1970 - 75	1975-80	1980-86
Net Migration	57%	17.90%	19.90%		7.50%
Natural Increase	31.10%	14.50%	5.50%		5.90%
Total Population Increase	88%	32.40%	25.50%	19.70%	13.40%

Total	265660	351667	443958	531443	602400
Population					

One can only speculate as to why people choose to move to Tucson. Certainly, job opportunities and a growing economy also draw people to the area, although Tucson's economic vulnerability has also contributed to migration out of the area. Indeed, the lack of diversity in the economy has led to relatively high population turnover (Interview #3, 1998). Thus, while jobs have certainly attracted people to the area, Tucson's historically anemic economy leaves one desiring another explanation for in-migration.

A series of articles entitled "The Booming Northwest" (1994) in The Arizona Daily Star, one of the area's major newspapers, interviewed couples new to the area to gain insight into this question. A typical interview profiled older couples, many of them retirees, who chose to move to the area for the consistent sun, warm, dry weather, and the scenery. An analysis of the age structure of the population demonstrates consistent increase in the older population.

TABLE 2

Pima County Population Growth
From the U.S. County and City Data Book, 1973, 1977, 1988, 1994

	1970	1980	1984	1990
5 and under	8.1%	7.2%	7.4%	7.5%
5 - 17 y.o.	15.8%	19.7%	N/A	17.4%
over 17	65.9%	61.4%	N/A	61.3%
65 and over	10.2%	11.7%	12.7%	13.7%

Thus, lifestyle and aesthetics may figure prominently in peoples' decisions to move to the area, especially for older couples whose moving patterns are less likely to be determined by job opportunities. Additionally, southern Arizona has drawn a large number of southern Californians because Arizona's real estate is comparatively cheap (Interview #3).

The strength of the real estate and construction sectors of Tucson's economy provide good indicators of another facet of Tucson's population transition: housing development. Roberts mentions this associated trend in Phoenix's population transition as well (Roberts, 1993). Land that was formerly natural desert or irrigated agricultural crops is now giving way to suburbs and small incorporated towns. The real estate development and construction businesses have done much to determine the spatial distribution of the greater Tucson metropolitan area. Tucson's wide skies and vast desert views create a sense of space that characterizes property development patterns. The booming housing industry has been subjected to increasing permit fees and restrictions, however, in an effort to ensure that development is commensurate with water supply. Still, builders, contractors and developers are most beholden to City and County Planning Departments, agencies that are only minimally involved in the Tucson AMA water management program. As a result, these very agencies that have the most contact with the businesses that impact groundwater withdrawals (developers) seem to focus very little on incorporating

groundwater conservation plans, and much more on transportation and sewage infrastructure (Interview #1, 1998; Interview # 2, 1998; Tucson City Planning Department web site, 1998).

Groundwater Supply and Demand

Trends in Arizona State

Lack of accurate and widespread data makes calculations of aquifer water storage for large-scale regions very difficult. Nonetheless, experts report that the aquifer systems in the southern Arizona area used to hold an estimated 900,000,000 acre feet (AF) of groundwater prior to development of wide-scale withdrawal systems (1 acre foot = 325,851 gallons). Wells accounted for about 184,000,000 AF of uptake between 1915 and 1980 (Groundwater Atlas, 1995). The 1940's and 50's saw a surge in groundwater withdrawal due to better pumping technology, cheaper sources of electricity and production pressures from World War II. These growth rates correlate with growth in Arizona's population (Roberts, 1993). Total withdrawal apexed in the 1970's. As a whole, the State of Arizona has seen an overall decline in the use of groundwater since the 1980's, which has been largely attributable to agricultural innovations and changes in crop type. However, growing numbers of people in Arizona's cities have led to an increase in groundwater use in some urbanized areas (Groundwater Atlas, 1995).

The above brief history of groundwater withdrawals during the 20th century brings to light the importance of various factors in the groundwater withdrawal equation, and the dynamic nature of these factors. Firstly, while not surprising, one must acknowledge the serious impact, both positive and negative, that technology has on groundwater use and supply, both directly (better pumping technologies led to higher rates of withdrawal) and indirectly (improved farm irrigation systems allowed farmers to withdraw less.) Secondly, world events lead to changes in production and overall changes in the economy that impact water use, and therefore groundwater withdrawal. Moreover, national policy directives that provide incentives for farmers (or other sectors of the economy) to grow one crop over another (or in some other way change production processes) also impact rates groundwater use. Finally, population increases and decreases impact water supplies.

While it is tempting to believe that the last variable (population) has the most straightforward relationship to groundwater use (it is easy to imagine the relationship as being linear), such an assumption would be fallible. Indeed, recent studies have tested conventional assumptions that water use increases with population and economic growth. But recent longitudinal research by the U. S. Geological Survey showed a drop of 9% in water use across the United States between 1980 and 1995, while population grew by 16%. As reported in the New York Times, the lead author of the report, Wayne B. Solley, stated, "We feel pretty confident in saying that [water use has] stabilized over the last 15 to 20 years." The article indicates that much of the decline can be attributed to increased efficiency in the agricultural and industrial sector, however. In fact, withdrawals in the public sector (public water drawn up by suppliers and distributed to users) showed an increase of 18% from 1980 – 95 (Stevens, 1998).

Assuming that *some kind* of relationship exists between population and water use, one must be concerned about two factors. The most obvious is that of population numbers: in Arizona, the number of people in a given area has an impact of some kind on groundwater supplies when maximum efficiency of use has been reached and no gains can be made by reducing consumption in agricultural or industrial sectors. Less obvious is the importance of the spatial distribution of those people. Even though Arizona State's overall rates of groundwater withdrawal went down after 1980, the increasing number of people in urbanized areas could put greater pressure on the aquifer systems in those specific areas. Because aquifers belong to a continuous system, however, the effects of increased depletion in a specific local area can still have wide ranging effects that could impact aquifer systems outside the urbanized areas. Finally, a growing population and a migrating population affect politics, and politics, ultimately, affect resource management. One should be mindful of all of these dynamics when reviewing the specific case of water supply and demand in Tucson, Arizona.

Tucson AMA Water Supply

Sources of water for the Tucson Active Management Area (AMA) water district include groundwater, secondary effluent and reclaimed water, and water from the Central Arizona Project (CAP). The whole of the Tucson AMA relies almost solely upon groundwater withdrawals issued from either private wells or water supply providers that pump from the aquifer throughout the region. According to the Arizona Department of Water Resources (1998), groundwater use in 1995 totaled approximately 307,000 AF.

Effluent water has been used for watering golf courses and other "turf-related" demands, although many water districts do not have reclamation systems in place to make use of effluent. In 1995, about 15% of treated wastewater was distributed for use, amounting to about 9,300 AF. Projects to increase utilization of effluent have not met with swift success, and at present it does not appear that the region's goal to supply 18,800 AF effluent water by 2010 will be reached (ADWR, 1998).

Water from CAP constitutes a potentially significant supplement to groundwater supplies, although for reasons that will be discussed later, CAP water is presently underutilized in the Tucson AMA. The Central Arizona Project channels water from the Colorado River in a canal that runs from the western edge of the state, through central Arizona, Phoenix and Tucson. CAP facilities are designed to deliver water directly to water providers and save unused water in underground storage tanks for later use. CAP water could potentially supply roughly 160,000 AF to the Tucson AMA, although nowhere near this amount is presently used, and providers have only recently begun storing CAP water in the underground storage facilities mentioned above. Although as many as 46,000 AF of CAP water was delivered to users in 1993, use of this source has fallen off dramatically since 1995 for reasons that will be discussed later (ADWR, 1998).

Tucson AMA Water Demand

The Arizona Department of Water Resources measures water demand in three sectors: agriculture users, industrial users and municipal users. A description of these sectors and their use characteristics follows

in **Table 3**, a chart of total water use in each sector since 1985.

TABLE 3

Sector	1985		1990		1995	
	Total Use (Acre-feet)	% of AMA	Total Use (Acre-feet)	% of AMA	Total Use (Acre-feet)	% of AMA
Agricultural	114,450	40	93,801	34	97,180	31
Municipal	115,735	40	129,444	48	154,894	50
Industrial	55,744	20	48,743	18	60,204	19
TOTAL	285,929	100	271,988	100	312,278	100

From the Arizona Department of Water Resources Third Management Plan, 1998.

The agricultural sector described by ADWR includes farms with two or more acres of irrigated cropland, most of which produces cotton. Total irrigated cropland amounts to roughly 35,000 acres, with stringent restrictions deterring the addition of any more irrigated acreage. The total annual amount of groundwater allotted to all irrigated cropland is 153,258 acre-feet, although not all farms use the whole of their allowance. The allotment was determined as part of a "grandfather clause" in the Groundwater Code passed in 1980. Irrigation systems are typically flood irrigated, with some farms using modified systems to maximize efficiency. According to ADWR, demand for water by the agricultural sector seems to be generally decreasing, though figures for per annum demand vary greatly from year to year, which may be the result of national markets for crops (ADWR, 1998).

Industrial water users include power plants, cooling facilities, sand and gravel facilities, turf-related facilities, dairy operations, and metal mining facilities, all of which use groundwater through industry owned wells. The mining facilities figure most prominently among these users, accounting for nearly 70% of water use by the industrial sector. Turf-related facilities, consisting of golf courses, school yards and cemetery lawns rank second on the list of industrial users. The Groundwater Code of 1980 also grandfathered in members of the Industrial Sector who were active at the time the legislation was passed. This assures the industrial sector a guaranteed allotment of 192,263 acre-feet per year, although the actual use per year has not yet met the allotment. According to the ADWR, the industrial sectors rights to groundwater provide little motivation for user to turn to renewable water supplies. At present, access to renewable supplies is limited and use of these supplies is more costly, contributing to the sector's reluctance to transition to renewable water sources. ADWR authors observe that population and

economic growth, among other variables, has and will continue to contribute to increased water demand by the industrial sector, since growth in population and the economy results in new schools, new shopping malls, more golf courses and other development associated with expanding neighborhoods.

The largest water user in the Tucson AMA is the municipal sector, which includes private and public water companies that sell water for all non-irrigation uses. All of the 151 water providers in the region are regulated by a government program, although many are privately owned. Most residents get water from these water providers, although some own private wells.

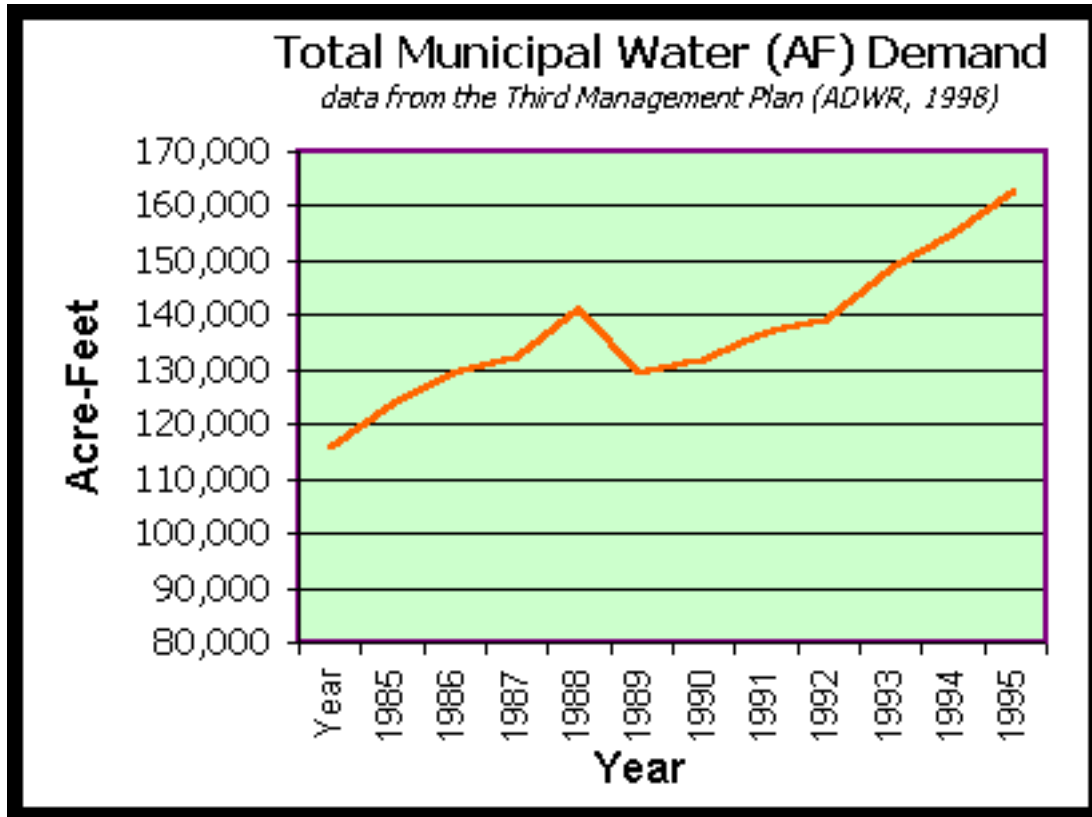


FIGURE B: Total Municipal Demand

Water Demand Increase per Region

data from Arizona Department of Water Resources web site

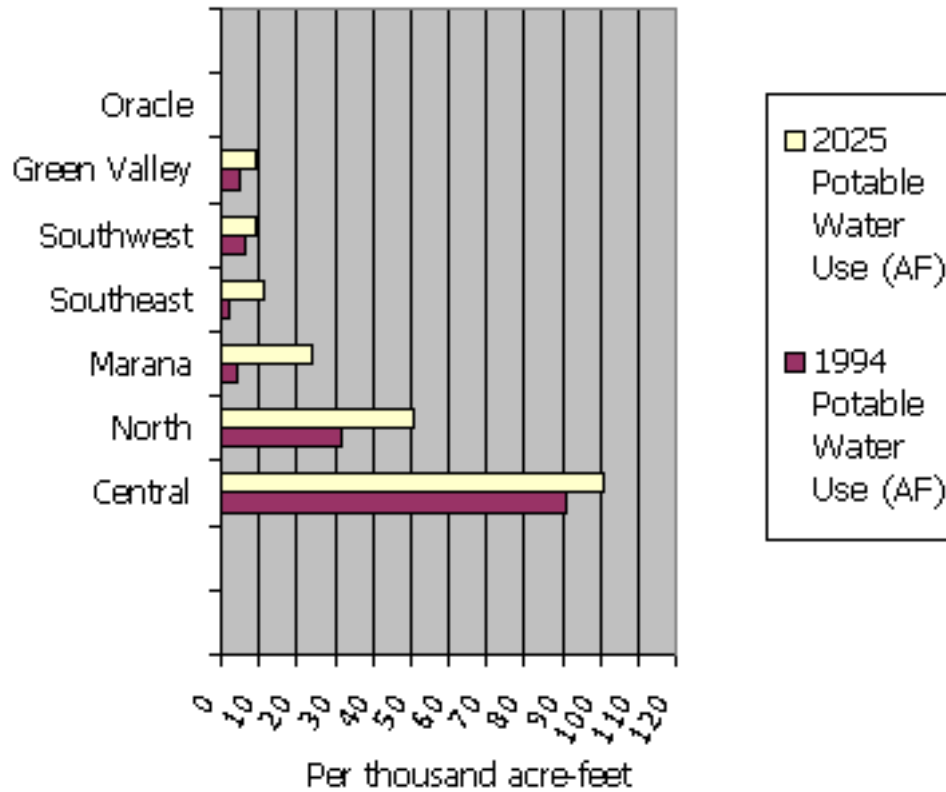


FIGURE C: Water Demand by Region in the Tucson AMA

NOTE: 2025 projections assume providers meet year 2000 GPCD targets and new growth meets SMP new development model rate of 121 GPCD.

For more tables with water use statistics, visit the Arizona Department of Water Resources web page at:

<http://www.adwr.state.az.us/AZWaterInfo/InsideAMAs/amatumcson.html>

Because each water provider serves a different population size and a different mix of user types (for example, business, residential, or institutional facilities for schools, prisons and the military), two different measures of use-rate determine relative consumption per provider. Analysts measure total volume sold by each provider and average gallons per capita per day (GPCD) for the users served by each provider. Although total volume demand may increase, GPCD may drop or remain stable, reflecting increased efficiency in the system. For example, increased use of reclaimed effluent among non-residential users can bring down GPCD numbers. Among residential users, per capita usage varies

with water pricing rates, household income, lifestyle, landscaping, age of housing units and the number of persons per household (ADWR, 1998).

Figures B and C show water demand by volume for the Tucson AMA and by region, and **Table 4 and Figure D** show use per capita in different service regions. **Figure C** represents the projected increase in water demand for each of the Tucson metro regions and surrounding incorporated areas in the Tucson AMA. "Central" includes the oldest and densest area in the AMA, while "Marana", and "Southeast" have traditionally been less developed regions. However, these smaller areas are experiencing a great deal of growth in recent years, and expectations are that population and water demand in these areas will continue to grow rapidly. The chart shows an increase in water demand of 452% for Marana by the year 2025, a 440% increase for the Southeast, and an 89% increase for Green Valley, while the Central area expects to increase its demands by only 10%. Compared to 1994's total municipal water demand of 139,954 AF, a total increase of 47% to 205,211 AF is expected by 2025. In 1985, groundwater comprised 97% or 112,655 acre-feet of water sold by providers, and in 1995 groundwater comprised 95% or 147,080 of use. The Tucson Water Company is the major service provider in the Central region, and is the largest service provider in the Tucson AMA, and, volumetrically, uses the most groundwater. However, it's GDPC is lower than that of most other providers, in part because of the type of users it services, and in part because it is the only provider with a reclaimed water distribution system (ADWR, 1998).

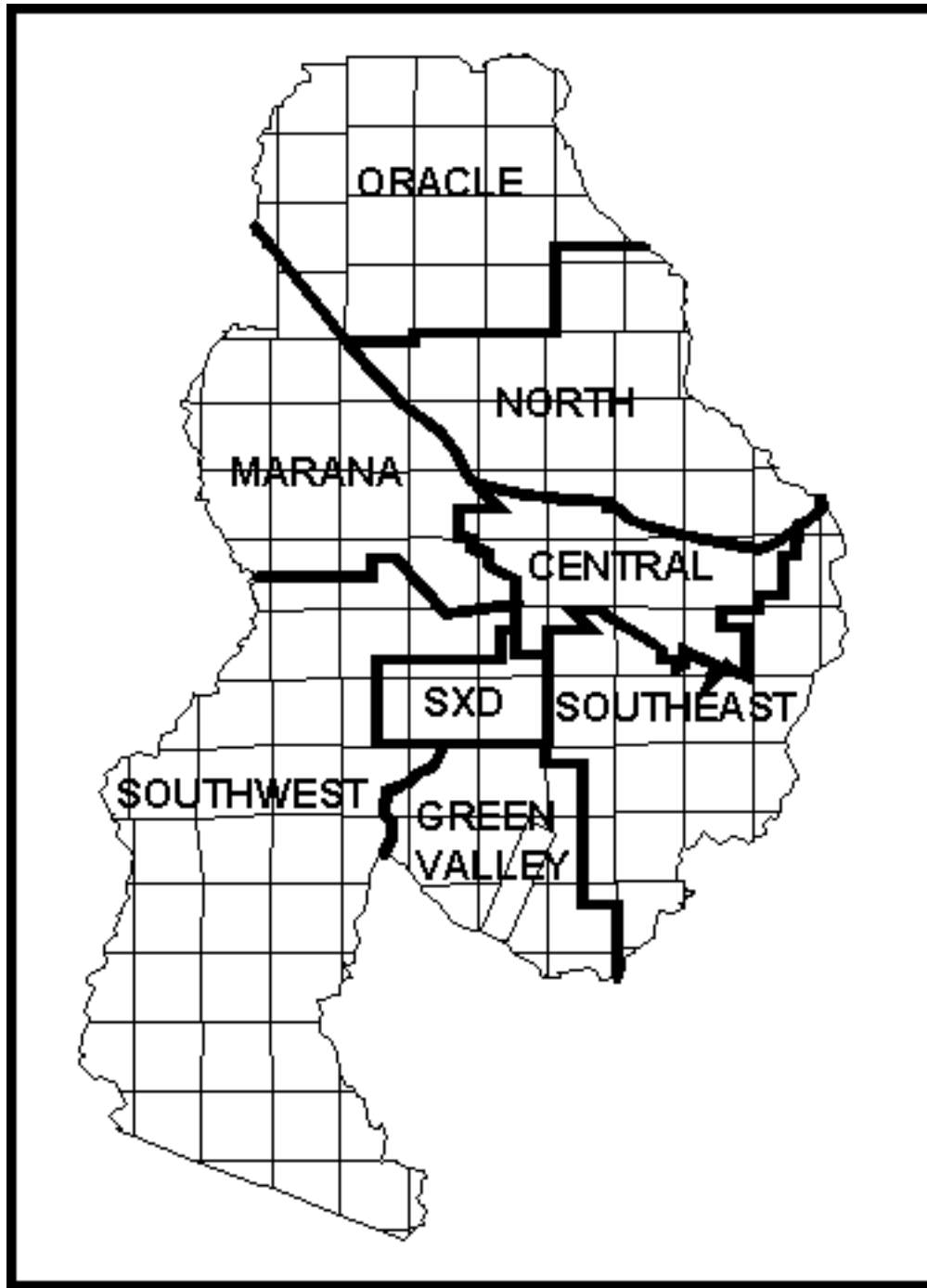


FIGURE D: Regions in the Tucson AMA

Table 4: Use per capita by region

Area	1994 Potable Total GPCD	1994 Res. GPCD	1994 Non-Res. GPCD

Central	164	111	40
North	220	146	63
Marana	151	129	3
Southeast	193	146	2
Southwest	146	137	0
Green Valley	221	117	95
Oracle	89	64	9
Average	174	120	42

In sum, water use patterns in the Tucson AMA continue to strain the capacity of the aquifers underlying this region. Eventual aquifer depletion can be the only result if these patterns continue. 1995 estimations of all groundwater use in the Tucson AMA showed an increase of 41,700 AF since 1990, for a total groundwater withdrawal of 307,000 per year. Given an assumed total recharge rate (natural and incidental recharge) of 143,100 AF in 1995, ADWR calculated that "overdraft" of the water budget amounted to 163,900 AF that year. The agricultural, industrial and municipal sectors must somehow all find room in their water use patterns for reducing demands upon groundwater supplies.

Of the Tucson AMA's agricultural, industrial and municipal sectors, the municipal sector is presently undergoing the greatest transition and will have the greatest impact on future water supply and demand. In many respects, the municipal sector is also the least predictable factor in the water budget. Because the total amount of agricultural irrigated land in the Tucson AMA is in decline since acquisition of land for irrigated farming is now tightly restricted, the agricultural sector's contribution to water demand holds no surprises. And while mining and other industries demonstrate variable use patterns, their projected level of use is easier to predict because they have grandfathered rights to groundwater use and they pump through their own wells rather than being subject to service provider price fluctuations and infrastructure developments. Thus, planners can assume that grandfathered industry will continue to use groundwater to supply nearly all its water needs. The municipal sector, on the other hand, is experiencing increased usership as well as increases in infrastructure and changes in infrastructure distribution, largely due to residential and commercial development in formerly sparsely populated or agrarian regions. The municipal sector will assuredly impact the future water budget greatly, but the nature of this impact is difficult to characterize. It will depend upon the type and strength of regulations stipulated by water management organizations like ADWR; it will depend upon water providers' decisions to incorporate CAP water and/or reclamation systems; and it will depend upon water users themselves.

Water Management

Historic Legislation

By 1980, the conditions perpetuating severe groundwater withdrawal overdraft throughout Arizona were widely recognized, and legislation that would attempt to rectify this situation was passed. This legislation, the 1980 Groundwater Code, stipulated long-term management and conservation of Arizona's groundwater supplies. Some of these regulations effected immediate change in policies that had historically enabled unfettered development of groundwater resources. One significant measure prohibited further development of irrigated farmland, since farmland irrigation depends upon large water resources. Another measure required that any new subdivision development had to be accompanied by proof of 100 years reliable supply of water (now called Assured Water Supply or AWS). The Groundwater Code also called for strict monitoring and reporting of groundwater withdrawals, which had not previously been performed with consistency and accuracy. Additionally, the Groundwater Code created a management plan, strategies, and goals, and established the Arizona Department of Water Resources (ADWR) as the central organization to carry out these goals.

Arizona Department of Water Resources: Policies and Plans

The Arizona Department of Water Resources (ADWR) "administers state laws, explores methods of augmenting water supplies to meet future demands, and works to develop public policies that promote efficient use and equitable allocation of available water supplies" (ADWR, 1998). This governing body has focussed its activities in five "Active Management Areas" (AMAs), of which the Tucson AMA is one. The primary goal of the Tucson AMA is to achieve "safe-yield" by the year 2025. A safe-yield goal requires that groundwater withdrawals match aquifer recharge, such that the AMA will no longer be operating in overdraft and groundwater supplies will stabilize. To attain this goal, ADWR has outlined five management periods. These periods provide a structure for the review of policies and progress towards the safe-yield goal every 8-10 years. Most of the information regarding water supply and demand in the Tucson AMA comes from the recently drafted Third Management Plan (ADWR, 1998).

Unfortunately, ADWR's attempts to reach the incremental goals that will enable safe-yield by 2025 have not gone according to plan. Some of the proposed strategies for reducing groundwater consumption will be put forth here with a discussion of how these plans have gone awry.

ADWR water management focuses on augmenting water supplies with renewable sources, and conserving and restricting use of non-renewable sources. As has been described earlier, agricultural and industrial users' rights to large annual allotments of groundwater were grandfathered into the 1980 Groundwater Code, which means that as long as these users do not consume over their allotments, ADWR cannot enforce adherence to any conservation programs. However, ADWR has tried to encourage greater use of renewable supplies in these sectors.

ADWR efforts to reduce groundwater withdrawal by the municipal sector revolve around helping providers and users reduce per capita water consumption (GDPC), employ conservation practices and maximize effluent and remediated water use. Reducing per capita water consumption must occur at the

point of the water service provider. As mentioned earlier, per capita use can vary greatly depending on the make-up of the water provider's service region and the demographics of residential users. Water providers servicing regions with old homes versus new homes, large families versus small families, and low versus high incomes would face different challenges when trying to reduce GDPC. Additionally, the age of the water distribution infrastructure relates to its efficiency and also impacts GDPC rates. Finally, large providers are able to create more efficiency in their systems than smaller providers. For all of these reasons, ADWR has found that setting a flat GDPC rate target is an ineffective goal for water providers (ADWR, 1998). As a result, ADWR has spent energy revamping those standards, rather than forcing water providers to all meet the same GDPC goal. While reconfiguring these regulations makes sense, it has also resulted in fewer gains made in reducing GDPC than originally thought possible.

The 1980 Groundwater Code specified that land developers must prove that land to be developed has an Assured Water Supply (AWS) for at least 100 years. If guaranteed supplies cannot be demonstrated, the land cannot be developed. The problem, however, is that if the developer can show that water is being replenished somewhere in the aquifer, whether or not in the immediate vicinity of the land to be developed, the permit can still be obtained. This, too, has resulted in fewer conservation gains than expected.

Remediation and effluent water have also been underutilized. Again, this is largely due to a lack of infrastructure to purify and distribute these renewable water sources. As long as groundwater remains inexpensive and economic incentives for using renewable resources remains low, these sources will probably continue to be underutilized and a significant component of ADWR's safe-yield program will not be achieved.

Central Arizona Project: An Untapped Solution?

In 1963 the Supreme Court ruled, in an historic case between the Arizona and California, to allot Arizona 2.8 million acre-feet of Colorado River to Arizona. The problem then facing Arizona was that of distributing the river's water, which runs through the northwestern corner of the state, and then south along its western border. After a period of design, planning, and great debate, the Bureau of Reclamation began building the Central Arizona Project delivery system. Funded through Federal loans, the project constructed concrete lined canals, siphon tunnels, pumping plants and pipelines, a system which now stretches from the Colorado River at Lake Havasu, to the center of Arizona through Phoenix, and south to Tucson where the project terminates. The canal winds through 336 miles of desert with storage facilities and distribution infrastructure points placed intermittently along its banks (Bureau of Reclamation, "CAP" poster, c. 1980's).

[\[Click here for an superb aerial view of CAP \(18KB\)\]](#)

[\[Click here for a picture of CAP, close-up, 14KB\]](#)

[\[Click here for one more close-up of CAP, 13KB\]](#)



FIGURE E: Map of the CAP Project from CAP web site.

From its incipience, CAP has instigated controversy. While the details of the ire raised by CAP will not be discussed here, one can immediately recognize both the water rights issues as well as the ecological and hydrological issues that CAP has stirred up. For example, the system is designed to provide water specifically to the densely populated areas of the state, although it traverses land connected to less populated communities. At the same time, the eco-geological divide that the canal presents to flora and fauna is problematic, despite the "wildlife crossings" that have been built at intervals across the canal. Also, the system's design raises questions about the impact of evaporation off the canal as water travels its 336-mile expanse under the desert sun.

Nonetheless, CAP is viewed by ADWR and other water resource organizations throughout the state as a necessary component of a water management program. This assumption seems reasonable if one considers the significant reductions the Phoenix AMA has made in its groundwater uptake after heavily

implementing CAP water distribution (Roberts, 1993). Moreover, the basic CAP distribution centers have already been built in the Tucson AMA, so CAP water is already flowing to the area. Why, then, isn't the Tucson area using this significant source of renewable water?

In the 1980's, the Tucson water providers and water resource managers were slow to develop additional infrastructure to deliver CAP water to users, in large part because they had little economic incentive to do so. By the early 1990's, however, this infrastructure was built, and by 1995 the Tucson Water Company (TWC) finally brought CAP water on line to a large portion of its service area. Unfortunately, TWC made some critical errors that erupted in public outrage and changed the course of Tucson's water policy. The delivery system for CAP water had not been sufficiently piloted before a large portion of the community received CAP water. When faulty, decaying pipes sent a constant stream of rusty, muddy, smelly water flowing through residents' faucets, the community blamed it on CAP water quality problems. According to one source at a water conservation organization in Tucson, a "few" politicians and business leaders, "for reasons of their own", used this event and the community's temporary alarm to galvanize public sentiment against CAP water for the long term (Interview #1, 1998). The overwhelming majority of citizens voted in Proposition 200, the "Water Consumer Protection Act of 1995" later that year, prohibiting the use of CAP water until it could match the water quality standards of groundwater.

While the Tucson Water Company and ADWR have assured citizens that the distribution network can be fixed and that CAP water is treated to exceed national standards for potable water, it is impossible, even with osmosis treatment, to match the purity of aquifer water. As a result, the Tucson AMA municipality is locked into using groundwater for potable use until at least the year 2000. Meanwhile, CAP water continues to accumulate in storage facilities or discharge into riverbeds. Nominal amounts of CAP water is utilized by non-residential users, and experimental recharge projects have injected up to 33,300 AF annually into the aquifer underlying Tucson, but most of the 138,920 AF of Tucson's CAP water presently goes unused (ADWR, 1998).

Lessons from the CAP Controversy

The CAP water controversy in the Tucson AMA offers a fascinating study of human dynamics with respect to water issues. One surprising dynamic was that the politics of this debate split along unusual lines, as citizens standing in defense of "water quality" conservation argued against entities advocating "water supply" conservation. Regardless of which side's claims were more legitimate, the debate provides a clear example of the choice communities all over the nation may have to face with increasing frequency: Should communities sacrifice water supply to preserve water purity, or sacrifice purity to ensure supply? A study of other U.S. communities that would investigate the emergence of this particular divide within political and institutional organizations would be interesting, and possibly useful for future policy makers.

Moreover, the highly politicized nature of the CAP controversy in the Tucson AMA demonstrates the increasing potential for emotional public debate over water issues. This volatile atmosphere can result in

swift and radical policy changes that can determine the future course of water management in communities, as it did in Tucson.

Political Transitions

This author speculates that along with hydrological and ecological transitions, increasing water scarcity may be connected with a third transition. Beyond instigating policy changes and political debates, water scarcity could bring about a political transition. One might identify this transition by measuring increases in citizen issue recognition, increasing momentum behind social mobilization (e.g., people joining advocacy groups), and increasing numbers of advocacy groups mobilizing around water issues. To some extent, this has been apparent in the Tucson AMA. Increasing numbers of articles have appeared in the media about water issues, and greater numbers of citizens and business seem to be forming new water advocacy groups or joining existing coalitions. For example, the Tucson Regional Water Council has been gaining support from business leaders and citizens as it tries to create a venue for discussion of water issues in the Tucson community. For more information about TRWC's activities and a fascinating review of Tucson's water issues, visit their web site. <http://www.azstarnet.com/~twrc/>

If one characteristic of a transition is increased vulnerability of the community undergoing transition (Drake, 1993), the CAP water history may serve, this author argues, as an example and harbinger of a political transition. As communities have to make increasingly difficult choices about water management, those choices may be marked by heightened tension between stakeholders. This heightened tension may lead to increased politicization of the water issue under debate and therefore increased polarization of stakeholders. One may find that increased politicization of the issue and polarization of stakeholders leads to simplification or reduction of the issue at hand, which inevitably leads to less rational decision-making. As water quality and water supply becomes more jeopardized, communities need to make increasingly rational (if difficult and sometimes radical) decisions about their water resources. If, instead, the political climate surrounding water issues is volatile, communities may be more at risk of making irrational decisions that will increase the vulnerability of both the water resource and the community. In the case of the Tucson AMA, high rates of population in-migration introduces yet another factor into this equation, all though the specific ways in which in-migrators might interact with and affect the heightened political debate around water issues is hard to predict. Therefore, this author believes that there is a resonance between population transitions, hydrological and ecological transitions and political transitions, and that they ways in which these transitions interact ultimately affects future water resources.

Policy Recommendations

ADWR's Third Management Plan aims to continue its program towards conservation (reduction at the level of GDPC) and integration of renewable sources of water into public use. The plan specifies that, ultimately, the Tucson AMA will have to incorporate CAP water into its water management practice. Still, even if CAP water comes to figure prominently in Tucson's water resources, CAP water resources are not infinite. Water management experts predict that CAP water levels will begin to decline in the

early half of the 21st century (ADWR, 1998; Roberts, 1993). Therefore, the Tucson community needs to find completely different means of ensuring water supply for the long-term future.

This author argues that population limits must be determined. While untapped efficiencies in water management remain, and it is still true that population can grow without increasing overall demand, once those communities are operating under maximum efficiency, groundwater withdrawals will continue to escalate as the population grows. Still, other factors may make Tucson's water situation untenable even before population would be the dominant factor in this equation. At present, Tucson needs to focus on increasing efficiency. This includes, as ADWR advocates, developing infrastructure and policies that will greatly increase the use of effluent and reclaimed water, as well as CAP water. Additionally, citizens need to be educated to make further reductions in their use of water. Indeed, industrial level reclamation technology could be applied on a small scale to be used in homes. This author envisions mini-effluent catchment machines, stored in the home, that would cycle used water through a cleaning process and then re-deliver it to a water tank. Thus, homes would have two water tanks: one that stores potable hot water, and one that stores cleaned, reclaimed water. Ultimately, however, the only incentive for consumers to make radical changes would be economic. The closer Tucson comes to depleting its aquifer resources, the higher the cost of water will become. Harding calls this scramble for the last of resources "the tragedy of the commons." Tucsonans can wait for the free-market to determine the cost of water, at which point declines in aquifer levels may not be recoverable, or they can self-impose strict price structures now, before the water is gone.

Conclusion

Tucson and its surrounding region has seen a great deal of growth in its population, residential expansion and groundwater development during the 20th century. The latter decades of this century have brought evidence of hydrological and ecological transitions to this area as a result of the huge demand placed on the region's aquifer system. The government and the citizenry of the Tucson AMA have come to recognize that their present water budget overdraft is unsustainable. Policies and innovations to bring the Tucson AMA into a state of safe-yield have had some impact, but goals to balance the water budget by 2025 seem increasingly difficult to achieve. Because consumers lack economic incentives to break with groundwater mining practices, and because political conditions have made alternatives to groundwater more difficult to implement, policy makers are having difficulty making significant headway towards the safe-yield goal. This author observes that the Tucson AMA will only achieve safe-yield through drastic but rational change at the policy level, the water provider service level, and the consumer level. This would entail stricter water management policy, more coordinated regional planning to curtail population growth, large and home-scale reclamation water system development, sharp increases in pricing structures, and radical behavior changes among consumers.

This paper has also explored the possibility that political transitions occur where scarcity of resources like water are felt more acutely by communities. These political transitions, characterized by an increasingly volatile politicized atmosphere, increasingly polarized stakeholders, and increasingly reductionist and irrational solutions to complex resource management problems puts communities at

even further risk for future resource problems. Future explorations of the politicization of water issues, as well as an examination of a political transition with respect to environmental issues are recommended.

Other helpful web sites:

<http://www.acwanet.com/waterlinks/index1.html#anchor1480933> helpful water links-general

<http://www.azstarnet.com/~trwc/> Tucson Regional Water Council

<http://www.ag.arizona.edu/AZWATER/> Water Resources Research Center

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Interview #1: Marnie Boardman interviewed a member of a local coalition for Tucson's water interests in November, 1998. (source does not wish to be named for politically sensitive reasons.)

Interview #2: Marnie Boardman interviewed a water management professional with Arizona Water Resources Department in November, 1998. (source does not wish to be named for political reasons.)

Interview #3: Marnie Boardman interviewed a demographer at the University of Arizona in November, 1998. (source did not wish to be named.)

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CHAPTER 2
Two Birds with One Loan:
The Grameen Bank's Impact on Population Growth in Bangladesh
by
Lewis Garvin

[Abstract/Introduction](#)

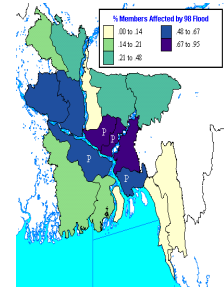
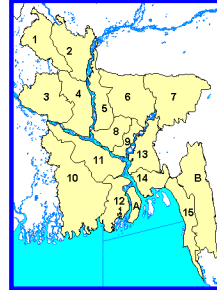
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6. [Conclusions](#)

[Relationships with Other Projects](#)

[References](#) (includes Internet links)

Other Information

[Bangladesh Zone Maps](#) [1998 Flood Impact](#)



[Source Data Spreadsheet](#)

CHAPTER 3
Urbanization Transition in Turkey: Towards Globalization
by
Zeynep Asligul Gocmen

1. Introduction

Having land in Europe, the government of Turkey has been longing for joining the European Union since 1963 when it was accepted as an associate candidate. Now, in 1998 Turkey is still not a member, indeed it has been degraded to be considered in a special category, as the 12th applicant country.

The intention of this paper is not to suggest why Turkey is not being considered for full membership or what it should do to be considered for full membership. It will examine the urbanization transition in Turkey and will suggest the future for Turkish cities with the implications of joining the European Union.

In order to be able to make such a suggestion on implications, examining the urbanization transitions not only in Turkey but among the member countries is necessary as well. In addition, the factors shaping such an urban pattern are examined. Given the broadness and the intricacy of the topic, it is suggested that further investigation is needed.

1.A. Basic Issues in Turkey's Joining European Union

As was mentioned earlier, Turkey is not a full member of the European Union. The main issues sited in this fact are the conflicts with another member state (Greece), not having a full-functioning democracy, and violation of human rights. These issues are basically political.

However, there are other issues not as frequently sited or sited at all. These are mainly in the social and economic arenas. Turkey is a less developed country compared to the current members, displaying various characteristics of developing countries such as high population and urbanization rates, unstable economy with a low gross national product and gross domestic product per capita. Some member states do not want to disturb the balance of the Union by allowing in a less developed country which could cause high migration rates among the members and less stability among the current ones (Yalev 1998).

The facts on the Turkish economy and demography will be presented in the following sections. A comparison between Turkey and European Community members will also be available. However, the political issues sited as primary cause for not being admitted to the European Union are not going to be discussed in this paper.

1.B. Turkey

Turkey is a very strategically located country with very apparent differences among the geographical regions. It is surrounded by the Black Sea on the north; Bulgaria, Greece and the Aegean Sea on the west; the Mediterranean Sea, Syria, and Iraq on the south, and Iran, Azerbaijan, Armenia, and Georgia on the east. With such a location, it is a unique country. It is many things: European, Asian, Middle Eastern, Balkan East European, and Mediterranean ([see Map 1.1](#)).

The country has 63 million population and 774,000 square kilometers of land. It is divided into seven geographical regions. There are clear physical differences among these regions. The eastern and the northeastern parts of the country are very hilly, not providing a good basis for infrastructure and transportation network. This geographical disadvantage clearly shows itself in the development pattern in Turkey. In addition to the mentioned differences, there are disparities in the socio-economic aspects and urbanization levels among the regions. These aspects will be discussed later.

2. Urbanization Transition in Turkey

In order to be able to define the urbanization transition in Turkey, first a discussion of urbanization transition in general, particularly in developing countries will be presented.

2.A. Urbanization Transition

As Drake suggests, urbanization transition is a visible and dramatic member of the family of transitions. It is almost parallel with industrialization and exhibits itself clearly with the level of industrialization, which is seen as economic development in general. Most industrialized, in other words, developed countries, have reached high levels of urbanization and the developing or underdeveloped countries are experiencing urbanization. This does not necessarily mean that less developed countries have lower rates of urbanization than the developed countries because there are several countries that have as high rates, such as Brazil with an urbanization rate reaching 75% (Jones and Visaria, 1997).

When examining the rates of urbanization, it is very important to look into the growth of the population in urban areas and more importantly to the rising share of the total population in urban areas. The latter signifies other factors than natural increase in urban population, namely rural-urban migration. There are various reasons for the rural-urban migration, in other words, rural push urban pull.

The population in the rural areas does not have the same kind of opportunities as the population in urban areas. In rural areas, there are not many job opportunities (especially with decline in agricultural land and employment), good education and healthcare facilities, namely better quality of life and future for the households, as can be found in urban areas. On the other hand, whether the migrant population in the urban areas obtains the level of living they fantasize about is questionable. Another major factor in migration to the urban areas is the social connections that the migrants have in the cities. A significant ratio of the migrants usually has a family member or friend who have migrated to the city they leave their rural homes for.

Jones and Visaria argue that besides the growth of urban population; growth of large metropolises and urban primacy; problems of providing minimal urban infrastructure; issues in rural-urban labor transfer and employment; and the linkages between urbanization and regional development issues are among the general interest and concern with issues of urbanization in developing countries.

Drake suggests that urbanization transition is characterized by early stages in which there is rapid growth of urban population, and later stages, where decline in this growth can be observed. Although developing countries are expected to observe the earlier stages and likewise, the developed countries are expected to observe the later stages or urbanization transition, it should be stressed that the levels among different countries could vary significantly.

In my opinion, there is a very important issue in this transition, mainly in the definition. What is urban? Is it an administrative term, or an area where the majority of the labor force is employed in formal urban sectors not in rural or agricultural sector, a population density of certain number of people, an area with various urban facilities, or is it simply a number of people? Assuming that it is a number, what is that number?

The transitions observed in different countries are very dependent or rather biased on this number. For example, this number in Turkey (although the main criterion is based on administrative status as will be discussed in the following section) is 10,000 people. On the other hand, the urban definition requires a population of 20,000 people in Brazil and Indonesia, 5,000 people (besides other factors) in India and 2,000 people in China (Jones and Visaria, 1997). If some of these countries changed the size requirement to be classified as urban, we could observe much different levels of urbanization. In such a scenario, India would have been observing a much lower rate than 27% of 1991 and on the contrary, Brazil a higher rate than almost 75%.

There is also the question of edge cities, existing particularly in developed countries. These can simply be defined as economically self-sufficient settlements distant from central cities. If we just take into account the number of persons living in the edge cities, it is likely that these settlements may not be able to step the threshold to be categorized as urban although there may be no rural character within these.

However, there are examples for non-number related definitions. In Chinese case, the sudden jump of the level of urbanization from 23.5% in 1983 to 49.3% in 1988 is attributable to the change in the definition of "urban" in 1984 from an administrative perspective.

Another point to stress is that while examining the urbanization transition in developing and developed countries, it should not be seen as an independent transition. Rather, the roots of this transition can be traced in mainly the demographic, technological, and industrialization transitions. Moreover, the consequences of the urbanization transition can be observed in toxicity, epidemiological, and fossil fuel transitions. Therefore, it should be seen as a member of closely-knit transitions.

2.B. Urbanization in Turkey

As is expected from a developing country, there is a high rate of urbanization in Turkey. The transition can be traced down to the earlier years of the republic. Turkish Republic was founded in 1923 by Mustafa Kemal Ataturk after the decline of the Ottoman Empire. Ankara was established as the capital city, replacing Istanbul, which served as the capital for the empire for over 450 years. With the establishment of the republic, Turkey started experiencing new stages of transitions among different members. The basic cause was the goal "modernization" which led to a major transformation in particularly agricultural, industrial, technological, and educational transitions as well as urbanization.

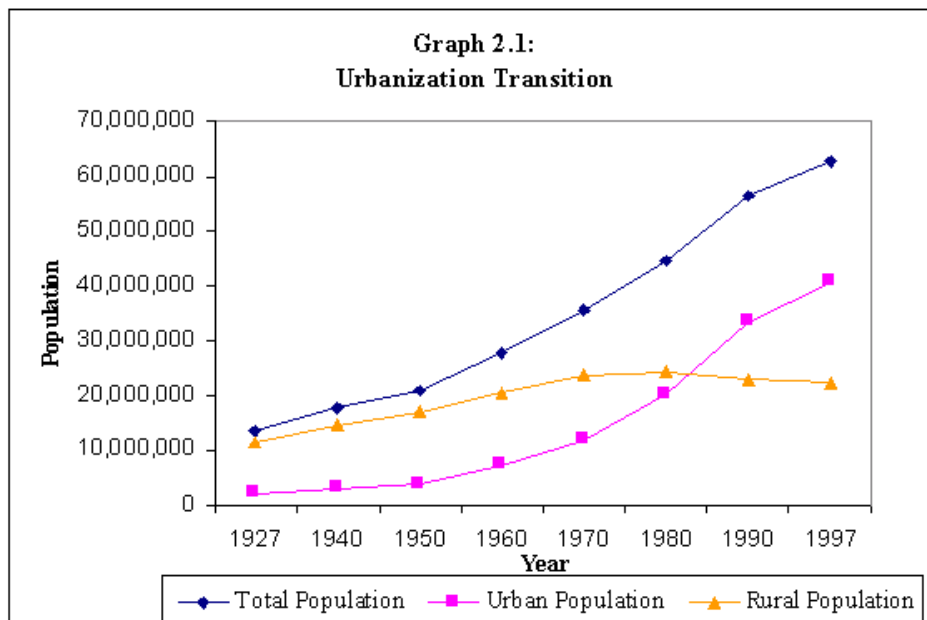
Table 2.1 displays the population of Turkey with a breakdown of urban and rural population since 1927. Here, the urban definition requires a minimum of 10,000 people, although there is another definition, which takes urban from an administrative perspective defined by "population of the localities within the municipality limits of administrative centers of provinces and districts" (United Nations, 1992). The differences in the urbanization levels due to the differences in definition are not large but not insignificant either. For example, for 1985, urbanization level as defined by the 10,000 population is 50.9%, whereas this percentage is 53% for the administrative definition.

Year	Total	Urban	Percent	Rural	Percent
	Population	Population	Urban	Population	Rural
1927	13,648,000	2,236,000	16.40	11,412,000	83.60
1940	17,821,000	3,234,000	18.10	14,587,000	81.90
1950	20,947,000	3,884,000	18.50	17,063,000	81.50
1960	27,755,000	7,189,000	25.90	20,566,000	74.10
1970	35,605,000	11,821,000	33.20	23,784,000	66.80
1980	44,737,000	20,330,000	45.40	24,407,000	54.60
1990	56,473,000	33,326,000	56.20	23,147,000	43.80
1997	62,810,000	40,630,000	65.00	22,180,000	35.00

Source: State Statistical Institute, population censuses

It has to be noted that the reclassification of some settlements after reaching the 10,000 threshold has attributed 4,050,000 additional population in the urban areas since 1950. Furthermore, the migration from particularly the former Soviet Union Republics, Bulgaria, and former Yugoslavia account for around half a million population in the urban areas since mid-1980s because these migrants have preferred to move to the cities (DIE, 1994).

It is interesting to see that in 70 years, the urbanization level has quadrupled throughout the country. The growth has been higher since 1950, particularly since 1960, which also corresponds to the beginning of the five-year development plans which will be discussed later. During the last almost four decades, the urban population growth rate has been higher than 1 % annually. Graph 2.1 indicates that the urban population has been growing almost steadily.



Note: The definition for urban is based on having at least 10,000 inhabitants

In order to be able to define the underlying causes of this pattern, other factors, such as the demography and the economic structure as well as the development plans should be examined.

In graph 2.1, we can see that the total population has been growing almost steadily as well and almost parallel to the urban population. Until 1980s, the rural population also grew but with a much less significant rate than the urban population. However, since 1980s, it has been declining. I believe this is mostly due to rural-urban migration, not due to natural decline of population growth. Although, there have been extensive efforts in family planning since 1965, especially in the eastern regions and rural areas, the fertility rate is presumed to be higher in rural than in urban areas.

Turkey exhibits another characteristic of urban pattern in developing countries: the existence of a primate city. Istanbul is the largest city in terms of population as well as the most viable in terms of economics (table 2.2 and graph 2.2). It has 8.3 million people as off 1997 and is still growing. Ankara, the second most populous city only has 35% of what Istanbul has. Istanbul, actually, is a mega-city covering the land between Tekirdag and Kocaeli and accounting for almost one fifth of the nation's population. Other characteristics of Istanbul are discussed in the section dealing with regional disparities.

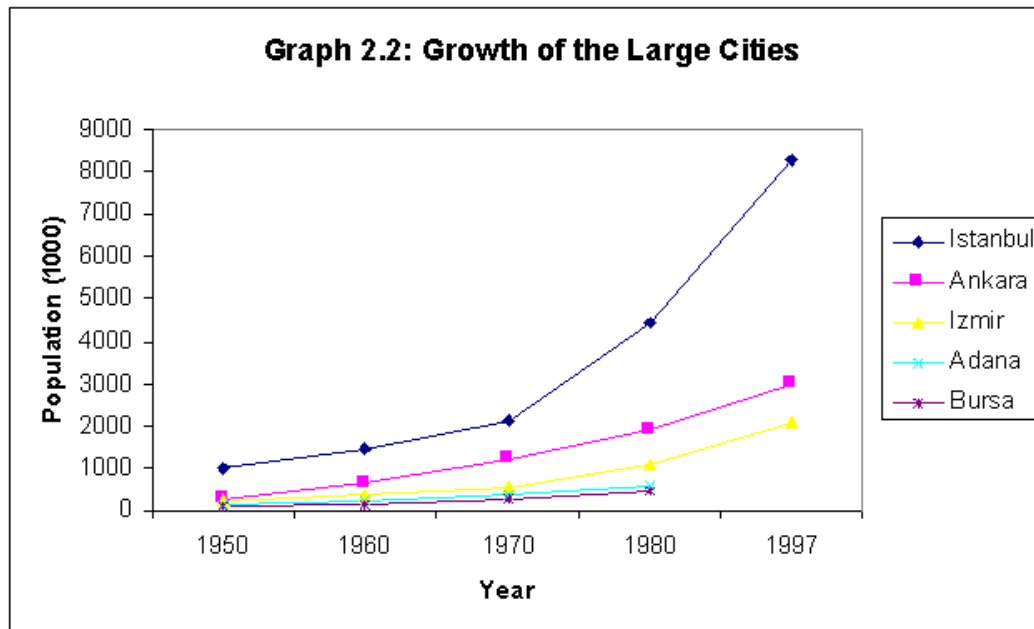
Table 2.2: The Growth of Turkey's Five Largest Cities: 1950-97

City	1950	1960	1970	1980	1997

Istanbul	983	1,467	2132	4,433	8294
Ankara	289	650	1236	1,878	2984
Izmir	228	361	521	1,096	2082
Adana	118	232	347	575	
Bursa	104	154	276	445	

Source: State Statistical Institute, population censuses

Note: In 1980, 1.6 million was added by the incorporation of 25 suburbs in Istanbul

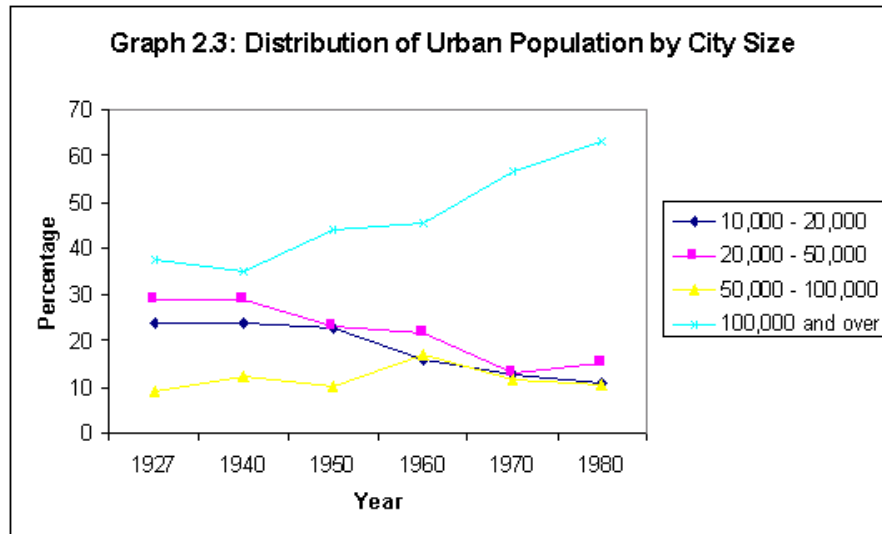


Another characteristic is seen in the distribution of the urban population by city size in Table 2.3. The share of larger cities have inclined over the past decades and reached almost two-thirds of the entire urban population by 1980. Unfortunately, the data is not available for more recent years. However, currently, there are five cities, Istanbul, Ankara, Izmir, Adana, and Bursa that have over 1 million people living in their central cities. The increasing gap between the largest cities and the cities with a population of 50,000 and 100,000 (graph 2.3) suggest that metropolises will gain more population until they reach the saturation points.

Size	1927	1940	1950	1960	1970	1980

10,000 - 20,000	24	23.80	22.90	15.80	12.70	10.80
20,000 - 50,000	28.90	28.70	23.20	21.90	13	15.20
50,000 - 100,000	9.30	12.20	10.10	17	11.60	10.70
100,000 and over	37.80	35.30	43.80	45.30	56.70	63.30

Source: State Statistical Institute, population censuses



There is an important point that needs to be stressed. Although all the larger cities are growing, Istanbul is experiencing the highest of this share. It is one of the few cities that have low outmigration rates and it has the highest immigration rate. A study prepared by the State Statistical Institute showed that the natural increase of the population in Istanbul accounted for 40% of the population increase while migration accounted for 60% of it. Although there is no data on the breakdown of the origin of migration (whether rural or urban and localities), it should be noted that Istanbul attracts population even from Ankara. It does not only attract disadvantaged unemployed population but the best-educated ones as well, due to being the economic capital of the nation.

The rapid increase of population brings its problems to Istanbul. It has become a city of disorder with massive problems in urban sprawl, squatter housing, traffic, marginal employment, street children, infrastructure (particularly water) provision, environmental degradation and pollution, and high cost of living. The urban sprawl issue is so immense that with the traffic added to it, average travel to work during the peak hours exceeds an hour.

The new urban pattern in Ankara is a little different than Istanbul's. There, urban sprawl is an important issue as well. It is experiencing high rate of suburbanization and low rate of deurbanization. The emerging suburbs are high-density, high-rise suburbs with very little attention to the environment.

In summary, as expected from a developing country, urbanization has not declined or come to stability. In other words, Turkey has been observing the early stages of the urbanization transition; it has not reached the later stages yet. However, having a 65% urbanization level, Turkey promises to reach the later stages in the near future. Moreover, the

analysis shows that the larger cities are going to get more populated unless preventive measures are taken.

2.C. Factors Shaping Urbanization Pattern in Turkey

In this section, economic structure of the country, regional disparities in terms of geographical, socio-economical, and urbanization aspects, and national urbanization and regional development strategies will be examined

2.C.1. Economic Structure of the Country

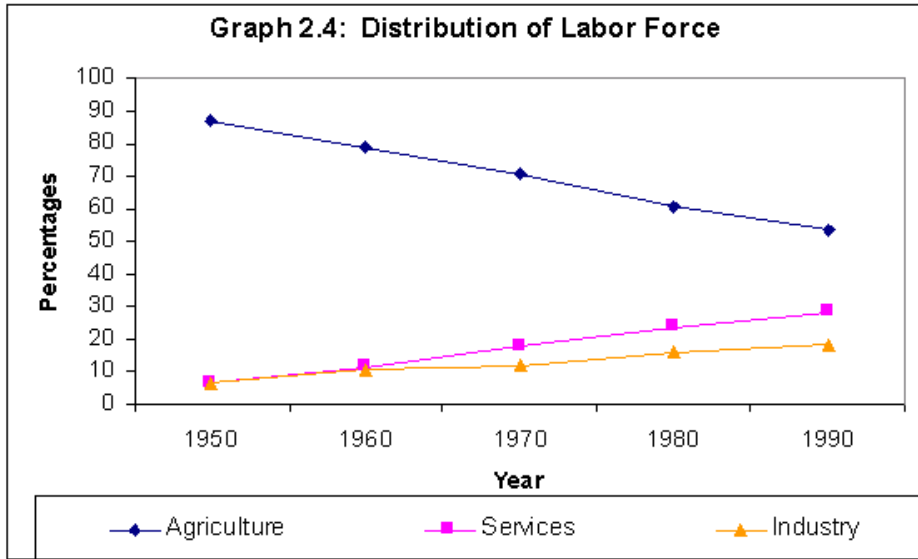
The economy of Turkey has been changing basically since 1950s as was discussed under the "modernization" policy of Turkey. During the 1950s, the most important economic goal was to promote industrialization as well as modernization of agricultural techniques.

Although there is no data on Gross Domestic Product by sectors as early as 1950 in Table 2.5, table 2.4 demonstrates that indeed, before 1950, the labor force employed in the industry sector was only 7%. Since then, both industry and service sectors have been attracting labor force from agriculture which has lost 33% labor force between 1950 and 1990 (graph 2.4).

Table 2.4: Distribution of Labor Force in Different Sectors (Percentages)

Sector	1950	1960	1970	1980	1990
Agriculture	87	78.7	70.7	60.3	53.6
Services	6.6	10.9	17.4	23.8	28.3
Industry	6.4	10.4	11.9	15.9	18.1

Source: World Resource Database

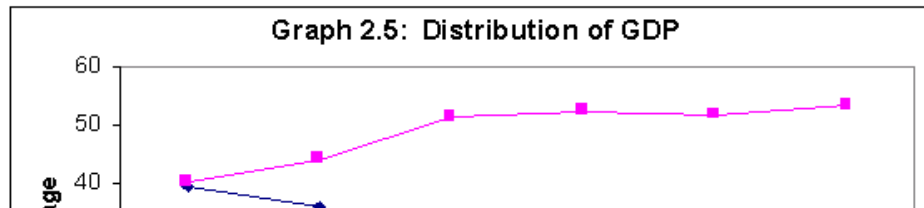


Gross Domestic Product exhibits similar results. The share of the agricultural sector has been decreasing since 1970s and has observed the most severe decrease between 1975 and 1985. After 1985, the rate of the decrease of the share has been at a slower rate. The service and the industry sectors have experienced increasing share of the GDP. It seems like all the sectors are coming to a stability, indicating a transition to the later stages (see Graph 2.5). Service is the leading sector in the country and has experienced a higher rate of increase than industry. The changes starting 1980s are attributable to the "market economy" introduced during these years.

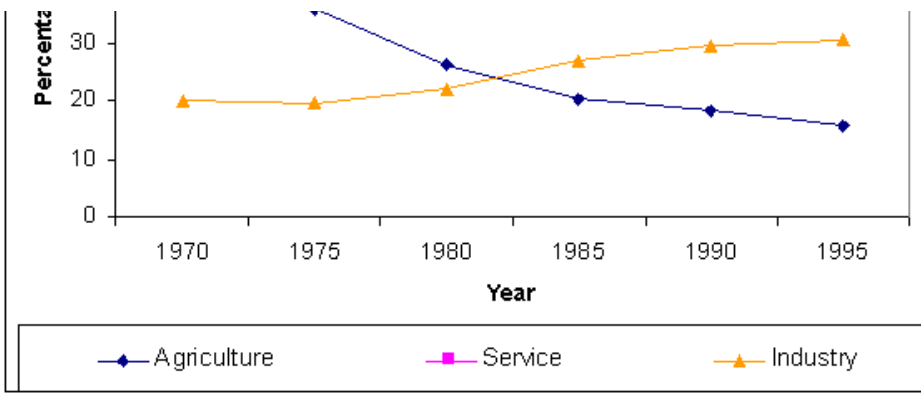
Table 2.5: Distribution of Gross Domestic Product (Percentages)

Sector	1970	1975	1980	1985	1990	1995
Agriculture	39.5	35.8	26.4	20.4	18.3	15.9
Service	40.3	44.3	51.4	52.5	51.9	53.5
Industry	20.1	19.9	22.2	27.1	29.8	30.6

Source: World Resource Database



The increasing share of industry in the national economy usually lead to increases



in the gross national product as well as the gross domestic product. In the case of Turkey, although the GNP increased from

12 million US\$ to 128 million US\$, increasing more than ten times, and although GDP increased from 17 million US\$ to 151 million US\$, between 1970 and 1995, GDP per capita and GNP per capita increased much less (Tables 2.6 and 2.7). This is mainly an outcome of high rates of population growth.

The tables also show that Turkey always had lower GDP per capita and GNP per capita than the world's average. However, if the graphs are examined, a pattern can easily be seen. Although these indicators in Turkey were not much lower than the world between 1970 and 1975 (in the case of GNP, until 1980), the difference gets wider afterwards (see graphs 2.6 and 2.7). This can be explained by increase of the population in Turkey as well but mainly with the political status of the nation during those years. There was a coup-de-etat in 1980 followed by a three-year long military government. The political unrest needs to be stressed for Turkey because during the 75 years of republic, Turkey experienced three coups and particularly in the recent years, at least yearly changes in the government.

Table 2.6: Gross Domestic Product per Capita (in current US\$)

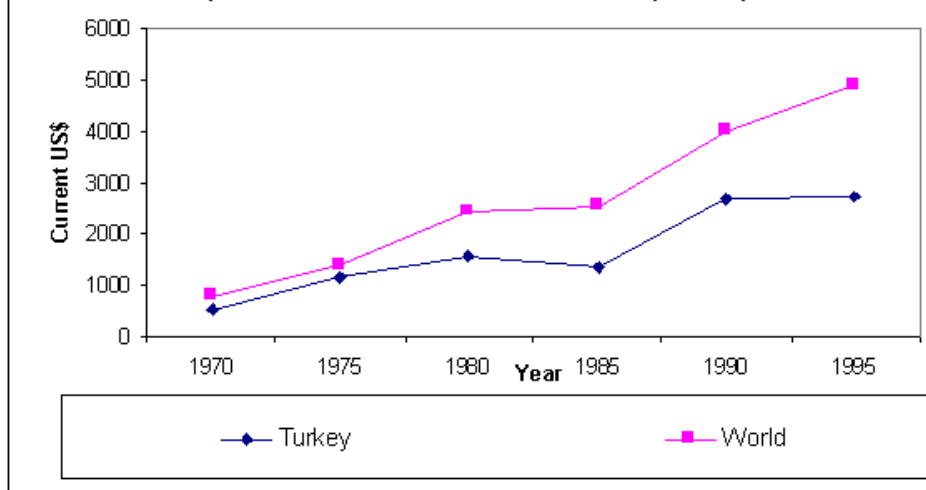
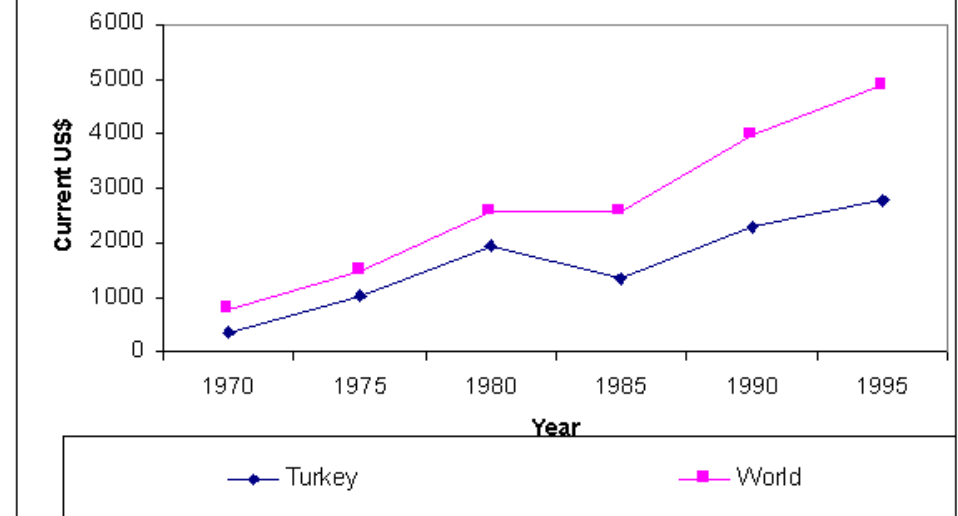
	1970	1975	1980	1985	1990	1995
Turkey	506	1166	1548	1335	2686	2708
World	785	1390	2421	2547	3982	4896

Source: World Resource Database

Table 2.7: Gross National Income per Capita (in current US\$)

	1970	1975	1980	1985	1990	1995
Turkey	340	1030	1940	1320	2280	2780
World	780	1480	2560	2550	3960	4880

Source: World Resource Database

Graph 2.6 : Gross Domestic Product per Capita**Graph 2.7: Gross National Income per Capita**

Looking back at the urbanization of the nation, a close link with the industrialization process is seen as is expected. It is very difficult to establish a relationship between the distribution of the labor force or the gross domestic product and urbanization. Nevertheless, a numerical relation exists in this case, although it may not be significant. Between 1950 and 1990, the nation gained almost 34% labor force in industry and service, and the percentage of urban population increased by 37% (Table 2.5).

2.C.2. Regional Disparities

Turkey is composed of seven geographic regions (see [map 2.1](#)) and there is an evident disparity in physical, demographic, and economic structure among these regions.

The regions are subject to different climates therefore different vegetations. For example, while Aegean and Mediterranean regions have a mild climate throughout the year, whereas the Eastern Anatolia gets sever winters, East Black Sea region gets heavy rain, and Southeastern Anatolia does not get much rainfall. In addition, the topography in the Black Sea and Eastern Anatolia regions is unsuitable for transportation networks ([map 2.2](#)).

In 1985, Istanbul accommodated 49% of the nation's industries whereas the entire Eastern Anatolia and Eastern Black Sea Region accommodated 3%. A socio-economic development study conducted in 1980 showed that the eastern regions had 34% development level compared to 100% nation average, and that Istanbul was 11 times more developed than Hakkari, a middle sized city in Southeastern Anatolia. In addition, while the western cities accommodated 70% of the nation's hospital beds and 57% nation's physicians, these percentages were 7% and 3% for Eastern Anatolia.

These differences are reflected in the demographic and the urbanization areas as well, as in tables and graphs 2.8 and 2.9. The eastern regions including Black Sea, hold 30% of the population, where as Marmara region only houses 26% of the total population. However, there is a trend of decrease in population in Marmara region. There are several factors contributing to the decrease including the high cost of living, different economic incentives provided in other regions, and the over-crowdedness and all the ills associated with it.

Table 2.8: Population Growth by Region (1000s)

Region	1,950	1,980	1,990	1,997
Marmara	1,392	6,488	13,296	16,187
Aegean	532	2,243	7,595	8,452
Mediterraneaen	445	2,732	7,026	8,058
Central Anatolia	944	4,711	9,913	10,581
Black Sea	326	1,861	8,137	7,844
Eastern	205	1,259	5,346	5,615
Southeastern	170	1,066	5,159	6,129

Source: State Statistical Institute

Graph 2.8: Population Growth by Region

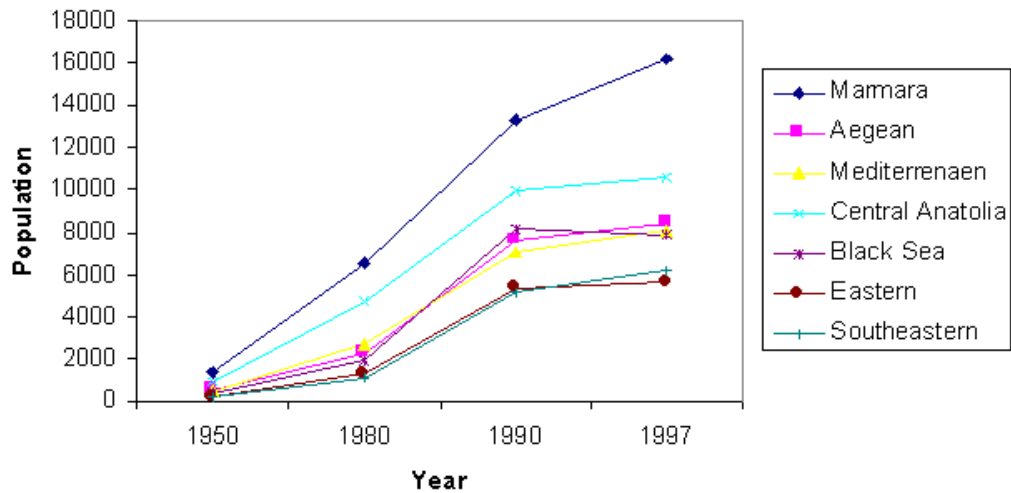
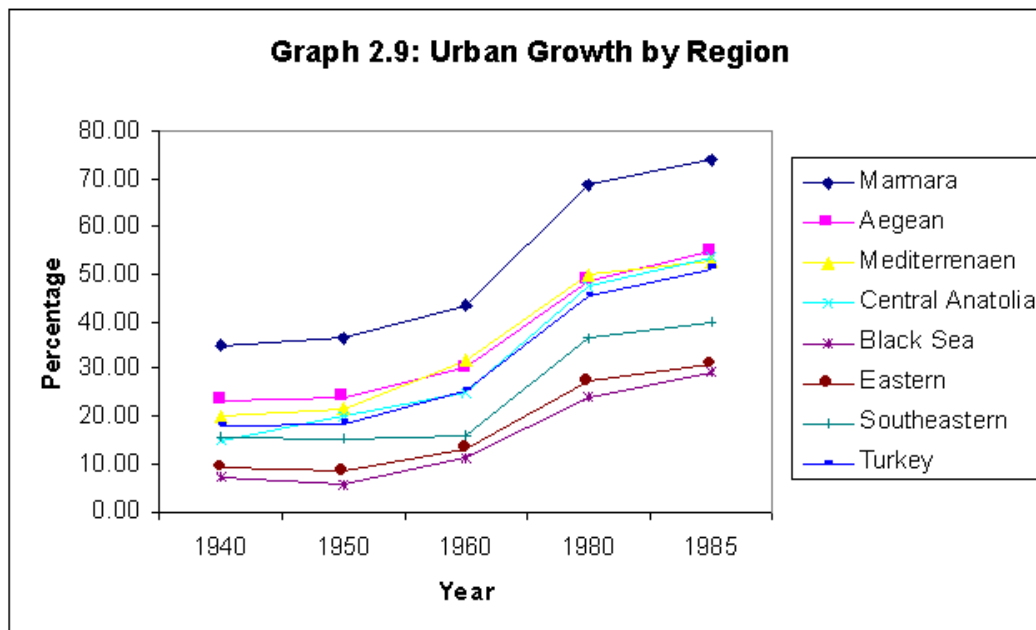


Table 2.9: Urban Growth by Region:1950-1980 (Percnnetages)

Region	1940	1950	1960	1980	1985
Marmara	35.10	36.50	43.30	68.70	74.10
Aegean	23.30	24.10	30.30	48.60	54.80
Mediterraneaen	20.10	21.70	31.60	49.80	52.70
Central Anatolia	14.80	19.90	24.80	47.60	53.30

Black Sea	7.20	5.70	11.40	24.30	29.20
Eastern	9.30	8.50	13.40	27.20	31.10
Southeastern	15.80	15.10	16.10	36.50	39.90
Turkey	18	18.50	25.20	45.40	50.90

Source: State Statistical Institute and Keles, 1990 p. 31



Although there is no data on whether the migration is happening from city to city or only from rural areas, a study prepared by the State Statistical Institute (1994) displays other interesting results. Other than Istanbul, the cities that have low outmigration rates are cities which accommodate many immigrants like Ankara and cities which are not well networked such as Hakkari and Van in Southeastern and Eastern Anatolia. Most of the outmigration happened from East Black Sea region and Thrace (western Marmara region, which is the European section of Turkey). Immigration is mostly to the largest five cities, which led to the saturation of population in these cities and a spillover effect to the neighboring communities.

When the regions are compared over time, there is only one region that has been steadily gaining population, Southeastern Anatolia region. This captures attention because, there are three important issues about Southeastern Anatolia region. One of them is the ongoing terrorism from the Kurds, which is a major cause for population loss, including deaths and migration to other regions. Another issue is the high fertility rates in the region. While the fertility rate is 2.65 throughout the nation, is 5.7 in the region (DSI, 1998).

The other issue is the Guneydogu Anadolu Projesi (GAP standing for Southeastern Anatolia Project), a major development project covering 75,000square kilometers of Upper Mesopotamia covering Tigris and Euphrates river basins. It includes the cities of Adiyaman, Batman, Diyarbakir, Gaziantep, Kilis, Mardin, Siirt, Sanliurfa, and Sirmak. The project started in late 1980s and aims to irrigate the and land which encompasses 20% of the fertile land in the country which would lead to a very significant level of economic and community development since most of the population resides in rural areas and could be employed in agriculture. In addition, the project aims to produce energy. It is very early to

analyze the data about whether the development project has reached its goals.

Examining the urban population ratios, the difference is clear again. Although urbanization in each region has been increasing, the western regions are much more urbanized than the eastern regions. Historically, the western regions have always had higher rates of urbanization than the national average (except in one case, in 1960 Central Anatolia had 0.4% lower rate than the nation) and the eastern regions have had lower rates than the nation. The increases in the differences between the Marmara region and the Aegean and Central Anatolia as shown in the graphs implies that Marmara region may get even more share of the nation's population. Each region is showing indications that they are going to reach stability in the urbanization transition.

2.C.3. National Urbanization and Regional Development Strategies

National urbanization policies are mainly found in the five-year development plans that are prepared by the State Planning Organization. The key elements will be discussed as follows based on Keles's book on Urbanization Policy, 1990.

The first five-year plan corresponds to the 1963-67 period. Although the first five-year plan does not particularly address the issue of urbanization, this is a very important issue in the second five-year plan. According to that, large cities were seen essential for economic development, therefore, a lot of investments were made under the name of "growth poles" in Istanbul, Ankara, Izmir, and Adana. In the third plan, it was apparent that the investments to the growth poles in the western region accelerated regional imbalance. For this reason, an organization was formed to help the distressed areas. The more recent five-year plans have realized that urbanization will still take place, eventually at a lower rate and have incorporated the importance of urban problems such as infrastructure, services, and housing. It is not until the sixth plan (1990-94) that urban environmental issues have taken place in the national urbanization and development strategies.

There are two important concerns in the implementation of urban and regional policies both in the national and local levels. One of them is the fiscal constraints. Usually the local governments do not have a lot of money allocated for them for development. Most of the central budget goes onto special projects. The other concern is the lack of strict regulations in the local government. Problems with housing supply, especially squatter housing, and environmental degradation are not confronted forcefully by the local authorities in a timely manner.

3. Urbanization Transition in European Union

After the investigation of the Turkish case, I can conclude that examination of the urbanization transition in EU is not very easy to accomplish. In order to define urbanization transition, many factors need to be incorporated for each country. This is even more difficult when there is not a very dependable data source (world resource database had some discrepancies with the State Statistical Institute database in the Turkish case) and not much expertise on the countries.

Despite all these disadvantages, I looked into the urbanization rates and some other indicators in the European Union. The analyses below are very general and are not very conclusive.

3.A. Urbanization Patterns in the European Union and Factors Shaping these Patterns

Before examining the pattern, it needs to be stressed once again that the definition of urban may change from one country to the other. For the purpose of simplicity, the definition is assumed to be unique throughout the Union. This issue will be inspected in the following paragraphs.

In the examination of urbanization transition, 12 countries were taken. These were chosen according to the date of their acceptance as members: Belgium, France, Italy, Luxembourg, Netherlands, West Germany (1957), United Kingdom, Denmark, Ireland (1973), Greece (1981), Portugal, and Spain (1986).

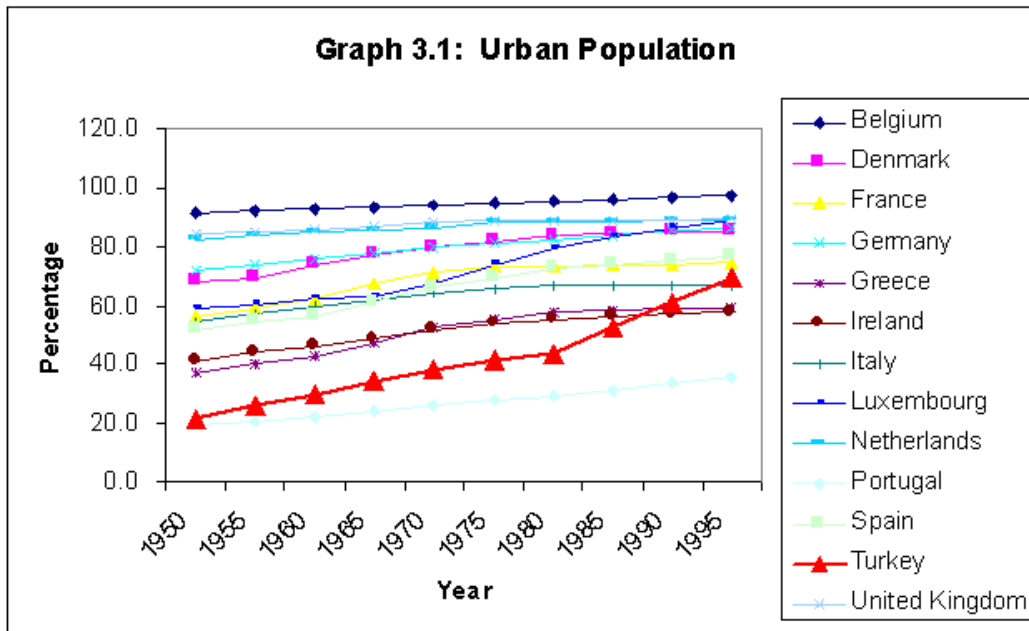
As seen in the Graph 3.1, almost all the European Union members are in the later stage of the urbanization transition. All of the members except for Portugal have exceeded 55% of urbanization levels, among which, some are very highly urbanized, such as Germany, Denmark, Netherlands, United Kingdom, and Belgium (reaching 96%). [Map 3.1](#) displays

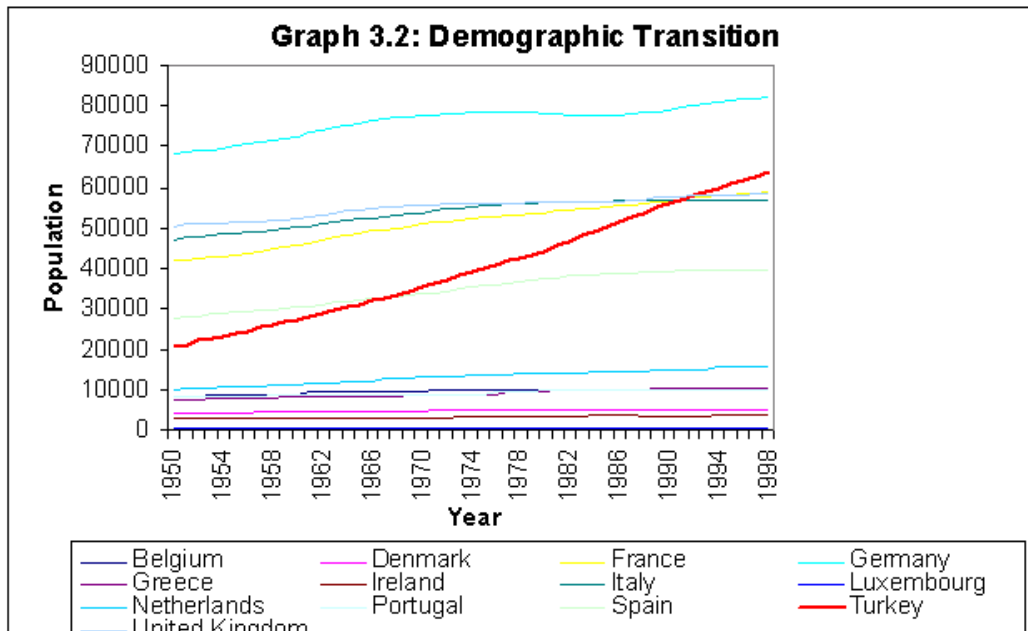
these results.

One of the main questions of this paper was to answer whether joining the European Community had any impacts on the urbanization transition of the members. By looking at this graph, it is not possible to detect a correlation. However, this issue needs to be examined in more detail for a better conclusion.

The population graph 3.2 has a lot of similarities with the urbanization graph. Here, we can see that almost every country in the European Union has reached stability or will reach in the very near future.

Graph 3.3 shows the percentage of population living in cities of at least 750,000 population. The sudden jump in Ireland's case can be explained by the fact that in late 1960s, Dublin gained population and became the only city in the country with more than 750,000 inhabitants. This is valid for other cases like Greece as well.





In the beginning of the paper, a discussion was made that urbanization is seen parallel with industrialization. If industrialization and Gross National Product per Capita are take as indicators of economic development, then we should expect that in countries with high levels of industrialization and GNP per capita there will be high levels of urbanization. In order to illustrate this analysis, Tables 3.1 and 3.2 and [Graph 3.4](#) were created based on 1990 data.

Table 3.1: Distribution of Gross Domestic Product in 1990 (Percentage)

Country	Agriculture	Service	Industry
Belgium	1.9	68	30.1
Denmark	4.7	65	29.6
France	3.4	67.4	29.2
Germany			
Greece	20.4	40.1	39.4
Ireland			
Italy	3.2		
Luxembourg	1.7	67.9	30.4
Netherlands	4.0	67.1	28.9
Portugal			
Spain	4.6	60.4	34.9

Turkey	18.3	51.9	29.8
United Kingdom	1.9	62.9	35.3

Source: World Resource Database

Table 3.2: Economic Development and Urbanization in 1990

Country	GNP/ Capita	% Urban
Belgium	17,770	96.5
Denmark	22,600	84.8
France	19,750	74
Germany	X.	85.3
Greece	5,920	58.8
Ireland	10,960	56.9
Italy	17,450	66.7
Luxembourg	32,240	86.3
Netherlands	18,120	88.7
Portugal	6,130	33.5
Spain	11,220	75.4
Turkey	2,280	61.2
United Kingdom	16,120	89.1

Source: World Resource Database

Although a clusteration can be traced in the relation between GNP per capita and urbanization, there are few exceptions and that suggests that the relationship is not a perfect linear fit. However, as was mentioned earlier, there is a real danger in comparisons among different countries on their urbanization levels. The data provided by the United Nations (1992) show that the definition for urban differed among countries. Although the most common definition for urban is "having at least 10,000 inhabitants" throughout EU, this is not the case for some nations. For example, in Belgium, Denmark, and United Kingdom, the definition of urban is not about the size of the population. On the other hand, population has to be greater than 2,000 in France, Germany, Luxembourg, and Netherlands to be considered as urban and 1,500 people are enough to form an urban settlement in Ireland.

In the light of these numbers the graph 3.4 needs to be revised. Nevertheless, this is an infeasible task. It is impossible to know the exact number of people who could be living in urban areas with the unique definition for urban without a real census. Therefore, [graph 3.5](#) attempts to show possible shifts of the urbanization levels in table 3.4 if urban is defined by at least 10,000 inhabitants. Although it cannot be calculated, it should be emphasized that the linear relation that was apparent in graph 3.4 may not be visible in this case.

When the distribution of GDP in different sectors, particularly in industry is examined, a different result is detected. Although data for four countries is missing, the two (Spain and Greece) of the three countries with the highest share of industry in GDP are among the lower cluster of urbanization and GNP per capita graph. However, if the lowest shares of agriculture are taken instead of industry, we get a much different picture. Here the three countries with the lowest shares of agriculture (Luxembourg, Belgium, and United Kingdom), these are also the first, second, and fourth most urbanized countries in this selection. The notion that whether agricultural share of GPD can be an indicator of the level

of urbanization and it could be used in forecasting the future of urbanization need to be examined in more detail.

In addition, when the primacy figures are examined (see [graph 3.6](#)), there is not a strong relation with the level of urbanization and primacy. It should be noted that these figures are based on the United Nations' estimates and that data for some of the countries investigated in this paper are missing. It should be stressed that the highest levels of primacy is found in Greece and Portugal which have the lowest GNP per capita level, an indication of development. There are a few countries in EU that have two cities forming the majority of the population. An example would be Spain, Madrid and Barcelona comprised over one fourth of the nation's entire population (Commission of the European Communities, 1992).

Another fact is that population growth in the largest cities of Denmark, France, Germany, Italy, and Netherlands was very slow or negative during 1970s and 1980s. This is an indication that the primacy levels may decline. As well, as seen in [Map 3.2](#), most of the countries are not experiencing high population increases in the cities greater than 100,000 population

The last point to make is about the predominant urban pattern among the members of the European Union. This pattern is a result of urbanization, suburbanization, deurbanization, and reurbanization (Commission of the European Communities, Van den Berg et.al.). This pattern can be observed in almost each member.

3.B. Comparison of Turkey and the European Community Countries

There are vast differences in some aspects of the urbanization transition and other indicators in Turkey compared with those in the members of the European Union.

The differences are especially apparent in the rapid increase of the total and the urban population, increase of population in large cities, and the very low level of GNP per capita. In addition, the growth pattern of the cities is very different.

Demographic transition displays the most visible differences. Although it was in the lower populated nations category up until 1950, now Turkey is the second highest populated country among the ones examined. For example, although Spain was more populated than Turkey in 1950, it has 23 million less population now.

Compared with few countries that are losing population in the larger cities (as discussed in the previous section), Turkish urban pattern is very different. As was shown in the urbanization in Turkey section, the highest growing cities are the larger cities, particularly the largest city Istanbul.

Another comparison can be made in the primacy issue. Although primacy is a characteristic of developing countries, this analysis showed that developed countries may experience high primacy levels as well, just like in the case of France and Denmark.

Although there are some indications that suburbanization is the new trend in large cities in Turkey, it should not be concluded that the pattern will be a replication of the European pattern. In Turkey, the suburbs are basically high-rise, high-density areas, not showing a lot of similarities with the other countries. We can suggest that because of this suburbanization, Turkey may experience the pattern of deurbanization and reurbanization like the other countries in the future. However, such a conclusion would not have a strong ground due to the high migration rate to the large cities in Turkey. Although, there might be a low rate of deurbanization (as seen in the case of Ankara), there will be a very high demand for housing, particularly in the city center, to have easy access to transportation.

4. Conclusions and Policy Recommendations

This study has shown that urbanization is a very complex and a dynamic transition that needs an extensive research. While examining this transition, other members of the transition family need to be examined. Although the transition is investigated from various points in Turkey, there could be further research on the topic. Needless to say, a much more detailed research is needed for European Union members in order to able to make more meaningful comparisons.

The case of Turkey showed that although there can be differences in certain aspects, the urbanization had very similar characteristics of the phenomenon in developing countries. First of all, it is still experiencing the early stages of the transition with annual increases over 15 in urban population. Moreover, rapid increases in the urban share of the population reaching 65%, existence of Istanbul, the primate city and high population increases in the larger cities rather than smaller ones, problems with the provision of urban housing, employment, and infrastructure. In addition, the central government has not addressed the urbanization issue very effectively and the attempts at the local levels cannot overcome this issue.

The comparison of the nations in the European Union showed that with the given data, there is no evident relation between joining the Union and the urbanization transition. With this finding, it can be said that if Turkey joins the European Union, there will not be a significant change in its urbanization transition. However, the emphasis should be on the effects of globalization on developed versus developing nations. Developing nations will have to cope with the globalization issues and impacts differently than the developed nations. A further research area is the increase of investment in large cities of EU members versus smaller cities. Countries such as Greece, Spain, and Portugal will give better indications on what to expect for Turkey's case. However, as a general assumption, larger cities, especially Istanbul is expected to attract foreign investment in the case of joining, leading to further increases in primacy and regional disparities as well as urban related problems.

The comparison of the nations also showed that in outlining the characteristics of urbanization among different countries, especially between developing vs. developed countries, there may be significant overlaps. These overlapping issues were found in the level of urbanization and the primacy issue. In addition, the definition of urban is a critical issue in comparisons and as was shown, the evidence of different definitions throughout the Union, the comparisons do not reflect unbiased results.

In summary, the future of the Turkish cities depends on various factors. In the case that Turkey is admitted in the European Union, there may be negative impacts on the primacy in Turkey and there will be a new urban pattern in the Union. However, the future of the Turkish cities is more dependent on the central and local planning issues. Unless there are more emphasis on and fiscal remedies for smaller cities in the five-year plans, larger cities will continue to grow and have larger urban problems in housing, infrastructure, and environment. Local planning authorities on the other hand, need to be more proactive and have more regulatory measures. In the planning efforts, it should be noted that the urbanization will continue but with slower rates and that the transition is expected to be more stable in the next few years. In addition, GAP (Southeastern Anatolia Project) is very likely to change the migration patterns in the country, which will have a significant impact on urbanization.

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CHAPTER 4

Towards Sustainable Health Care Development in Indonesia

by
Taufik Hanafi

I. Background

Demographically, Indonesia is the fourth most populous country after China, India, and the US. The national survey conducted by the Central Bureau of Statistics (CBS) showed that the total of the nation's population in 1990 was 179.3 million people, with the average annual population growth of 1.9 % during 1980-1990. Geographically, Indonesia is the largest archipelago country in the world, with total area of 1,919,317 square kilometers. It consists of five major islands namely Sumatra, Java, Kalimantan, Sulawesi, and Irian Jaya, and thousands of small islands. According to the Indonesian Naval Hydro-Oceanographic Office, the number of islands, including rocks, reefs, and sandbanks, is 17,508 (see Figure 1).

Interventions to improve health status are an important policy instrument in the nation's overall strategy in alleviating poverty and improving the welfare of the Indonesia's population. As in many developing countries governments intrude into many markets, but seldom as commonly or extensively as in health care. Public health policy is sustainable if it promotes increased welfare through better health status, greater equity, more consumer satisfaction, greater community participation, and lower total cost than would occur in the absence of government intervention.

Decentralization of public services has been popular strategies in Eastern Europe countries and developing countries including Indonesia for remedying the problems of governance. Highly centralized government has long been recognized as the greatest political obstacles to economic development in developing countries (Nicholls, 1989). Decentralization is advocated as a means to promote efficiency and responsiveness of the government programs and to strengthen community participation. Sixty-three of the 75 transitional and developing countries with population greater than 5 millions have transferred or in the process of transferring authority from central to local governments (Dillinger 1994). In Indonesia discussion about decentralization have focused on ways to improve the sustainability, equity, and access of public services including education and health care.

This paper attempts to assess the extent of decentralization efforts in Indonesia and its impacts on sustainability of health care services at local levels. After a brief discussion on concepts of decentralization and sustainability and indicators used to measure the extent of decentralization efforts and program sustainability; the discussion turns to the existing condition of decentralization policies in Indonesia. Pattern of regional development and sustainability of health services as implications of the decentralization initiatives will be presented.

II. Decentralization and Sustainability: An Overview

Decentralization

The term of decentralization is a subject with many dimensions and commonly associated with various interpretations and contexts for instance administrative, economic, and political decentralization in both developed and developing countries (Wolman, 1990 and Smith, 1980).

Decentralization has been described broadly as "the transfer of responsibility for planning, management, and the raising and allocation of resources from the central government and its agencies to field units of government agencies, subordinate units or level of government, semi-autonomous public authorities, or non-governmental private or voluntary or organization (Rondinelli, 1989). Bennet (1990) expressed decentralization in the two dimensions namely, the purely on governmental reform--to transfer responsibilities downwards from national level to local governments; and the mixture of governmental reform--to transfer responsibilities between the governmental and non-governmental sectors for increasing decentralization to market forces. The various interpretations of decentralization are basically manifestation of different perception of decentralization. The various perceptions of decentralization have something in common i.e., to shift authority with respect to planning, decisions making, and managing of public functions from the central level to individual, organization or agency at sub-national level (Conyers, 1985).

Figure 1
Map of Indonesia



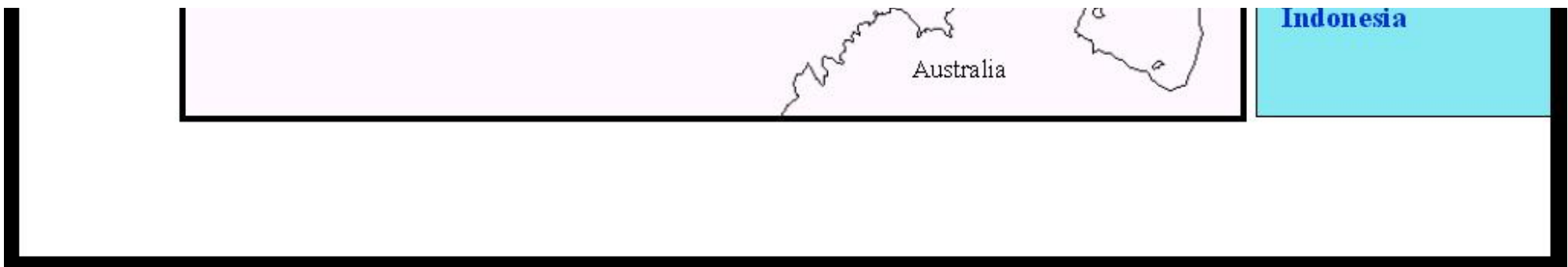
Total area:
1,919,317 Km²

Number of Islands:
more than 13,000

The largest archipelago country in the world

About 300 ethnic groups and local languages

National language:



The wide perception of decentralization contributes to the variety of different goals of decentralization. De Toqueville's perception of decentralization, classified as the classical democratic concept of decentralization, has been expressed by Hoffmann (1959) as:

The creation of self-governing units will release the spontaneity of the citizens, for liberty is power to build and not merely a capacity to resist. It will also preserve the dignity of the individual who will remain the master of his fate, whereas mere participation in an excessively abstract and instant general will would mean abdication. It will preserve the dignity of government, whose power, based on a "free consensus of wills" will be legitimate and respected. Not only will it perform the political function of preventing the tyranny of the general will, but it will have the social task of stopping that alienation of human beings from one another, that destruction of personal links which modern society brings with it - the task of "bringing men back together" (Lundquist, 1972, pp.67-68).

Wolman (1990, pp.30-41) suggests that decentralization policies can be used as the means to achieve several objectives for instance, to increase efficiency through the maximization of social welfare; to improve the responsiveness and accountability of policy makers to the citizen; to promote diversity in public policies; to improve political participation of the citizen; to strengthening a national unity; to improve territorial equity through national grant equalization systems to support the local government which have relatively low regional income or high need; and to improve the allocation system. In addition, a study done by Wolman and Teitelbaum (1985) state that decentralization will minimize accessibility of the interest of many groups to the allocation system, with the conclusion :

A continued decentralization of policy making to the states does imply a different set of winners and losers. At least in the short run, many groups that are influential and effective at the federal level-particularly in the human area-would be at disadvantage at the state level because they are not at present effectively organized there. Overall a widespread decentralization would imply that certain interests-the poor and labor, especially-would be disadvantaged relatively to other interests in low income states and in states with a higher percentage of poor people or minorities (Wolman, 1990, pp.37-38).

On the other hand, the implementation of decentralization is often a critical stage because it can produce some disadvantages for instance, inefficiencies and diseconomies in either developed or developing states, and capitalist or socialist economies (Smith, 1980). Conyers, Diana (1985, p.39) confirmed that the role of decentralization in development has many dilemmas, with quoting of Larmour's expression on the role of decentralization as follows :

Many of the arguments for, and against, decentralization are as Herbert Simon pointed out ' like proverb..... for almost

every simple one can find an equally plausible and acceptable contradictory principle' Decentralization promotes efficiency and reduces it. Decentralization enhances national unity and inhibits it. And so on.

Based on organizational arrangements, Rondinelli (1981) identified several forms of decentralization. He made a clear distinction between functional and areal decentralization. The former is associated with the transfer of authority to perform particular public services to specialized organizations that operate nationally, such as establishing local offices within ministries dealing with provision of health care and highway construction. On the other hand, areal decentralization focuses on the transfer of responsibility for public services to institutions that may legally function within well-defined geographical or political boundaries such as province, district, sub-district, and village. Another distinction can be made among four different categories of decentralization: deconcentration, delegation, devolution, and privatization.

Deconcentration, which is considered as the weakest form of decentralization, can be defined as a transfer of decision-making authority for providing public services and infrastructure to local administrative offices of the central government. Delegation can be described as the transfer of responsibilities for specific functions to organization that are not fully controlled by the central government ministries, which is often recognized as parastatal organizations. Devolution, which is the most extensive form of decentralization, involves the transfer of power to subnational political entities. This form of decentralization has certain features. First, subnational units have a clear status and legally recognized geographical boundaries. Second, local units have a number of functions to perform. Third, local units have the power to raise sufficient resources and make expenditures. Finally, local units given autonomy and independence can be clearly perceived as separate level over which central government authorities have limited and indirect control. Privatization involves the transfer of power or responsibilities to private entities.

Measuring Decentralization

Diversity of the perceptions and the dimensions of decentralization mentioned above needs general indicators as a framework for evaluating and comparing consistently the progress of implementation of decentralization either in a particular country or state over particular period of time; or between a particular country or state with other countries or states.

Smith (1980,p.137) suggests decentralization as a variable and it needs a procedure to measure it. He also proposed ten measures which can be used to determine degree of implementation of any individual decentralization system namely, (1) relating to governmental tasks delegated to area governments in which the more governmental tasks are delegated to area governments the more decentralized the system will be; (2) proportion of total area government income which is contributed locally; (3) the level of decentralization within the field offices of central government such as the form of inter-departmental coordination used, the dependence of local officers on the central offices in making decision, and the responsibilities delegated to field officers to handle governmental functions; (4) the amount of delegations which are transferred to area political authorities; (5) legal means used in transferring of the authority to area governments; (6) proportion of total local expenditure to total public spending; (7) the kind of structure of organization, a simple tier structure of unitary authorities or multi-tiered structure, used in the system of decentralization in which the simpler a structure used will be the more decentralized than a complex structure; (8) proportion of local government revenues to total government revenues; (9) proportion of the employees of local governments to the employees of central government as the local public servants; and (10) the larger authorities are transferred to local governments, the more decentralized the system is (Smith,1980,p.138-141).

In addition, Conyers, Diana (1985, p.23-24) expressed that there are five main indicators which we can use to identify individual systems of decentralization namely, (1). the governmental functions which are transferred from

central government to sub-national level; (2). the kind of delegation, authority, and powers which are transferred in relation to each governmental function; (3). the level(s) or area(s) which obtains the delegation, authority or power; (4). the individual, organization or agency at each level which obtain the authority; and (5). the legal means used to transfer the authority.

In political science point of view, Wolman (1990, pp.37-41) defined four operational measures as a comparative setting for exploring the effect of differing degrees of decentralization i.e.: (1) main governmental functions handled by subnational governments; (2) the legal means used to transfer the autonomy from central government to subnational governments; (3) the degree of dependence of subnational governments finance on the central government.

Implementation of decentralization can take a variety forms. Countries may simultaneously use different types of decentralization for different functions. For example, some government functions may be devolved to subnational government, while others are deconcentrated to local offices of the central ministries. Mills et al (1990) identified nine government functions in health system that may be decentralized: (1) legislative--making laws on health issues, (2) revenue-raisin--determining and implementing the mechanisms for mobilizing resources to finance the health services, (3) policy-making—determining the broad and detailed policies to achieve goals of the health development, (4) regulation—indirectly controlling the operation of non-governmental health providers by administrative regulations such as licensing, (5) planning and resource allocation—formulating short and long term planning, and setting priorities of health sector development, (6) management—making operational decisions for providing health care services including personnel, budgeting, procurement, and maintenance, (7) intersectoral collaboration—establishing cooperation and network with other sectors or organizations, (8) interagency coordination—coordinating the policies and operations of various health agencies and providers, and (9) training—planning and executing training activities. The extent to which the nine functions may be decentralized in any particular form of decentralized system is presented in Table 1.

Table 1. Decentralization of Functions in Different Types of Decentralized System

Function	Deconcentration to Ministry Field Office	Devolution to Local Government	Delegation	Privatization
Legislative	-	**	-	-
Revenue-raising	*	**	**	***
Policy-making	-	**	**	**
Regulation	-	**	*	-
Planning and resource allocation	**	**	***	***
Management				
- personnel	*	**	***	***
- budgeting and expenditure	**	**	***	***
- procurement of supplies	*	**	***	***
- maintenance	*	**	***	***
Intersectoral collaboration	*	***	***	***
Interagency coordination	*	**	***	***
Training	*	**	***	***

Note:

*** Extensive responsibilities

** Some responsibilities

* Limited responsibilities

- No responsibilities

Source: Mills, Anne et al, 1990 p.26

Sustainability

Definition of program sustainability may vary for each discipline, but program sustainability generally described as the capacity of a program to continue to deliver its intended benefits over an extended period of time. The Operations Evaluation Department of the World Bank describes sustainability as follows (Valadez and Bamberger, 1994).

"The term of "sustainability" describes the ability of a project to maintain an acceptable level of benefit flows through its economic life. While this may often be expressed in quantitative terms involving the internal economic or financial rates of return, benefits may also be qualitatively assessed. For projects in the productive sectors such as industry, the principal measure of performance is output, generally expressed in terms of capacity utilization, but Bank-supported projects normally have another objectives such as sub-sectoral policies, technology transfer and institution building, which must be assessed qualitatively".

The issue of sustainability has been a great interest of donor countries and agencies. The term of sustainability was narrowly defined as the continuation of donor-assisted programs after international funding and technical assistance discontinued. Prince et al (1996) provide a greater operational meaning of the concept by developing the three-tier model which views the sustainability as a long term, dynamic process of development, and devoting efforts to basic problems of human welfare. According to the model, sustainability is seen as a form of organic evolution involving three levels of program management. The first level (Tier 1) refers to the ability to continue the original project activities. The second level (Tier 2) relates to the ability to adapt, modify, and enlarge the original program. This phase is characterized by an evolution from the dependence on external sources for professional management and financing to greater managerial, technical and financial self-sufficiency. The third level (Tier 3) is indicated by a high degree of professionalism in maintaining clarity and continuity in the national objectives being addressed and capability of integrating the project activities with other related programs.

The difference between host government and donor perspectives of sustainability is suggested by the Director of the External Aid Coordinating Committee in the Ghanaian Ministry of Health as cited in La Fond (1995):

Sustainability is important principle to both the Government of Ghana and the donors but it probably does not mean the same thing to both. Usually donors define sustainability to mean being able, after a period, to withdraw completely and have the system remain operational. We must remember that Ghana is not a rich country and that for a while yet we are going to need significant external support. With this proviso, we have no alternative but to consider sustainability in terms of organizational development and systematic growth, confidence building and improved efficiency in the use of resources.

Sustainability involves a multidimensional concept that can not be measured by a single indicator. Valadeze and Bamberger (1994) proposed four main indicators for measuring sustainability of social development programs: (1) continued delivery of services, (2) maintenance of physical infrastructure, (3) long-term institutional capacity, and (4) support from key stakeholders (see Table 2).

Other indicators to measure the degree of sustainability developed by Honadle and Van Sant cited in Prince et al (1996) include three main components, namely (1) the proportion of program-intimated goods and services that are still delivered produced and maintained five years past the termination of external assistance, (2) the continuation of local participation stimulated by the program, and (3) the expansion of the services and efforts as a results of program-built local capacity. Another approach to measuring the degree of sustainability for donor-assisted project concerning health manpower training and development cited by Prince et al involve three characteristics : self-financing, the

continuation of providing streams of benefits, and able to survive over time. As one of the basic requirements of sustainability, to be able to function effectively over time, a health care system needs to have two important features: (1) the ability to secure sufficient resources locally, and (2) the ability to deploy resources effectively and efficiently to meet health needs (Fond, 1995).

Table 2. An Index for Assessing Program Sustainability

	Indicator	Rating				
		1	2	3	4	5
A	<i>Continued delivery of services and benefits</i>					
A-1	Volume/ stability of actual and intended benefits					
A-2	Efficiency of service delivery					
A-3	Quality of services/ benefits					
A-4	Satisfaction of beneficiaries					
A-5	Distribution of benefits among economic and social groups					
B	<i>Maintenance of physical infrastructure</i>					
B-1	Condition of physical infrastructure					
B-2	Condition of plant and equipment					
B-3	Adequacy of maintenance procedures					
B-4	Efficiency of cost-recovery and adequacy of operating budget					
B-5	Beneficiary involvement in maintenance procedures					
C	<i>Long-term institutional capacity</i>					
C-1	Capacity and mandate of the principal operating agencies					
C-2	Stability of staff and budget of operating agency					
C-3	Adequacy of interagency coordination					
C-4	Adequacy of coordination with community organization and beneficiaries					
C-5	Flexibility and capacity to adapt project to changing circumstances					
D	<i>Support from stakeholders</i>					
D-1	Stability and strength of support from international agencies					
D-2	Stability and strength of support from national government					
D-3	Stability and strength of support from provincial and local government					
D-4	Stability and strength of support at the community level					
D-5	Ability of project to avoid becoming politically controversial					

Note: rating code: 1=very poor, 2=poor, 3=average, 4=good, and 5=very good

Source: Valadeze and Bamberger, 1994, p.194

III. Implementation of Decentralization: An Overview

The Indonesian independence from the Dutch was proclaimed by Ir. Soekarno and Dr. Mohammad Hatta on August 17, 1945. The highest political institution in Indonesian Government Structure is People's Consultative Assembly or Majelis Permusyawaratan Rakyat (MPR). The two important functions of the Assembly include electing the President and establishing the Guidelines of State Policy or Garis-Garis Besar Haluan Negara (GBHN) for implementation by the President. The legislative and budgetary powers are vested with the House Representatives or Dewan Perwakilan Rakyat (DPR). Members of the national and regional DPR are elected based upon proportional representation. The structure of Indonesian Government is presented in Figure 2.

A number of initiatives have been made at various times in Indonesia's post-independence history to establish representative decentralized units and to strengthen the level of local autonomy. Establishing the unity of the country—ethnically diverse and geographically dispersed collection of more than 13,000 islands integrated over a long period of time—has been a major concern of national leaders, and this might tend to make Indonesia's leaders suspicious of real decentralization (Smoke and Lewis, 1996).

The spirit of decentralization in Indonesia has been initiated since its independence of 1945 in which its Constitution implied in Article 18 that respect would be paid to regional autonomy. An important political initiative of the Government of Indonesia in promoting the decentralization was reached in 1974, when Law No.5, titled "The Republic of Indonesia: Elucidation of Basic Principles of Administration in the Regions" was established. The law outlines the main principles for the development of regional autonomy and provides legal basis for regional administration including for broad involvement of subnational units in provision of public services. Sujatmo (1991, pp.15-19) interpreted that the law 5 of 1974 was the most consistent and appropriate law with the Constitution in Article 18 among the available laws on regional autonomy, because the law was established with the spirit to return constitutional life by upholding the 1945 Constitution in a strict and consistent manner and by respecting Pancasila--the five inseparable and interrelated principles--as a state philosophy and ideology. The aim of the law of 1974 was intended not only for the democratic functioning of government, but also for increasing efficiency and effectivity in implementing development, conducting government, and delivering public services in the regions (Dorojatun, 1981 pp.146-147).

The Indonesian law recognizes two basic principle for the delivery of public services at the regional level, namely deconcentration and decentralization. The deconcentration refers to provision of public services by regional branches of the central government departments. The decentralization refers to provision autonomous subnational levels of government. Under the first principle the administrative levels consists of 27 provinces or Wilayah Tingkat I, 297 districts or Wilayah Tingkat II, 3,837 sub-district levels (Kecamatan), and 5,000 urban villages (Kelurahan). According to the second principle subnational government can be categorized into three levels of autonomous regions or Daerah Otonom including 27 Daerah Tingkat I (abbreviated to Dati I) which cover areas similar to those of their corresponding provinces, about 300 Daerah Tingkat II which cover areas identical to those of their corresponding districts, and about 62,000 villages (rural villages).

The transfer of power has been implemented by various statues and government regulations which stipulate the following

19 functions for local governments: (1) small holder agriculture, (2) animal husbandry, (3) inland fishery, (4) small scale rubber plantations, (5) larger plantations, (6) sea fisheries, (7) forestry, (8) education and culture, (9) public health, (10) local public works, (11) small scale industry, (12) small scale mining and quarrying, (13) housing, (14) traffic management/transportation, (15) general administration, (16) labor welfare, (17) social welfare, (18) tourism, and (19) local enterprise projects. Implementation of the regulations has been slow, and the central government involvement in local functions is still dominant.

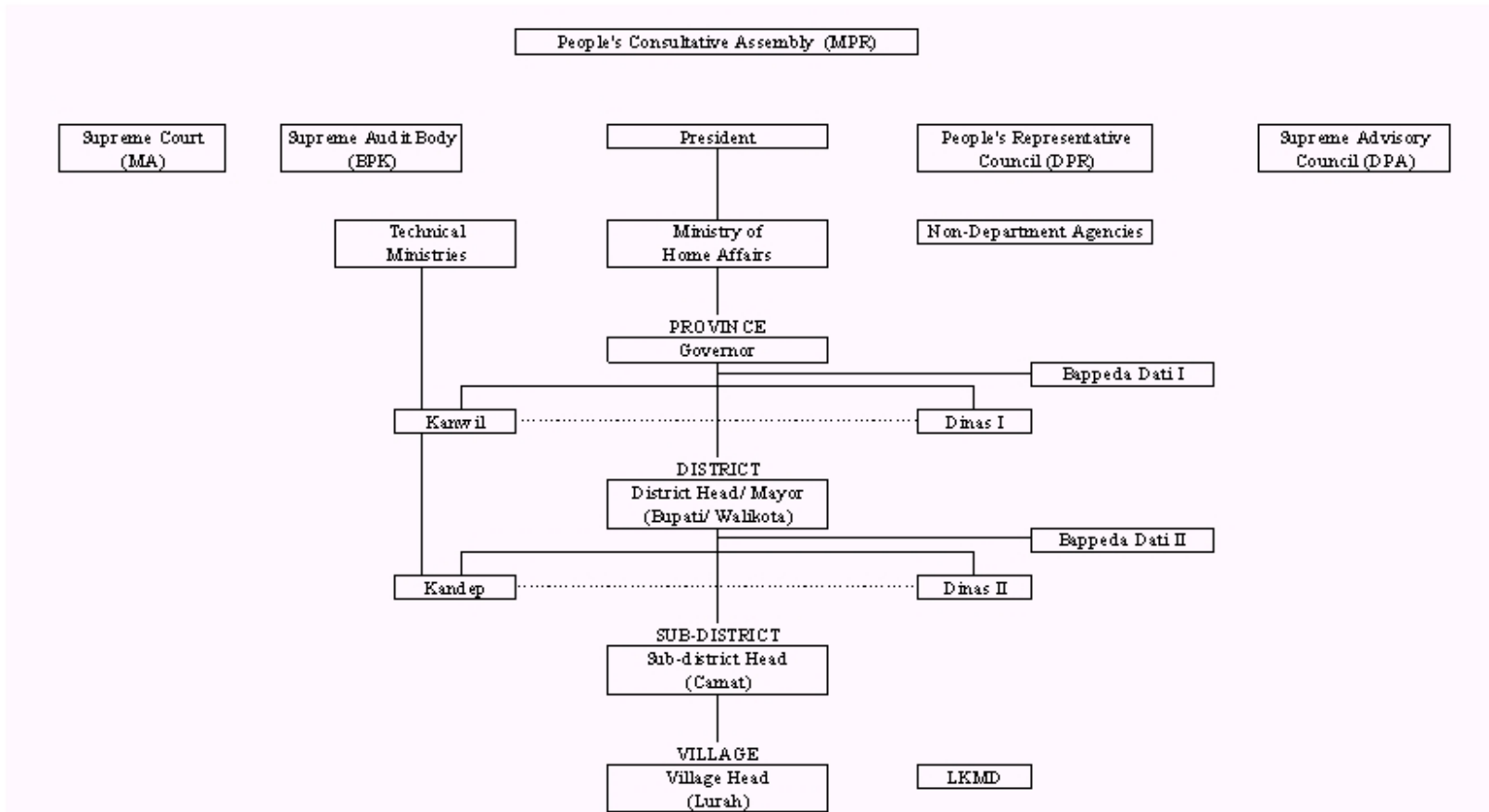
Decentralization of Development Planning

The role of central government in Indonesia is dominant in planning and budgeting decisions. The planning approach adopted by the Soeharto administration could be characterized as technocratic and highly centralized. Although there were development planning initiatives in the pre-Soeharto administration period, the present system of five year development plan took place in 1969 with the introduction of the Five Year Development Plan (Repelita) for the period 1969/70-1973/74. Since then, the plans have been implemented consistently and issued at regular five year intervals. The plans are essentially comprehensive and indicative, in which cover macro, regional, and sectoral policies. The National Development Planning Agency, under the Ministry of National Development Planning, is directly responsible to the President of Indonesia in planning and budgeting for the development programs. The historical perspective of the national development planning policies in the country is presented in Figure 3.

Repelita is incorporated into the annual budget, better known as the State Budget or Anggaran Pembangunan dan Belanja Negara (APBN), which is formulated each year and approved by the People's Representative Assembly. This formulation of the State Budget represents short-term planning which is operational in nature, and subsequently implemented by other technical ministries and government institutions. Since 1968, Indonesia have adopted 'balanced' budget policy. The planned expenditures have been paid with combination of taxes and external borrowing. The New Order Government administration has been successfully increasing real development resources over the years.

In order to promote the adjusted development strategy from the growth oriented-development strategy to the equity oriented-strategy, the central government paid more attention on the regional development aspects i.e.: to strengthen local planning capabilities and increase people's participation in development. In this regard, the central government established the Local Development Planning Agency (Bappeda Dati I) at province level in 1976 and the Local Development Planning Agency (Bappeda Dati II) at district level in 1981. The Local governments, at district and provincial level, have authority to choose and establish the local development planning agency personnel. Through establishment of both planning agencies and supported by human resources development program for local personnel, it was expected to improve mechanism and coordination of planning at region levels. In addition, a development coordination mechanism from sub-district level to national level was established to synchronize and integrate the regional and sectoral development efforts (see Figure 2).

Figure 2. Structure of Indonesian Government



Note:

MPR: Majelis Permusyawaratan Rakyat, DPR: Dewan perwakilan Rakyat, DPA: Dewan Pertimbangan Agung,

MA: Mahkamah Agung, and EPK: Badan Pemeriksa Keuangan

Dinas is local government service department, which Dinas I is responsible directly to

Governor and Dinas II is responsible directly to district head/mayor.

Bappeda Dati I and Bappeda Dati II are Local Development Planning Agency

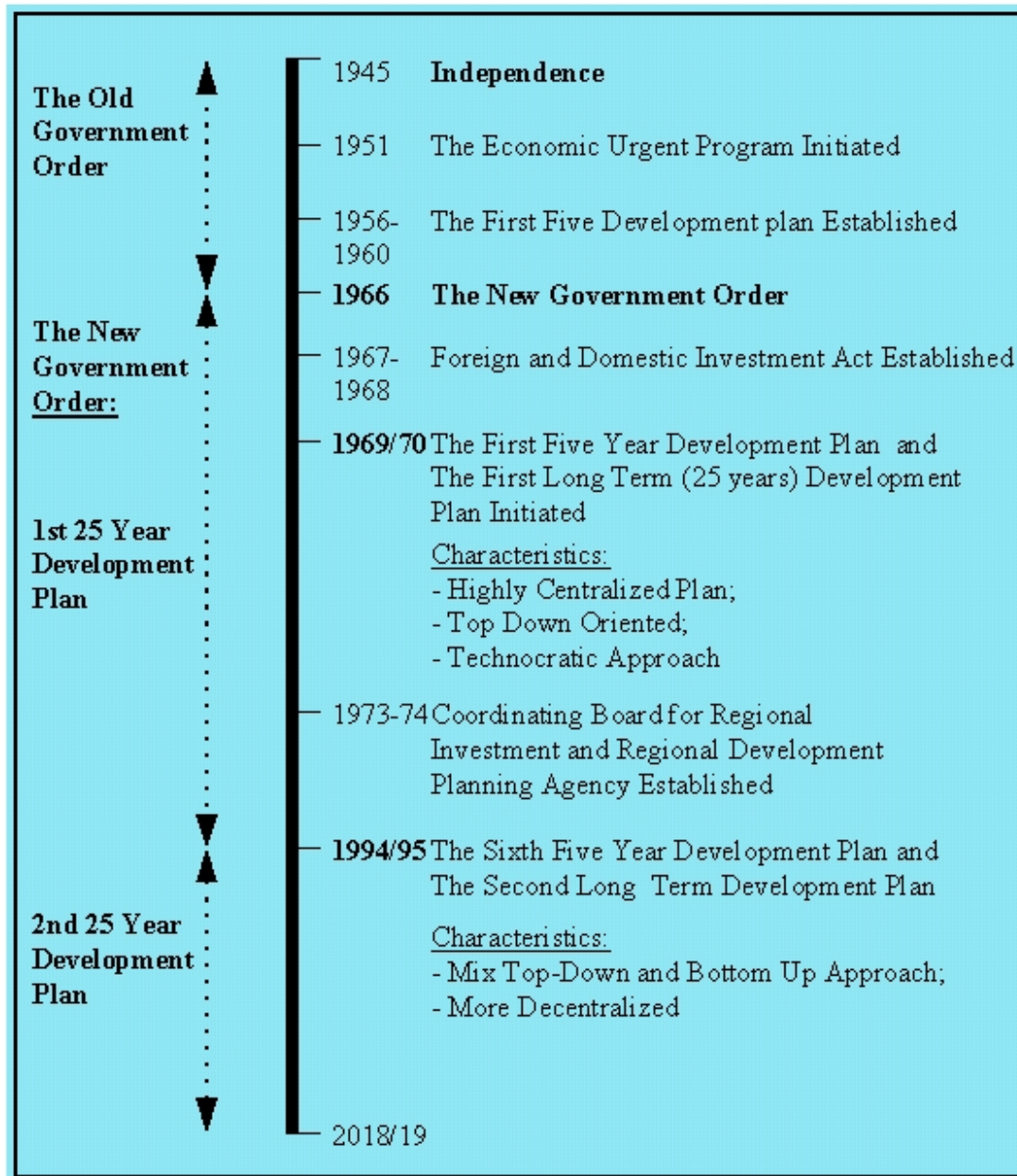
at provincial level and district level, respectively.

Both Dinas I and II have indirect link to the relevant central technical ministry

Karwil and Kandep are provincial and sub-district level office of central government ministry

LKMD is village planning board

Figure 3. Historical Perspective of Development Planning Policies in Indonesia



Under this hierarchical planning mechanism, the local governments at subdistrict, district, and provincial level have authority to formulate their local development planning and budgeting with respect to local issues and priorities, and considering the Guidelines for State Policy and the Five-Year Development Plan. The local development plan formulated and discussed hierarchically and inter-departmentally from sub-district level to provincial level, then, will be discussed and coordinated at national level. In this national development planning coordination at the capital city, the local governments supported by their Local Development Planning Agency (Bappeda Dati I and Dati II) has chance to present their local issues, development programs, and development policies to the central government. In this meeting, coordination and synchronization between regional and sectoral development, and regional and national development is also discussed intensively.

Fiscal Decentralization

Fiscal decentralization refers to a condition where regional and local government are given greater authority to mobilizing revenues and determining resource allocation. Fiscal relations between different levels of government in Indonesia, as in many developing countries, can be characterized as heavily centralized in which local government's fiscal largely relies on the central transfer. Regional government revenue comes from a wide range of sources, however, as in many developing countries much of the revenue originates from the central government transfer. The regional government sources include (1) subnational government own revenues (tax and non-tax), (2) assigned revenues (tax and non-tax share), and (3) subsidies, contribution and development grant from central.

In the early 1970s the Government of Indonesia initiated a broader grant program chartered by the Presidential Instruction (INPRES) intended for social and economic development expenditure. The primary goals of the program include assisting the attainment of the main national development objectives, improving the equity, and strengthening local autonomy. Since the establishment of the INPRES program, the central transfer to local authorities occurs in the two forms: general purpose and specific central transfer. The general purpose transfer funds are distributed to all levels of government ranging from provincial level to village level and can be allocated for local project development chosen within the local boundaries with subject to general guidelines from the central government. This grant program is primarily intended to promote local autonomy and improve local infrastructure. The block grant is mainly devoted to general Inpres programs including Provincial Development Grant (Inpres Dati I), District Development Grant (Inpres Dati II), Village Development Grant (Inpres Desa Tertinggal), and Less-Developed Village Grant (Inpres Desa tertinggal).

The specific purpose central transfer refers to specific block grant, which includes specific Inpres and subsidy for autonomous regions. Specific Inpres funds are specific block grant which is earmarked by the central government for specific uses such as public health, education, reforestation/conservation, and provincial and local road improvement. The specific block grant is created primarily to accelerate the achievement of national development targets such as health status and universal primary education. Subsidy for autonomous regions is designed to create fiscal balance in autonomous regions. It finances recurrent costs such as staff expenditures for provincial and local governments to enable them to balance their budget. From fiscal decentralization perspective, the general block grant has higher degree of local autonomy than the specific purpose central transfer, because the former provides more flexibility for local authority in spending the funds. The establishment of general block grant transfer and its expansion overtime has constituted the main government initiative at decentralization.

IV. Decentralization of Health Services

Rationale

There are several main factors underlying the Government of Indonesia's efforts to make local governments shoulder greater responsibilities in the provision of health services. The rationales of the decentralization initiatives include economic transition, demographic transition, epidemiological transition, efficiency factor and political consideration.

Economic Transition

Indonesia has experienced rapid economic growth and a changing economic structure in the last three decades. In 1967 Indonesia was one of the poorest country in the world with a per capita income of US\$50, about half that of India, Bangladesh, and Nigeria. Since then, it has made great performance, achieving an annual average real GDP growth at 7 percent annually during 1966-1995, implying higher than that of the world growth rate and high income countries. The continued economic growth has increased the nation's per capita income from US\$ 50 in 1967 to US\$950 in 1995. Table 3 presents international perspective on the trends of the macroeconomic indicators including growth rate of real GDP and real GDP per capita during 1966-1995.

Table 3

Growth of Real GDP/Growth of Real GDP Per Capita, 1966-1995

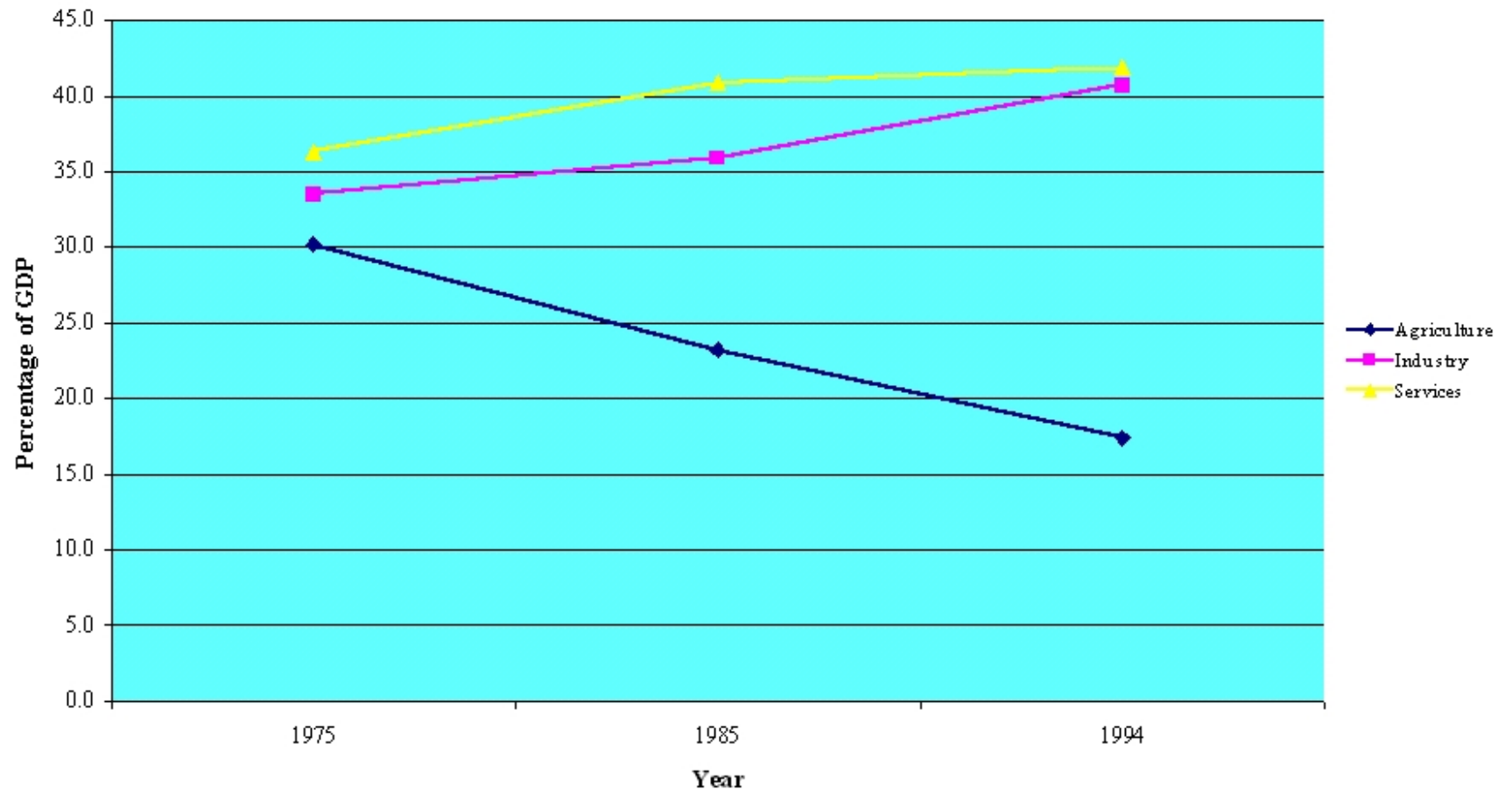
	1966-73	1974-90	1991-94	1994	1995 (estimate)
Indonesia	6.4	6.7	7.6	7.3	7.5
	3.9	4.7	5.8	5.7	6
World	5.1	3.0	1.5	2.9	2.8
	3.0	1.2	-0.1	1.3	1.4
High Income Countries	4.8	2.8	1.7	3.0	2.5
	3.8	2.1	1.0	2.3	1.8
Low- and Middle Income Countries	6.9	3.6	1.0	2.5	3.9
	4.3	1.6	-0.7	0.8	2.3

Source: Global Economic Prospects and Developing Countries, World Bank (1996)

The auspicious economic growth was initially energized by import-substitution and oil-based industries, which gradually promoted an export-oriented manufacturing industries. A series of deregulation on fiscal, trade and investment procedures was introduced to accelerate the flow of foreign investments and to increase the private sector participation in economic sector and provision of infrastructure. Supported with prudent macroeconomic management, which has been hallmark of the government policies, the inflation rate has been maintained below two digits.

Indonesia's reliance on industrialized for continued rapid growth has resulted in changes in the structure of production. The economic transition was indicated by declining contribution of agriculture sector to the national economy from about 30 percent in 1975 to 17% in 1994; while, the role of industrial sector particularly manufacturing industries and service industries increased over the period of time (see Figure 4).

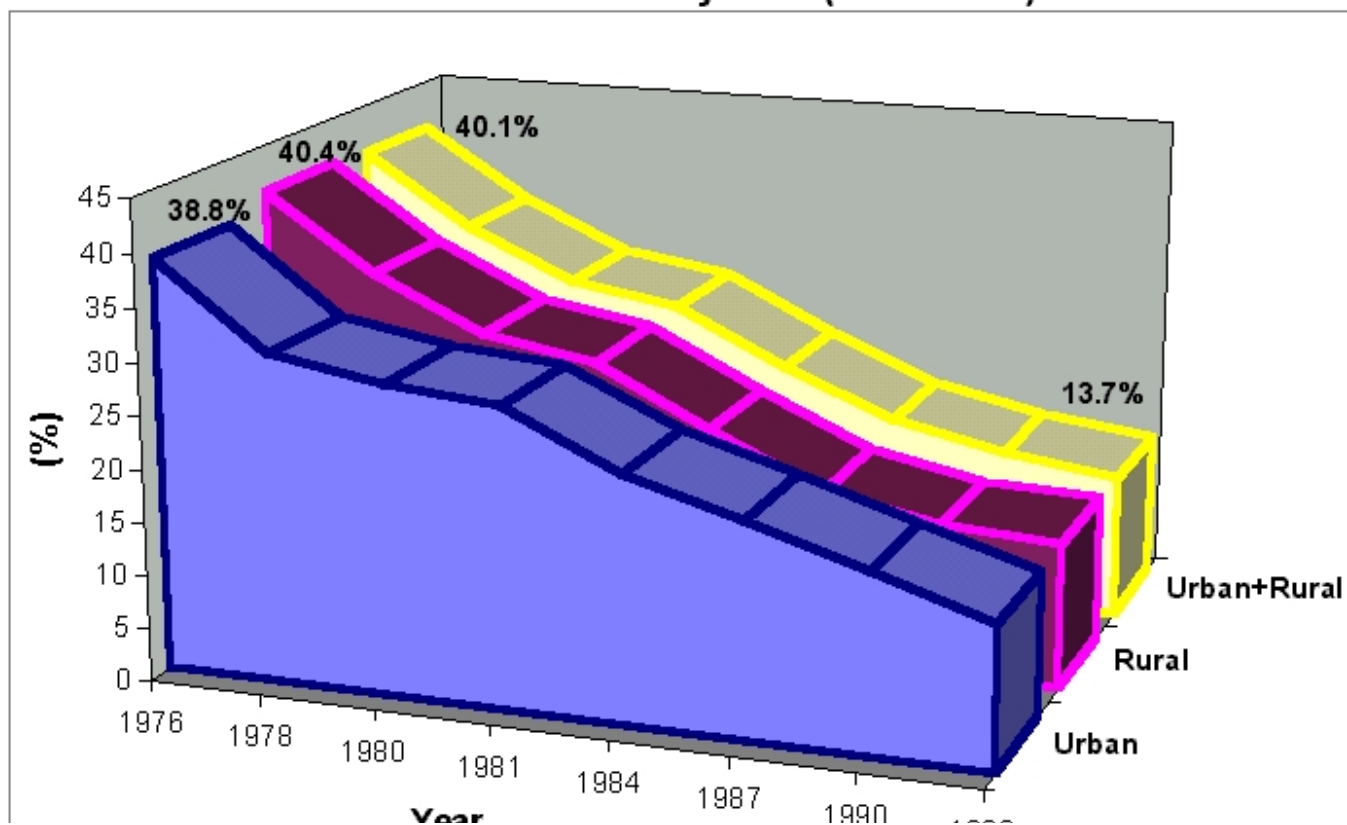
Figure 4
Structure of Production



Sustained rapid economic growth has allowed living standard to improve significantly as reflected by a substantial reduction in poverty rate. According to the World Bank's estimates, at the beginning of the 1970s' 60% of the population or about 70 million Indonesians were living in poverty. Based on the national survey conducted by CBS, the results indicated that the percentage of the population below the poverty line declined from 40% (38.8% urban and 40.4% rural) in 1976 to 15.1% (16.8% urban and 14.3% rural) in 1990, implying an absolute decline in the number of poor people from about 54.2 million people in 1976 to 27.2 million people in 1990². The private incidence continued declining to 13.7 percent or about 26 million in 1993 (see Figure 5). The improvement in the economic indicators and the distribution of wealth has important implications to the demand of health care and participation of private sector in the provision of health care.

Figure 5

Trend of Proportion of Population below the Poverty Line (1976-1993)



Source: Central Bureau of Statistic (1995)

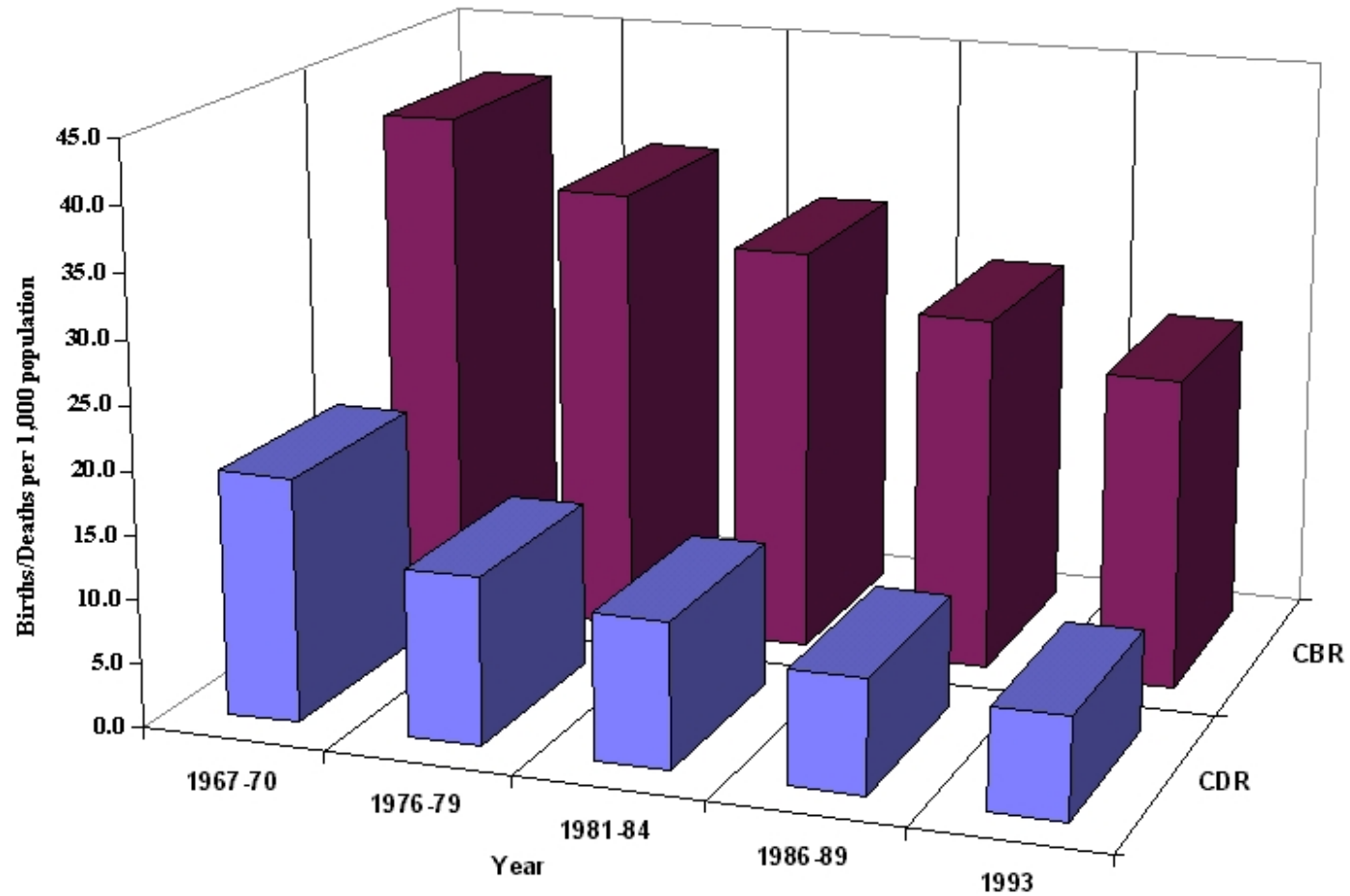
Demographic Transition

Demographic change in Indonesia indicates a similar pattern to that of the developed countries. The transitions include a significant decline in fertility rate, crude death rate and the rapid growth of urban population which have importance implications for the provision of types of health care and distribution of health services.

Following to the successful in economic performance, Indonesia also has impressive records in family planning. Since the late 1960s when the Government of Indonesia launched family planning program intended to slow the rate of population growth, the prevalence of contraceptive use among married couples increased significantly from only about 10 percent in 1960 to more than 45 percent in the late 1980s. Combined with raising income, the expansion of health care services, the achievement of universal primary education, an increase in the average age of married contributed to a significant decline in crude death rate and fertility rate (see Figure 6). As result, the overall population growth fell from 2.4 percent per annum in the late 1970s to 1.8 per cent in the late 1980s, to 1.6 percent at present (see Figure 7). In addition, the outstanding records in reducing IMR and increasing life expectancy have important influence in age structure and dependency ratio. The demographic transition can be seen in the changes of age structure by the increasing proportion of aging population and working group and the declining proportion of population ages 0-14 year during the 1971-1995 period (see Figure 8).

Figure 6

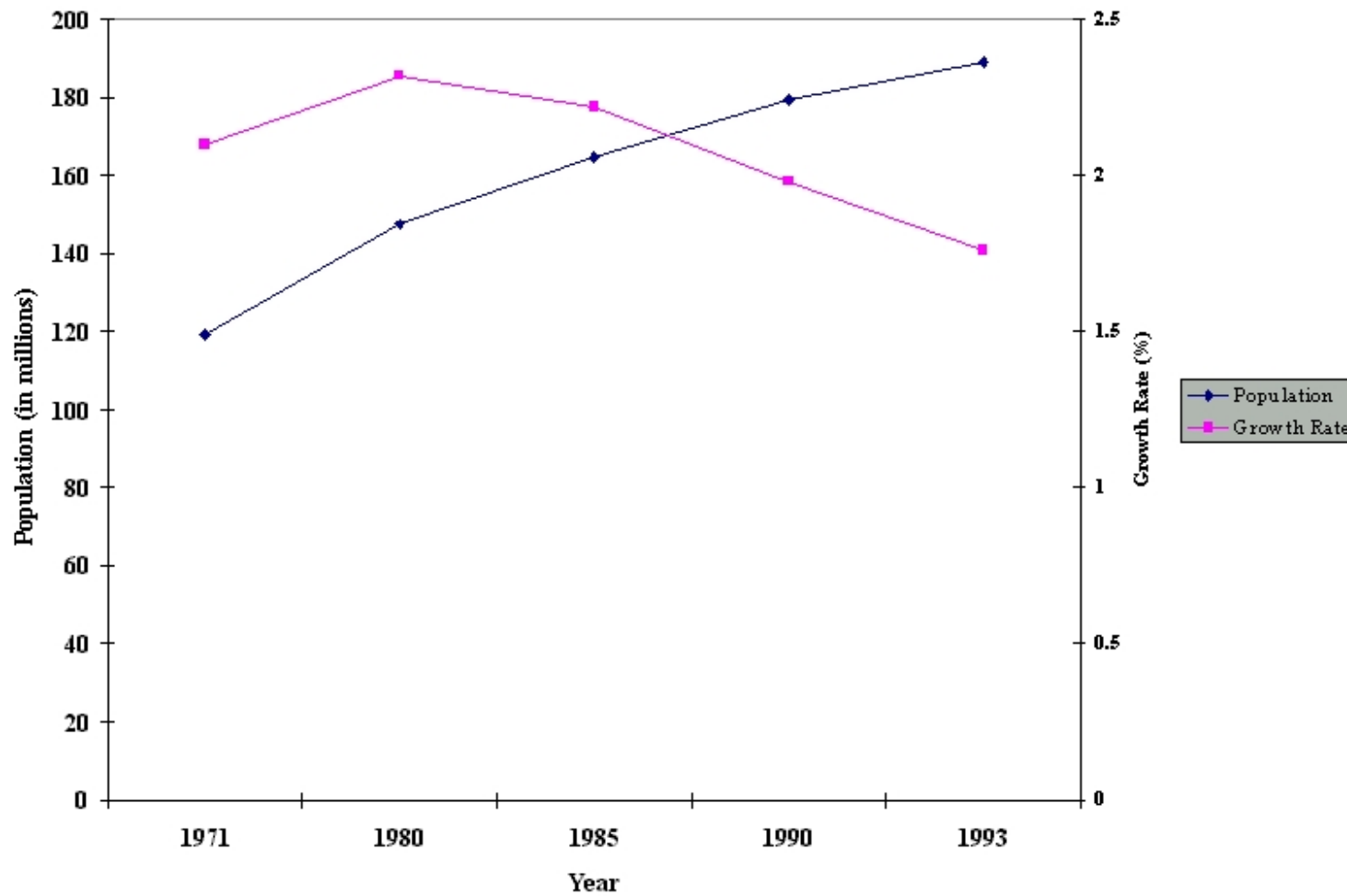
Crude Birth Rate (CBR) and Crude Death Rate (CDR), 1967-1993



Source: Indonesia Demographic and Health Survey 1994, CBS, MoH, and SMP/NFPCB

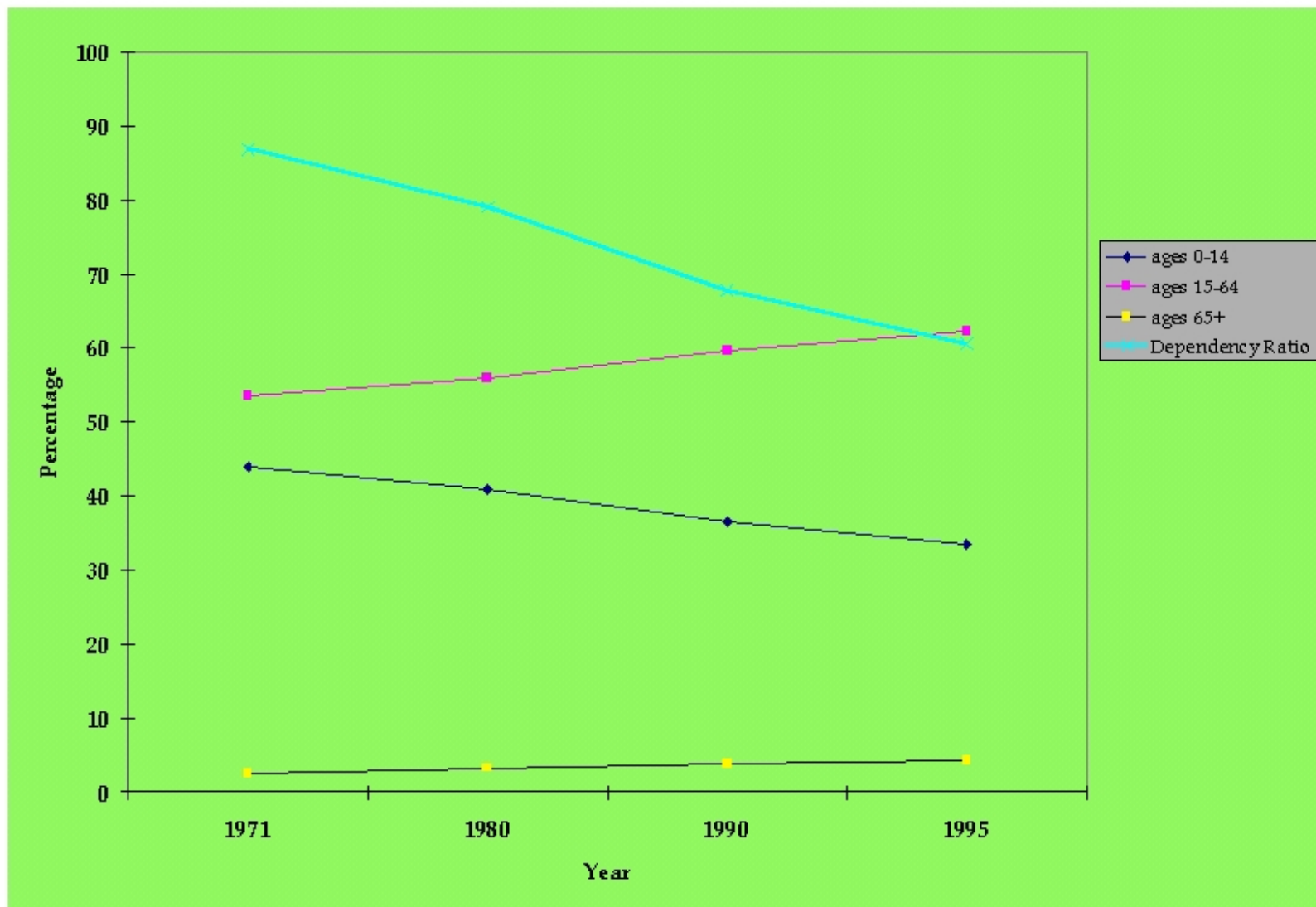
Figure 7

Population and Growth Rate, 1971-1993



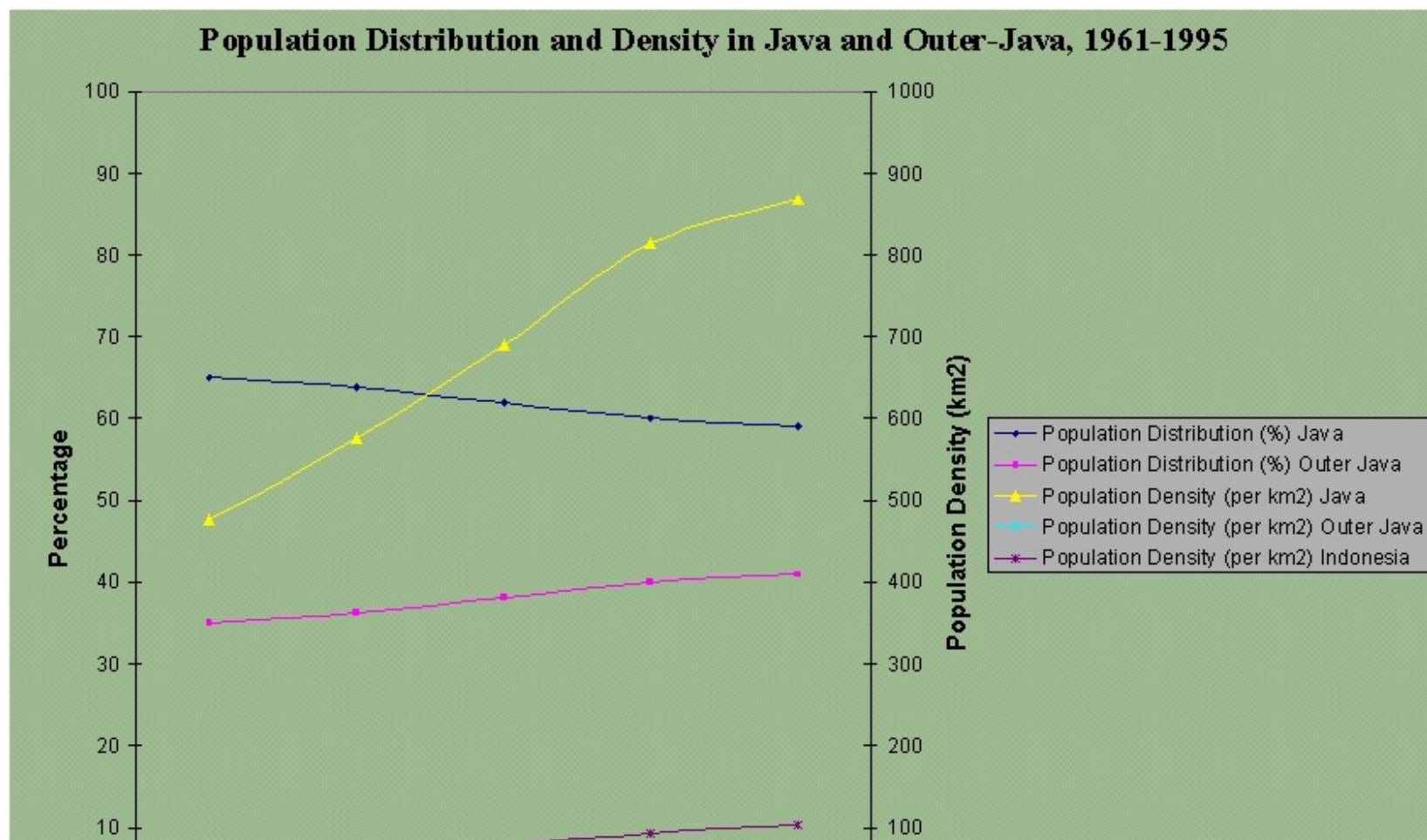
Source: Indonesia Demographic and Health Survey 1994,
CBS, MoH, and SMP/NFPCB

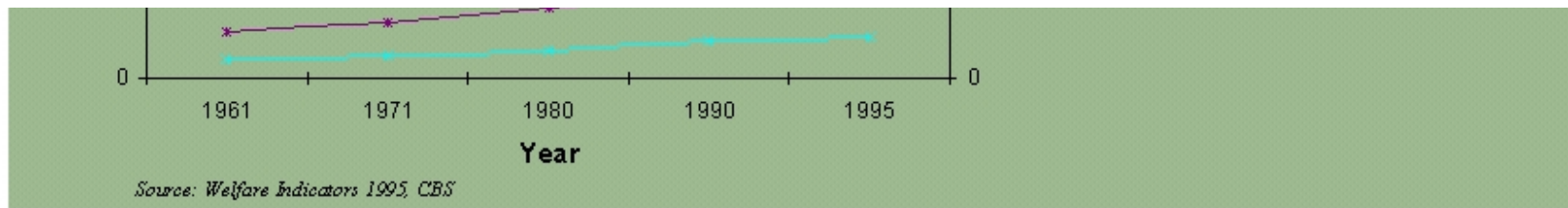
Figure 8. Age Structure and Dependency Ratio, 1971-1995



The structural change in economy and growing opportunities for employment in the industrial and services sectors in urban centers affects population distribution between rural and urban areas. Proportion of rural population declined from about 85 percent in 1961 to 65 percent in 1994; while, urban population increased from only 15 percent to 35 percent over the same period (see Figure 9). The urban transition is occurring more rapidly in Java, accounting to only about 7 percent of the land area with about 60 percent of the total population, which is already 36 percent urban and could exceed 60 percent by the year 2020.

Figure 9



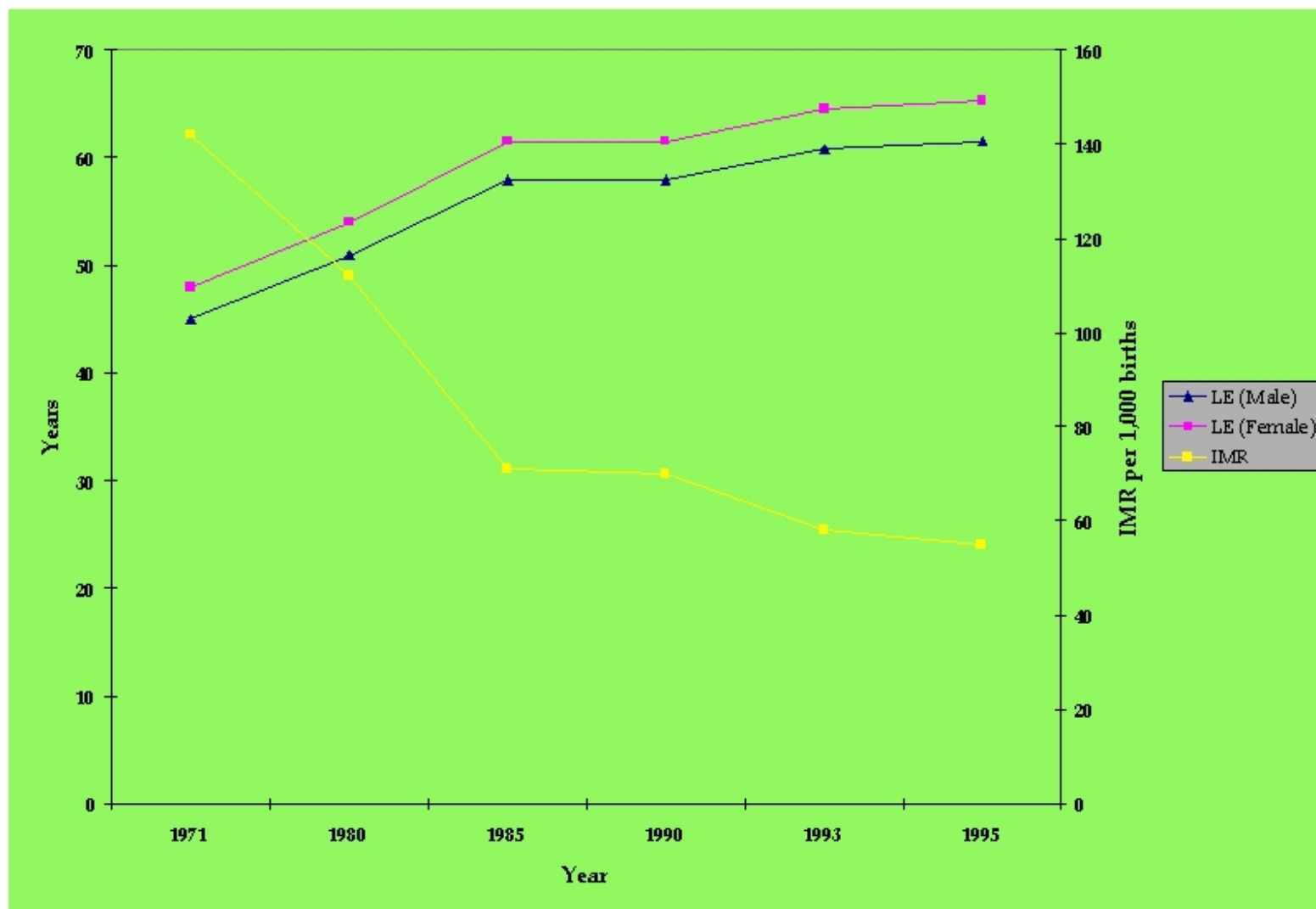


Epidemiological Transition

Epidemiological transition refers to changes in configuration of causes of death and source of morbidity. Many developed countries have experienced successful epidemiological transition as characterized with declining infectious diseases occurring mainly in the younger groups and emerging degenerative disease in older group (Drake, 1993). Unlike developed countries, Indonesia, as many developing countries, has experienced 'double burden', in which acute infectious diseases such as diarrhea, tuberculosis, respiratory infections, and tetanus remain a serious problems; while, there is a significant increase in chronic degenerative disease such as cardiovascular diseases which become an important cause of death.

Indonesia's health sector performance has been impressive over the past three decades. The infant mortality rate (IMR) declined sharply from about 142 per 1,000 live births in 1971 to 55 in 1995. Similarly, life expectancy both for Indonesian males and females improved from 45 and 48 years in 1971 to 61.5 and 65.3 years, respectively (see Figure 10). The outstanding records in reducing IMR and increasing life expectancy have important influence in the age structure and dependency ratio during the same period.

The health sector performance was associated with the significant expansion in coverage with government-financed primary health programs and community health services, which took place during the oil boom period of the 1970s and the early 1980s. In 1971, Indonesia's crude petroleum sold for an average price of \$ 1.70 per barrel. By July 1, 1974 the price increased to \$ 12.60. This growth, augmented by expansion in production, resulted in the nation's oil export rising from \$ 834 million in 1972 to \$ 4.7 billion in 1974 (Woo, 1994).

Figure 10. Life Expectancy at Birth by Sex and Infant Mortality Rate, 1971-1995

Political and Economic Considerations

Growing awareness of the weaknesses of the centralized structure has been one of main justifications for the Government of Indonesia focusing more attention on promoting greater degree of local autonomy in provision of public services. From political perspective, a tremendous variation of the 27 provinces of the country in natural and human resource endowments, in religious, cultural and ethnic is the most critical factor of the national political stability. The promotion of decentralization policies could ensure widespread regional and local participation in the national development which provide, in turn, political glue to maintain the national unity.

From economic perspective, Oates (1971) provides an eloquent argument on the weakness of the centralized structure in providing public services. He suggests that a one-size-fits-all approach commonly adopted by the centralized planning system leads to the government to provide a bundle of public goods different from the preference of citizens of particular regions, provinces, or districts. The preferences vary geographically, the uniform policy is likely to force some localities to consume more or less than they would prefer to consume. Decentralization contributes to more efficient provision of local public services by allowing a better matching of expenditures with local priorities and preferences.

Combined with the political and economic considerations, the family of transitions--the economic, demographic and epidemiological transitions-- facing the nation have created a greater demand for better equity and quality of health services. With the government's contribution of only about 2.5 percent of the total budget for health sector, the demand of health care has exceeded the government's ability to provide the necessary subsidies. Promoting decentralization and strengthening community participation including private sector in provision of health services becomes an important policy agenda in response to the financial constraints, and the equity and the quality of health care services in Indonesia. Decentralization of health care sector in Indonesia dictates that regional and local government set their own health service priorities within overall national guidelines and targets. The subnational governments estimate the financial and human resources required, prepare and defend their proposals with central government ministries, supervise and monitor the health service activities. The purpose of this section is to provide an overview on the implementation of decentralization of health care in the country with focusing on planning and financing issues.

Health Development Planning

The general policies to achieve the main objectives of the health care sector include improvement of even distribution and quality of health services, and improvement of people's health and nutritional status. The enhancement of distribution and quality of health services emphasize primary health services, implemented through community health centers and sub-centers, village midwives, and other medical centers, as well as referral health services through the regency hospitals (see Figure 9). The main priority is given to eradication of communicable diseases. To support the poverty alleviation program, health development focus on improving access to quality health service for poor families, especially young children, pregnant mothers, and old people. Health services for this purpose concentrate on primary health care in community health centers and integrated health posts, provision of clean water, nutritional improvement, supplementary feeding to under-served primary school children, and environmental sanitation.

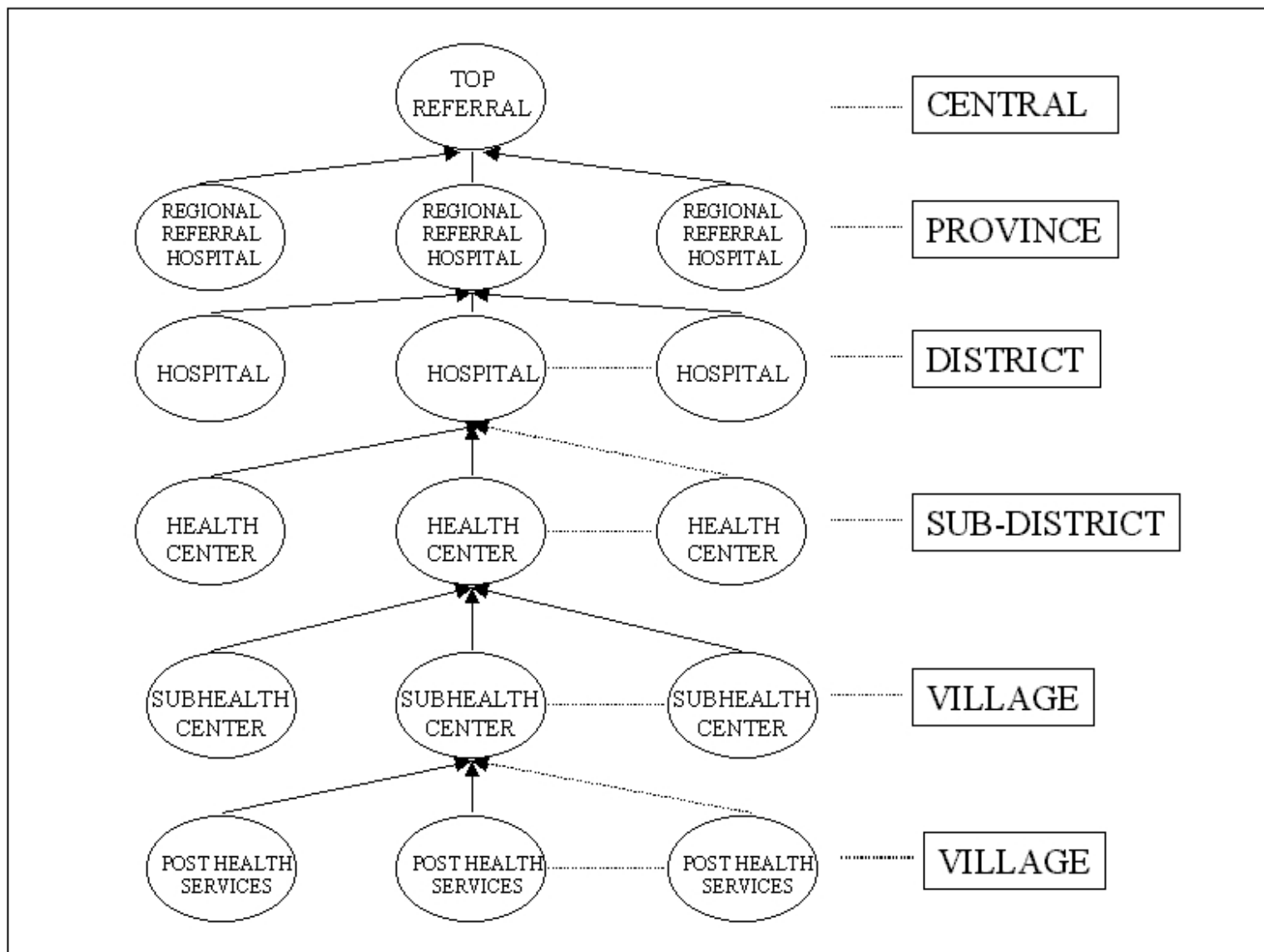
The health development planning process in Indonesia was implemented through top-down approach. Currently, the planning process evolves to more decentralized fashion. The preparation of health sector development planning at all levels of government is implemented within a national coordinative framework involving two basic approaches, namely bottom up and top down. The bottom up approach refers to a consultation process in which each government level formulates

draft annual health program based on proposals submitted from the next lowest government level. The bottom up planning process starts with meetings at village level or the desa/kelurahan level of the LKMD, chaired by village head and attended by sub-district representatives. In the meeting project elements in which consist of activities, source of finance including local government contribution and central government grant are formulated for submission to the next level of government (district). At the subdistrict level or the kecamatan meetings which are chaired by subdistrict head and attended representatives of district, district development planning agency, and sub-district level central government deconcentrated agencies will be discussed the desa/kelurahan proposals. The main purpose of the coordination meeting at the subdistrict level is to review and filter out the proposals considered defective and duplicative of other activities, and prepare the subdistrict plan for submission to the district level.

Kepala Daerah Tingkat II formally requests all regional and deconcentrated central government agencies at district level to prepare health development project submission for forthcoming year. Regional Development Planning agency at district level (Bappeda II) is responsible to collect the submissions and integrate them with those from the kecamatan level. The development proposals are then discussed at the Development Coordination Meeting at district level or Rakorbang Tingkat II. The planning process at the district level is summary of the project proposals supplemented by justification document for each project including the proposed financing sources such as local contribution, provincial contribution, and central grant. The reviewed health proposals are then submitted to the provincial government.

The similar planning process is also utilized at the Development Coordinating Meeting at provincial level involving Provincial Development Planning Agency (Bappeda I), district heads, Bappeda II, deconcentrated central government agencies at provincial level. Following the provincial meeting, there are Inter-Regional Development Consultation Meeting involving several provinces where are located within the same region. The meeting comprises central and provincial representatives to discuss project proposals that involve more than one province. The health projects selected from the provincial and regional meeting are assembled and organized in standard format containing priorities activities, description and objective of activities, and proposed financing sources including local and regional contribution.

Figure 11. Health Care Delivery System in Indonesia



The bottom up planning approach is completed by the National Development Coordination Meeting or Rapat Koordinasi Pembangunan Nasional (Rakornas) in Jakarta, chaired by National Development Planning Agency (Bappenas) and attended by representatives of Ministry of Health, Home Affairs and concerned central technical departments, Governors, Provincial and District Development Planning Agencies. In this national meeting each Governor makes a formal presentation of the project proposals being submitted from his province. The main purpose of the meeting is to enable central officials to understand and discuss the views of the regional governments.

The top-down planning approach starts with central discussions within Bappenas and Bappenas with Ministry of Health and other technical ministries to develop alternative health development proposals with considering the national targets and issues emerging from the Rakornas. Based on the Ministry of Finance's estimate of the national revenue and the requirements of the national routine budget, the proposed national development is identified in a meeting between Bappenas and Ministry of Finance. The initial draft of forthcoming national development budget prepared by Bappenas is then reviewed in the cabinet meeting chaired by the President. After approval by the cabinet, the full draft is presented to People's Representative Council or DPR by the President. After discussions the DPR approves the final budget. The regional governments are not involved in the top-down planning process.

One of the national policy concern to address the health development planning and budgeting issues is how to define an alternative sectoral planning strategy that can preserve past gains and promote a sustained health programs particularly at local level. The macroeconomic adjustment implemented by the central government in 1983, as a response to the dramatic change economic environment in the early 1980s, led to a significant reduction in the central government expenditure on the health programs. This declining public expenditure has had significant impact on the local governments' expenditure on the sectoral development (see Table 4).

As a response to the regional fiscal issues, in the late 1980s, the government of Indonesia initiated Health Project III, well known as Resource Mobilization Project, in two provinces, East Kalimantan and West Nusa Tenggara. The main objectives of the health project are (i) to improve the quality and accessibility of health services for increasing the health and nutritional status of the community, and (ii) to strengthen health resource mobilization through providing a greater role of local governments and community participation in the health planning and budgeting. The instrument policies of the project applied to the two provinces include (1) providing a greater authority to local government in the planning, budgeting, implementation and monitoring of the health development programs, (2) promoting community participation in the planning, implementation, and monitoring activities of the programs, and (3) promoting pricing adjustment of health services and protecting the poor from high fee of the primary health services.

Table 4 provides illustrative data on the trends of health expenditure for the two provinces from 1982/83 to 1987/88. In East Kalimantan real expenditures fell by 35.5% over the period of time, reflecting not only a 43% cut in central government transfers but also a 18% cut in local government spending. Similarly, in West Nusa Tenggara aggregate spending declined by 23%, as result a declining level of both central and regional government expenditures. Certainly, overall finance levels has not been sustained by either central or regional governments since the structural adjustment initiated by the country in 1983. The two provinces have distinct characteristic in terms of total areas, population density, health indicators, and economic condition (see Table 5)

Table 4

**Trends of Government Expenditure on Health:
Central Government and Selected Provinces (1982/83-1987/88)**

Province	Expenditure (Rp. Billion)			Central as % of total
	Central	Province	Total	
<u>East Kalimantan</u>				
1982/83	7.21	2.87	10.08	72
1983/84	5.88	2.11	8.00	74
1984/85	5.53	2.37	7.90	70
1985/86	5.96	2.84	8.80	68
1986/87	5.20	2.88	8.07	64
1987/88	4.14	2.36	6.50	64
<u>West Nusa Tenggara</u>				
1982/83	6.37	0.83	7.20	88
1983/84	6.37	0.65	7.02	91
1984/85	5.87	0.63	6.50	90
1985/86	6.48	0.84	7.32	89
1986/87	6.06	0.83	6.88	88
1987/88	4.77	0.77	5.54	86

Source: Ministry of Health and the World Bank

Table 5. Social, Economic, and Demographic Characteristics of West Nusa Tenggara Barat and East Kalimantan Provinces

Indicators	West Nusa Tenggara	East Kalimantan	Indonesia
Area (km²)	20,177	202,400	1,919,497
Population Density per km² (people)	173	10	97
Life Expectancy in 1980 (years)	39.1	53.8	52.2
Infant Mortality Rate (per 1,000 live birth)	282	148	162
Regional Income per capita in 1993 (Rupiah)	285,573	3,232,750	744,751

Source: Ministry of Health and Bappenas

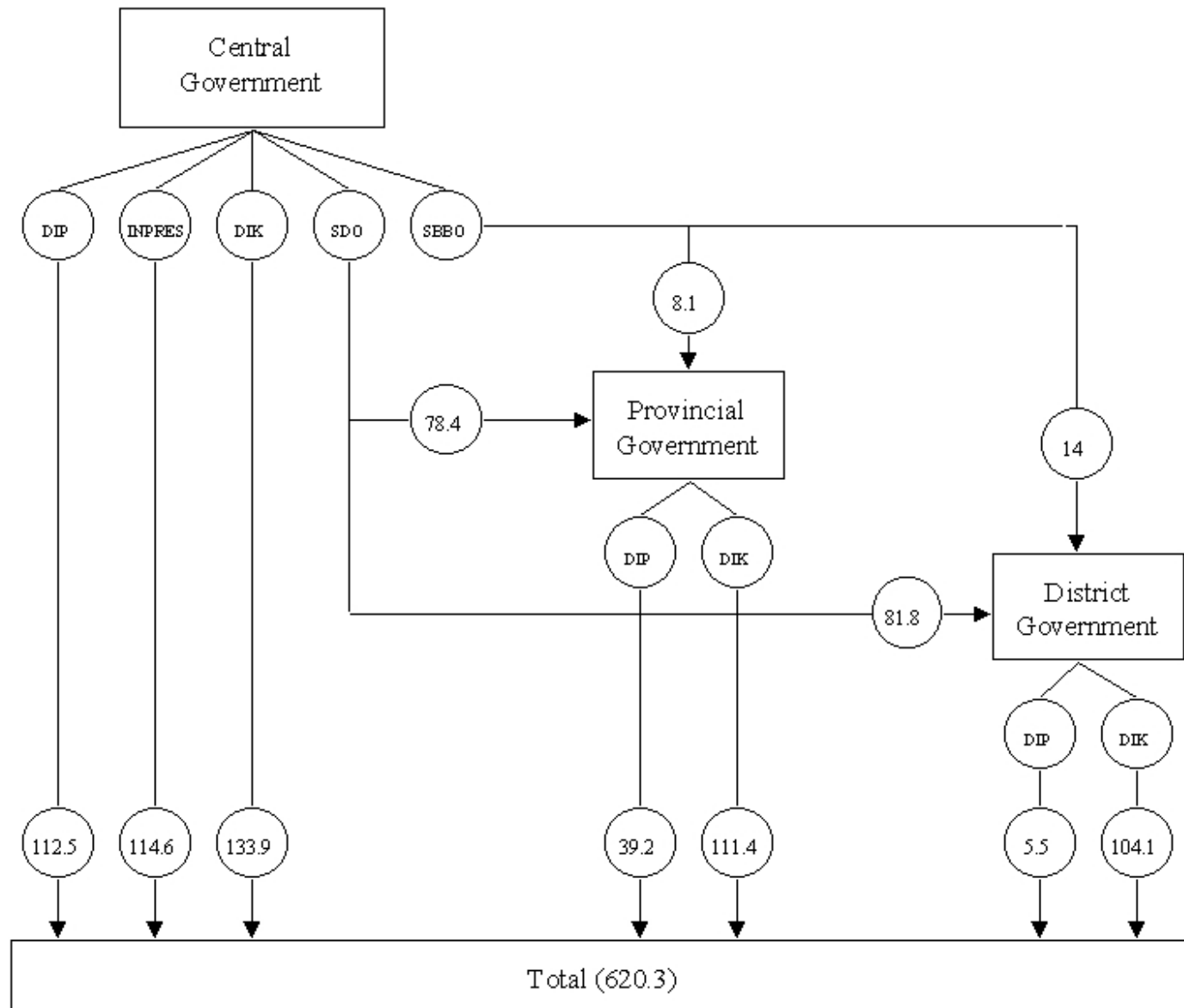
Health Development Financing

As discussed above, the fiscal intergovernmental relation in Indonesia is biased on the central government. The highly centralized fiscal relation has an important role in determining the structure of health development financing. Before examining government expenditure in health care, it is important to understand complexity of the existing of government finance and its implication for budgeting in health care and flexibility of regional government in carrying out the responsibilities.

Main budgetary sources of public health sector finance in Indonesia consist of central government and regional and local government funds. The central sources include (1) central of Ministry of Health development budget or APBN-DIP, (2) central of Ministry of Health routine budget or APBN-DIK, (3) sectoral development grant to regional governments or Inpres Kesehatan, (4) project aids including grants or loan, (5) salary expenditure grant to regional governments or SDO, and (6) nonsalary expenditure grant for regional hospitals. The regional funds include (1) provincial health office development budget or APBD1-DIP, (2) provincial health office routine budget or APBD1-DIK, (3) district health office development budget or APBD2-DIP, and (4) district health office routine budget or APBD2-DIK. The fragmentation of health budgeting between multiple channels split between the central and regional levels of government for fiscal year 1985/86 is presented in Figure 12. The budgetary flows show that majority of public health sector activities was financed by the central transfer, accounting for about 75 percent of the total budget.

As shown in the budgetary scheme, the central transfer to local governments channeled through APBN-DIP (Rp.112.5 billion), APBN-DIK (Rp.114.6 billion), and Inpres Kesehatan (Rp. 133.9 billion) accounted for about 60 percent of the government budget. From fiscal decentralization perspective, sectoral development grant to regional governments or Inpres Kesehatan has the highest degree of local autonomy among the three central transfers. Even though the Inpres Kesehatan fund is earmarked for public health activities such as provision of health centers, subhealth centers, mobile health centers, drugs, and operational and maintenance costs for the health facilities, the use of this budget is still less restrictive than the others. For example, local governments have authority to determine location of and procure the health facilities including particular types of medicine, and manage operational and maintenance cost of the facilities. The program has important contribution in improving the coverage and the quality of health care in the country. Since the Inpres Kesehatan initiated in the early 1970s, the budget grew significantly from only Rp. 79.3 billion in 1986/87 to Rp. 339.5 billion in 1993/94, implying an average annual growth rate of 27.2 percent over the period of time. The expansion of the health budget overtime has constituted the government efforts at decentralization.

Figure 12. Budgetary Flows for Health, 1985/86 (in Rp.Billion)



Another decentralization measure initiated by the Government of Indonesia is the Unit Swadana Hospital (self-financing hospital). The program was enacted through a presidential decree in 1991 which was aimed at providing a greater autonomy and flexibility to public hospitals in (1) promoting the social equity and the accessibility, (2) improving the quality of services, (3) improving hospital efficiency through a better resource allocation, (4) retaining hospital revenues and carrying out hospital spending, and (5) promoting resource mobilization such as user fees (Gani, 1997).

The pilot project of the Unit Swadana Hospital policy was implemented in five vertical hospitals with under supervision of the Ministry of Health in 1991. Before the implementation, the concept was disseminated through a series of training programs, seminars and workshops. The hospitals participating in the program was also provided by necessary additional medical and non-medical equipment to satisfy the standard of services determined by the Ministry of Health. Implementation of the self-finance hospitals programs have been replicated to a number of regional hospitals after satisfying the minimum criteria determined by the government. The conditions applied by the government to choosing public hospitals participating in the programs are as follows (Department of Health, 1995).

1. The hospital has demonstrated efficient performance for 3 consecutive years, as indicated by bed occupancy, length of stay, and turnover interval;
2. Its cost recovery rate has reached at least 50 percent;
3. There is evidence of commitment from the hospital administration including the director;
4. There is evidence of commitment and support from the Ministry of internal Affairs and the local government; and
5. The community served by the hospital has the ability to pay for its own medical services as indicated by social and economic characteristics of the region.

The government policies in strengthening the capacity of local hospital institution and providing a greater authority to the local hospital administration has been continuously endorsed. In the early 1990s the central government created an operation and maintenance block grant program. The main goal of the program is to improve quality of public hospital service. The grant was transferred directly to the local hospitals such that the local hospitals have power of spending to carry out the responsibilities.

V. Implications of the Decentralization Measures on Sustainability of Health Service Delivery

Decentralization has long been recognized as a means to promote efficiency and responsiveness of the public programs and strengthen community participation. The government policy is sustainable if it promotes increased welfare through better health outcomes, greater equity, more efficient, and greater community participation. This section will discuss the implications of the Indonesian decentralization efforts on the important conditions required in sustaining health service delivery at the local level. The main requirements of the sustainability that will be explored in this section include the intergovernmental fiscal relationship, efficiency, equity, and cost recovery issues.

Intergovernmental Fiscal Relationship

Fiscal decentralization has important role to promote more efficient and equitable provision of public services including health services through a better matching expenditure with local priorities and preferences (Shah, 1994). The implementation of fiscal decentralization policies in Indonesia has been focused on providing greater expenditure responsibilities to local government through the central transfer mechanism. Since the INPRES program initiated in the early 1970s, the general block grant, which represents higher degree of local autonomy than the specific purpose central transfer, has been significantly broadened. The block grant had been expanded from only Rp.599.2 billion in 1986/87 to Rp.2,202.8

billion, implying an average annual growth rate of 21.6 percent during the period of time.

Figure 13 provides spatial illustration on allocation of regional block grant per capita and fiscal capacity, the ability of subnational units to raise revenue from their own sources, as measured by provincial revenue per capita. Measures adopted by the Government of Indonesia in implementing the fiscal equalization grant was established not only on ground of fiscal capacity, but also cost variations and equity indicators such as health and education status, population, personal disposable income, areas, and availability of infrastructure. For example, outer Java provinces such as Irian Jaya, East Kalimantan, and Central Kalimantan that had higher regional revenue per capita received relatively higher provincial block grant. On the other hand, Java provinces including Jakarta, West Java, Central Java, and East Java with modest regional revenue per capita received smaller block grant than the outer Java provinces. One possible explanation is that social, economic and demographic indicators including the availability of infrastructure in the Java provinces are better than those in the outer Java regions.

The intergovernmental fiscal relationship, however, is still highly biased to the central government. The degree of dependency of local governments on central revenues is very dominant. Local government is able to finance only a small proportion of their responsibilities from own revenues. National and regional government budget structure during period of 1975/76-1990/91 is presented in Figure 14. In 1990/91, regional and local governments were responsible for about 16.9 percent of consolidated general government expenditures but raised only about 5.7 percent of consolidated general government revenues. Table 6 provides estimates of vertical imbalance in the country in 1991. The large fiscal deficiency for local units in the country was indicated by a low proportion of own-source revenue to expenditures. For example, without the central transfer at district level the proportion (0.28) is even lower than that at provincial level (0.38).

From international perspective, the level of fiscal deficiency for subnational government, measured by the coefficient of vertical imbalance, is also large (see Figure 15). The fiscal coefficient was developed by Hunter (1977) which attempted to measure the degree of fiscal control practiced by the central government over subnational levels (Shah, 1994). Mathematically the coefficient of vertical imbalance can be formulated as follows.

$$\text{Coefficient of Vertical Imbalance} = 1 - ((\text{TRsp} + \text{TRgp} + \text{REVsh} + \text{B})) / \text{EXP}$$

Where:

TRPsp: Specific purpose central transfers to subnational units;

TRgp: General purpose central transfers to subnational units;

B: Borrowing by subnational governments;

EXP: Subnational government expenditures; and

REVsh: Shared revenues.

Figure 13. The Relationship between Regional Block Grant per capita (1990/91-1992/93) and Regional Revenue per capita (1990/91)

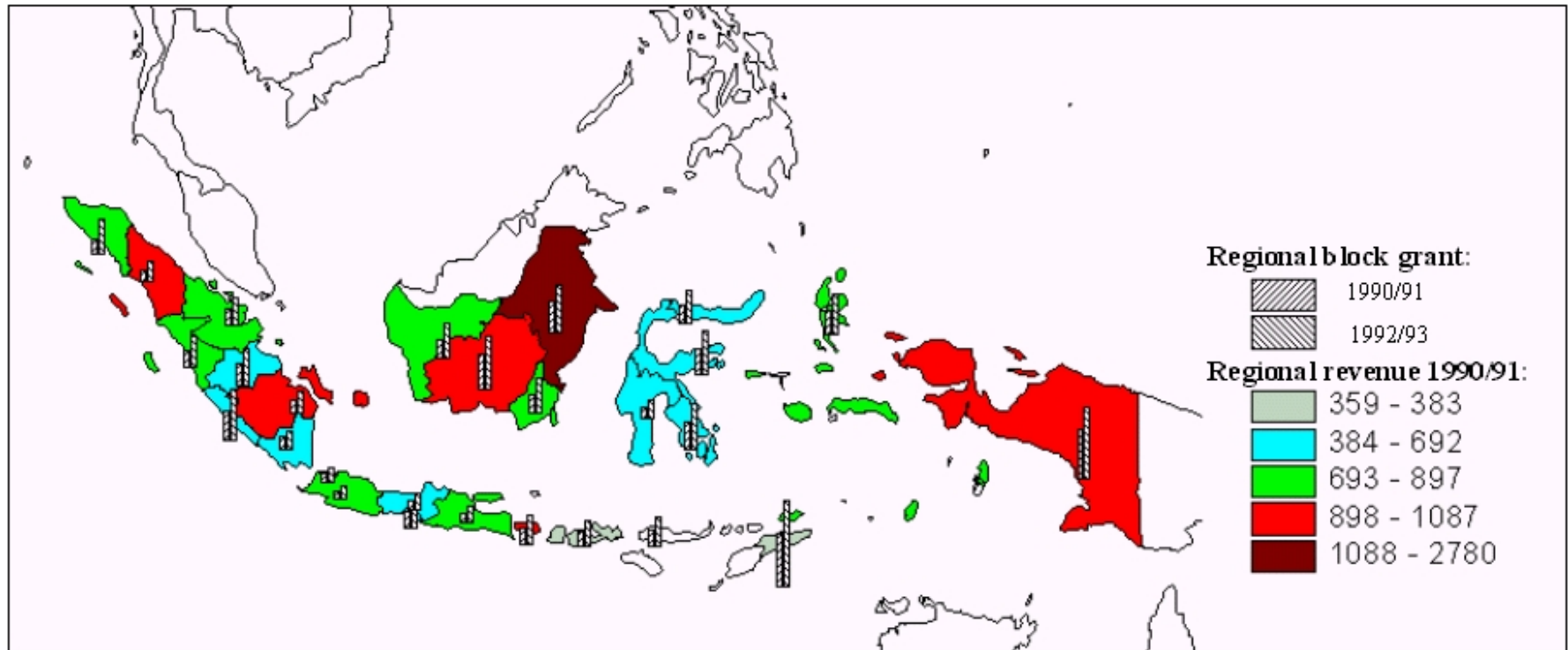


Figure 14. National and Regional Government Budget Structure, 1975-1990/91

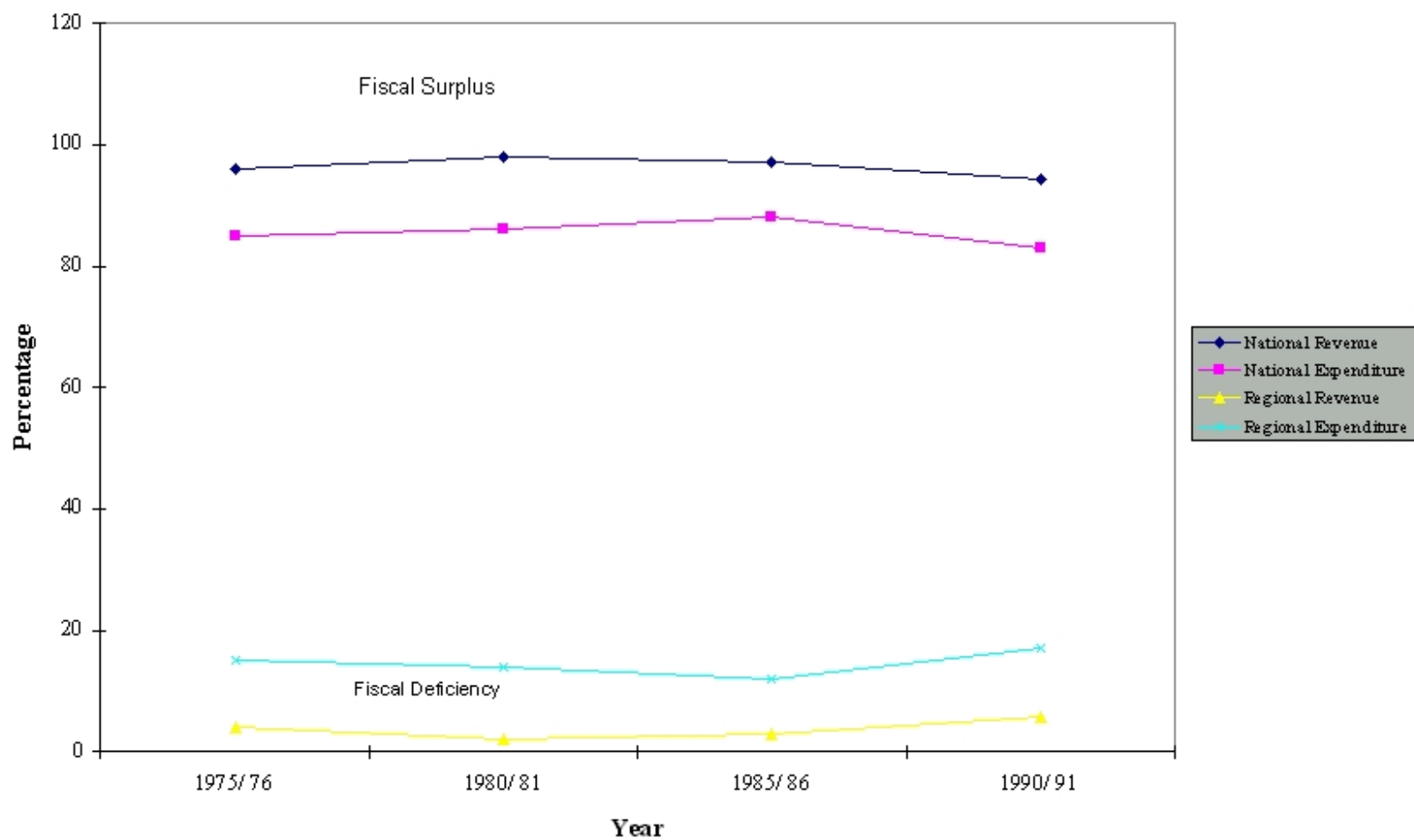
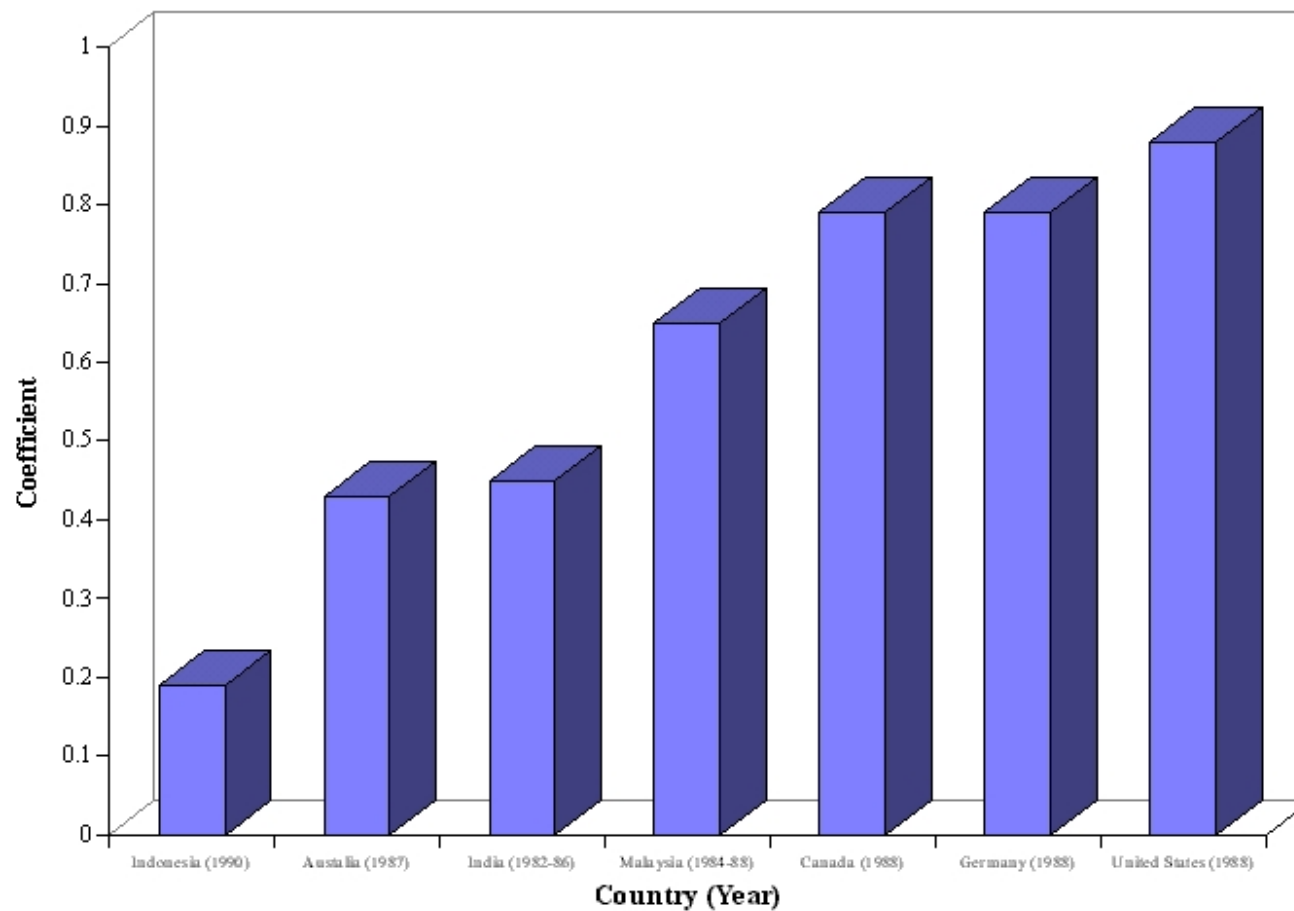


Table 6. Vertical Fiscal Imbalance in Indonesia (Percentage), 1991

	Revenue Share	Expenditure Share	Surplus/Deficit
<u>Own Source and Shared Revenues</u>			
National	94.3	83.1	11.2
Subnational	5.7	16.9	-11.2
Provincial	3.5	9.3	-5.8
Local (District)	2.2	7.6	-5.4
All Levels	100.0	100.0	0.0
<u>Own Source, Shared Revenues and Transfers</u>			
National	82.2	83.1	-0.9
Subnational	17.8	16.9	0.9
Provincial	9.9	9.3	0.6
Local (District)	7.9	7.6	0.3
All Levels	100.0	100.0	0.0

Source: Shah, Anwar et al (1996)

Figure 15. Coefficient of Vertical Fiscal Imbalance for Selected Countries



Equity

Equity is another important element of the sustainability of health care in the country. In order to improve distribution and quality of health services, particularly primary health services, the government of Indonesia has continuously provided health centers, sub-health centers, hospitals, medical and non-medical equipment, and health workers including doctors and midwives. These facilities are distributed across the country, with a special attention devoted to the poor and community who live in isolated, remote, and slum areas. As noted above, the primary health services are implemented through an integrated health care network which consists of community health centers and sub-centers, village midwives, and other medical centers, as well as referral health services through the regency hospitals. In the early 1970s, the first five year development plan implemented, number of health center was only 1.277 units and this number increased remarkably to 6.277 units in the early 1990s. This achievement suggested that on average number of population served by one health center have been improved significantly from 96,000 to 28,000 over the period of time. Similarly, number of sub-health centers increased solidly from none in the late 1960s to 18.946 units in the early 1990s, reflecting that on average every health center is supported at least by 3 sub-health centers. Moreover, number of equipped district hospitals and number of beds also grew rapidly over the period of time. In order to improve the quality of services, in line with the increased provision of physical health facilities, number of doctors, midwives, and paramedics who have been trained regularly and distributed across the nation have been expanded over the past three decades.

Indonesia has made solid records in curbing infant mortality rate over the past three decades. Infant mortality rate that accounts account for around 30% of total deaths has become policy concern in the government's overall strategy of health development. Figure 16 provides illustrative data on performance of each province in curbing IMR in 1980 and 1990. The data shows that some province performed very well in improving the health status and another provinces did not. For example, West Nusa Tenggara had made an impressive record in reducing IMR by 48% over the period of time, implying an absolute decline in number of infant deaths from 282 per 1,000 live births in 1980 to 145 in 1990. Similarly, East Nusa Tenggara and West Java made a solid achievement in reducing IMR from 192 and 200 per 1,000 live births in 1980 to 77 and 90 in 1990, respectively. By contrast, compared with the three provinces, D.I. Yogyakarta just made a 47 cut in IMR over the period of time. Different initial condition of IMR and endowments among provinces and 'diminishing technical rate of substitution' of health interventions may justify why each province made different performance in improving the health status. Even though the equity of health status has been improved, the spatial disparity of the availability of health care facilities and the health outcome in Indonesia is still prevalence. Figure 17 presents illustrative data for spatial distribution of IMR in Indonesia in 1990.

Figure 16

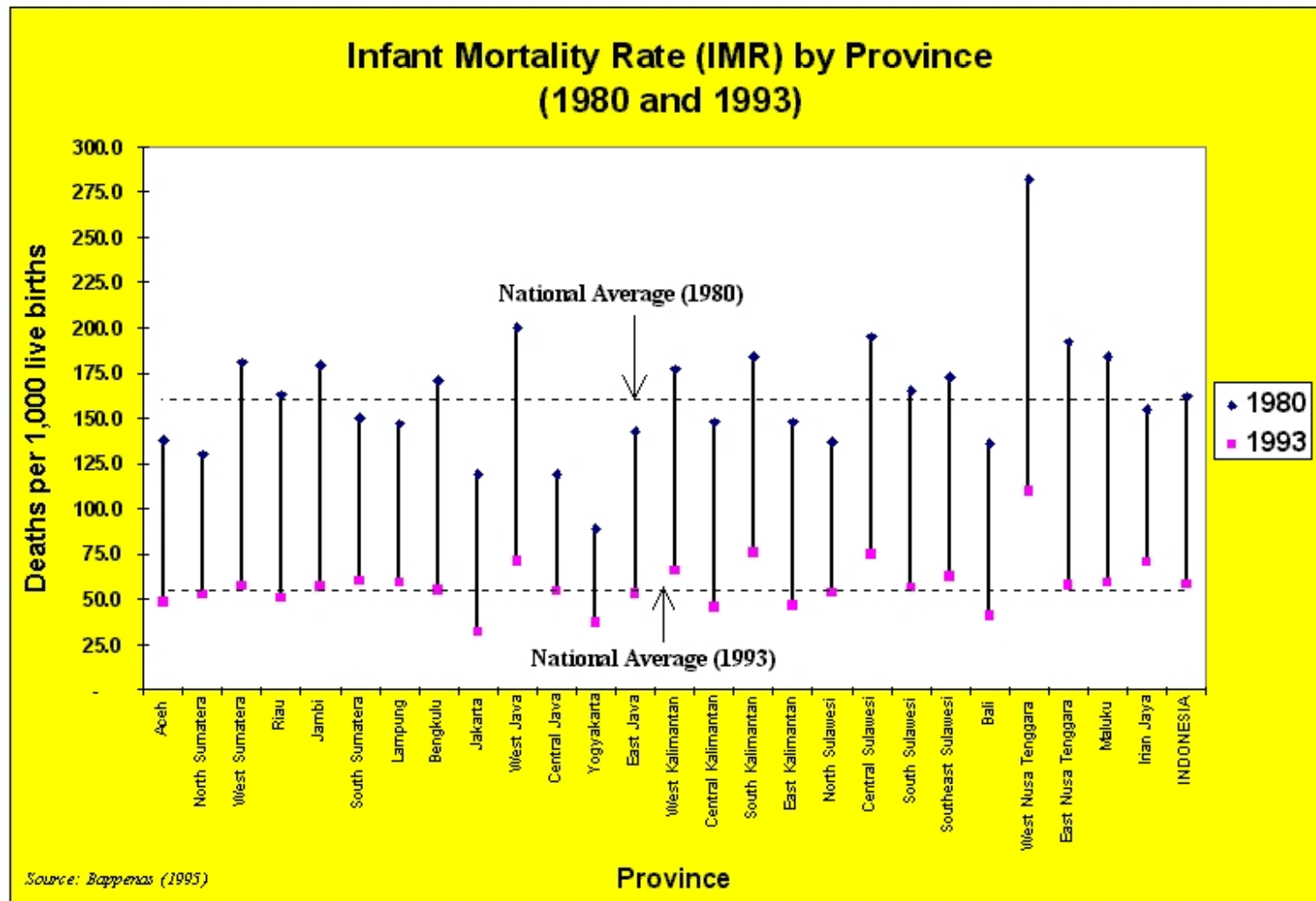
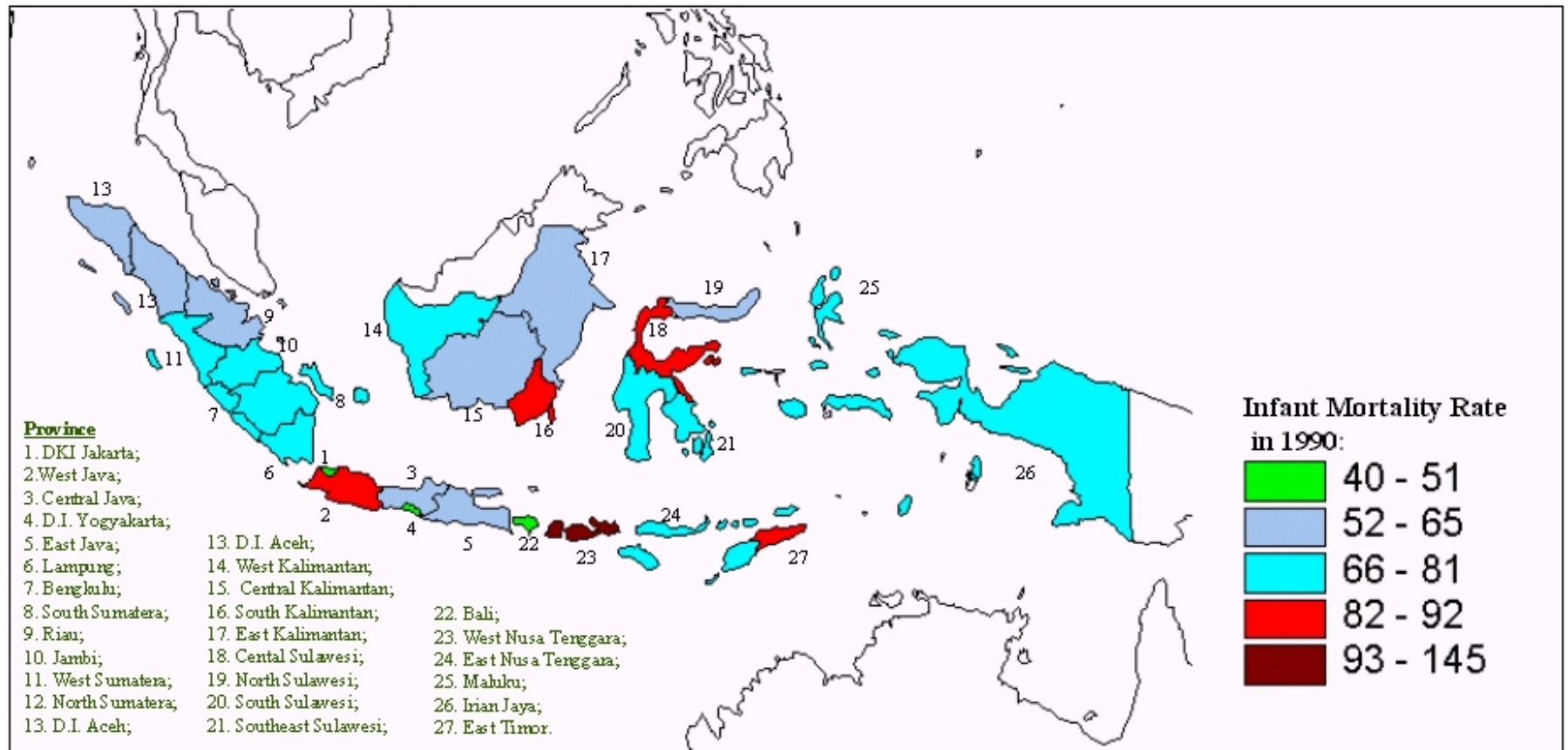


Figure 17. Infant Mortality Rate by Province in 1990



Efficiency

Efficient provision of health services is another important indicator pertaining to the sustainability of the health system. Partial empirical evidence on the impact of implementation of decentralization policies on the efficiency in Indonesia exists for health sector, however, it needs to be interpreted with caution.

As been noted above, in the past three decades Indonesia has been remarkably successful in improving health status. The infant mortality rate (IMR) declined sharply from about 142 per 1,000 live births in 1971 to 55 in 1995. Similarly, life expectancy both for Indonesian males and females improved significantly over the same period of time. The impressive health sector performance was associated with the significant expansion in coverage with government-financed primary health programs and community health services, which took place in the early 1970s when the Presidential Instruction (Inpres) program was initiated. The increasing public health expenditure during the oil boom period of the 1970s and the 1980s had significant impact on the coverage and quality of health facilities. During the period of time, the health outcomes have been improved at very significant rate. The Inpres program which includes provision of general purpose block grant and public health block grant allows local governments to improve the coverage and the quality of health care facilities. The block grant program provides flexibility for local government in spending the funds. The establishment of both general and specific block grants and its expansion overtime has constituted the government efforts at decentralization.

However, since 1982 the external economic environment faced by the country has deteriorated considerably as a consequence of sharp decline in real oil prices. The resulting necessity for tight public expenditure restraint to promote macroeconomic adjustment has led to a significant reduction in central government expenditure on the health programs. Under the nation's highly centralized planning system, the declining central government expenditure on public health programs would threaten the sustainability of provision of health care at local level. Interestingly, despite during the macroeconomic adjustment period, the health status was still improving, but at smaller rate than that during the oil boom period. Ranis and Stewart (1994), using simple multiple correlation between Inpres expenditure on health investment per capita and other variables at provincial level in Indonesia, suggest that during the oil boom period, health investment were positively associated only to the number of health centers per capita; however, during the period of 1984-1988, when the government had fewer funds because of the declining oil revenues, more distributive fashion were adopted in which regions with fewer health facilities per capita and lower life expectancy received larger per capita investments in health.

Recognizing closer attention and responsiveness to local needs and preferences and elimination of administration layers, efficient provision of public health services requires the responsibility for these services to be placed as much as possible in local government. (Shah, 1994).

The technocratic planning strategy, characterized by promoting the government uniform nationwide policies of health programs, also have difficulties in accommodating properly the local needs and preferences into the national policies, and recognizing local specific health issues. Fainstein and Fainstein (1996) describes that the technocrats make explicit the planners belief's that there is indeed some common interest that technician of goodwill is able to identify and maximize, implying that technician and administrators not only know best but know enough. For example, continuing provision of sub-health centers, part of the overall national policies, is assumed as an effective instrument to improve the expected health indicators. This thinking beliefs that more health facilities expand coverage of services, promotes better services, and automatically increase the quality of health.

The spatial distribution of sub-health centers versus the improvement of IMR between 1993 and 1990 among provinces is presented in Figure 18. The four bars from left to right in each province, respectively, represent ratio of health center and sub health center per 100,000 population in 1990 and ratio of health center and sub health center per 100,000 population in 1993. The improvement of IMR each province during the period of time is divided into five groups as illustrated by five different colors. For example, availability of health facilities as indicated by the ratio of the health facilities in Irian Jaya and North Sulawesi in 1990 and 1993 was better than East Nusa Tenggara, West Nusa Tenggara, and the Java provinces. But the improvement of infant mortality rate in the former provinces was achieved at smaller rate than that at the latter provinces. Similar empirical evidence was found in the relationship between the improvement in IMR and health budget per capita and immunization coverage (see Figures 19-21). This result suggests that the relationship between the availability and the health outcomes assumed by the technocratic strategy was not the case in some provinces during the period of time. It might also indicate that there might be other important factors influencing the health outcomes that was not considered properly in formulating the planning strategy.

The lack of local participation as consequences of the central approach also can be seen on numerous empirical evidence of the way the local regions determine to where location of health facilities will be built. According to the Home Affairs's regulation on provision of health services, local governments are responsible to provide land for new health facilities development that is primarily financed by central government transfers. But, some empirical evidence indicate that local governments providing land located on low cost land areas, where are generally at remote location, less accessible by common modes of transportation, and very low population density. Another example, the sectoral development concern is barely raised by the local government officials in the national planning meeting events.

Figure 18. The Relationship between Improvement in IMR and Availability of Health Facilities, 1990-1993

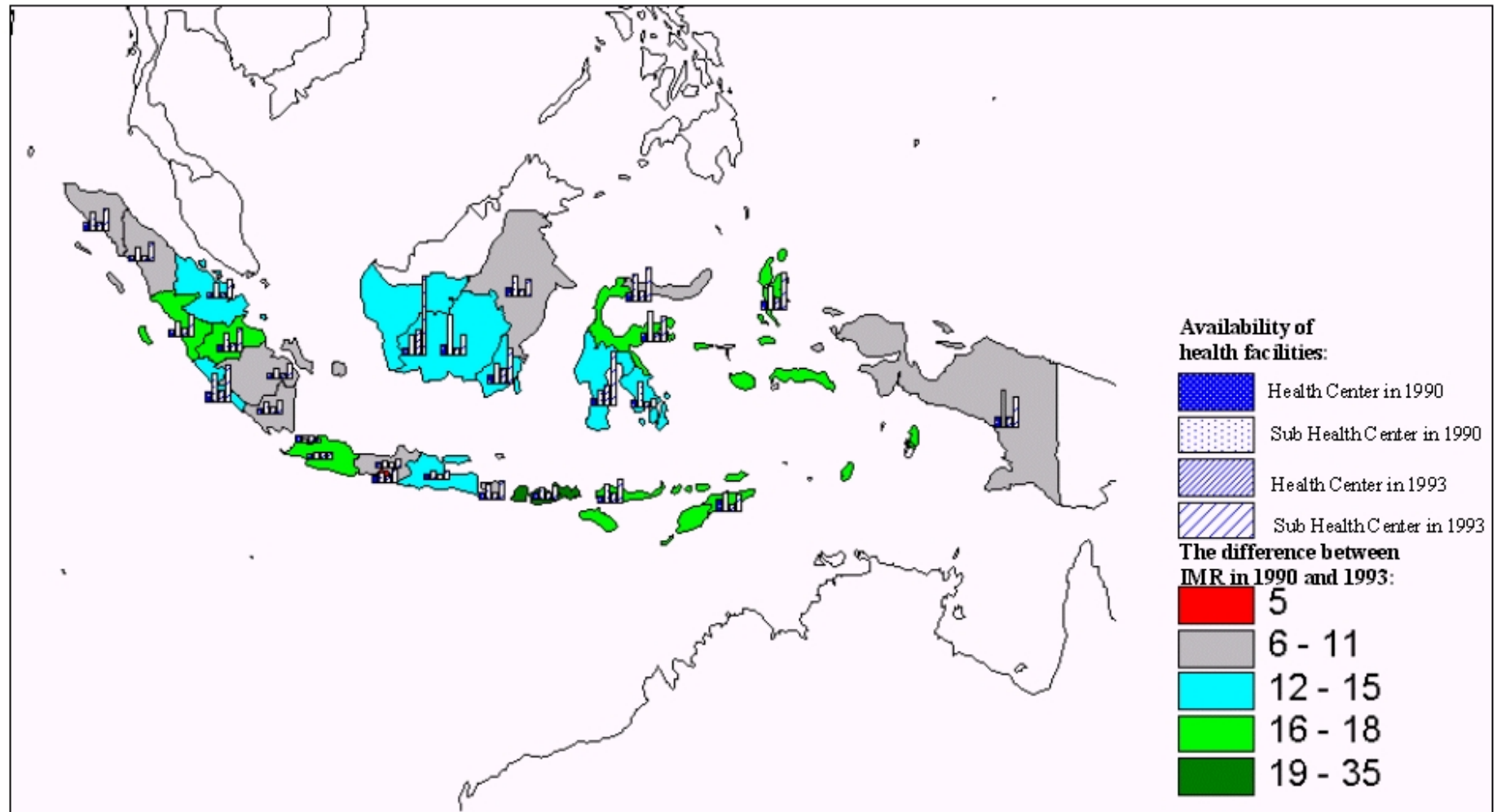


Figure 19. The Relationship between Improvement in IMR and Health Budget Per Capita, 1990-1993

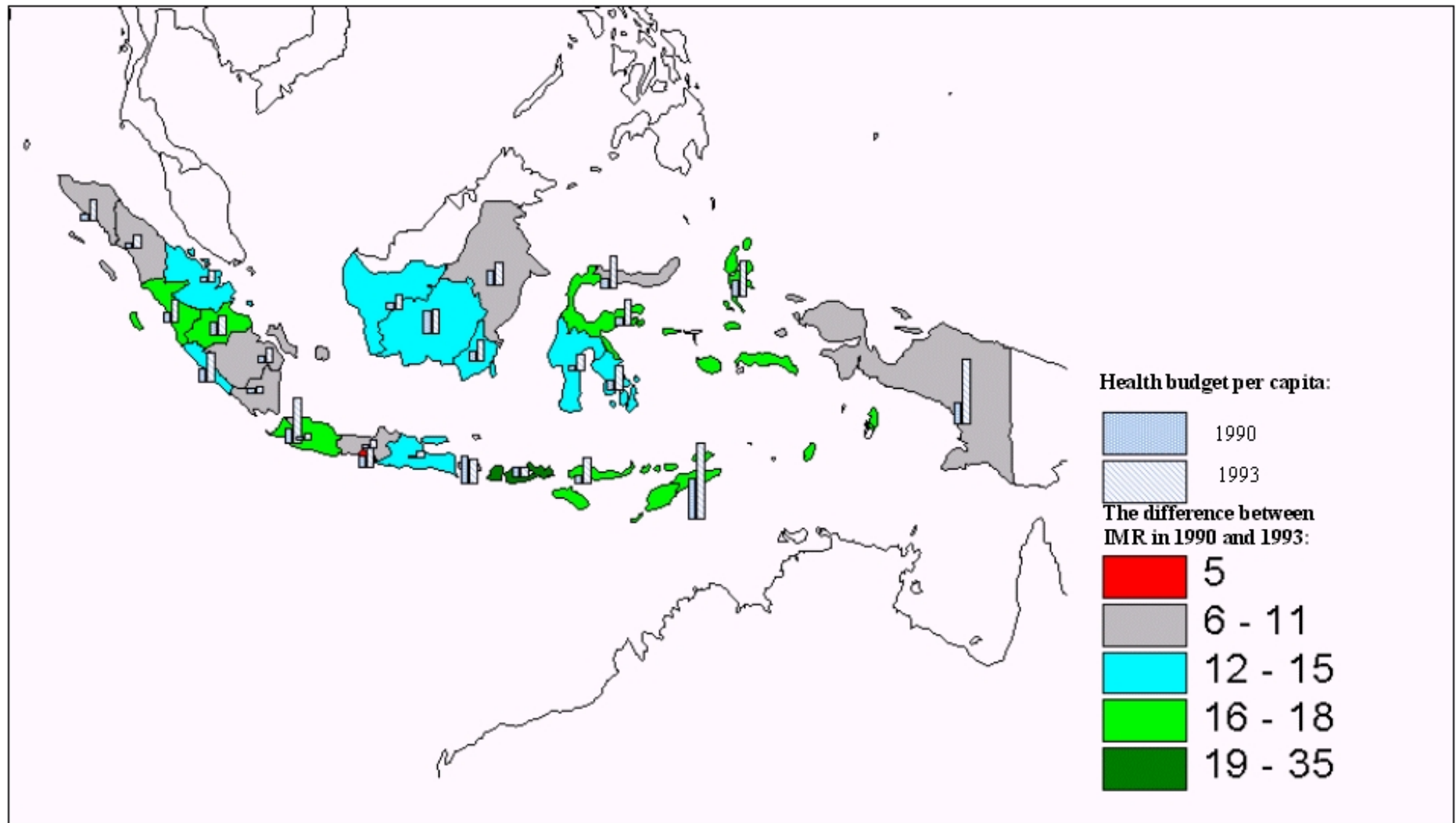


Figure 20. The Relationship between Improvement in IMR and Immunization Coverage, 1990-1993

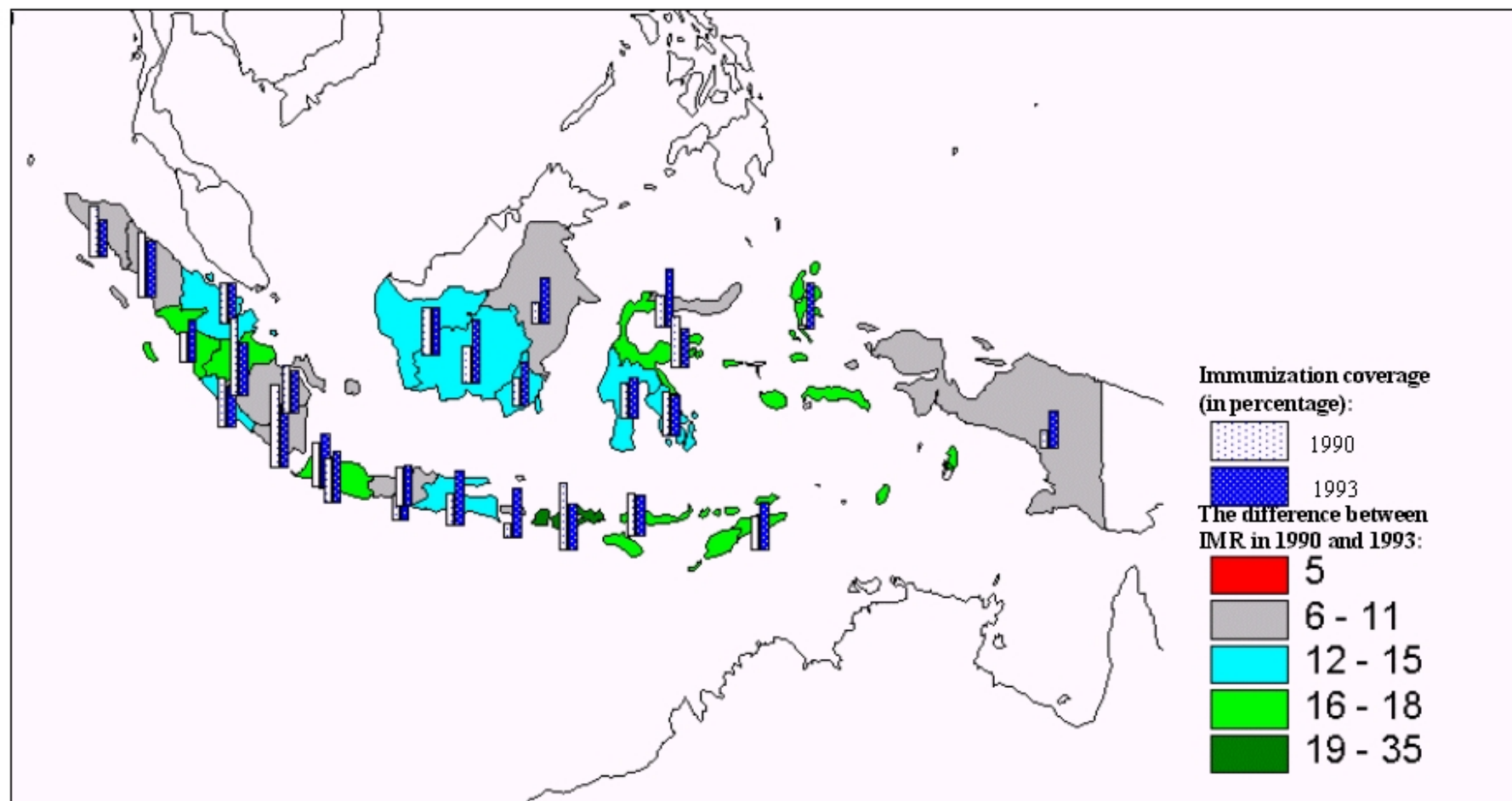
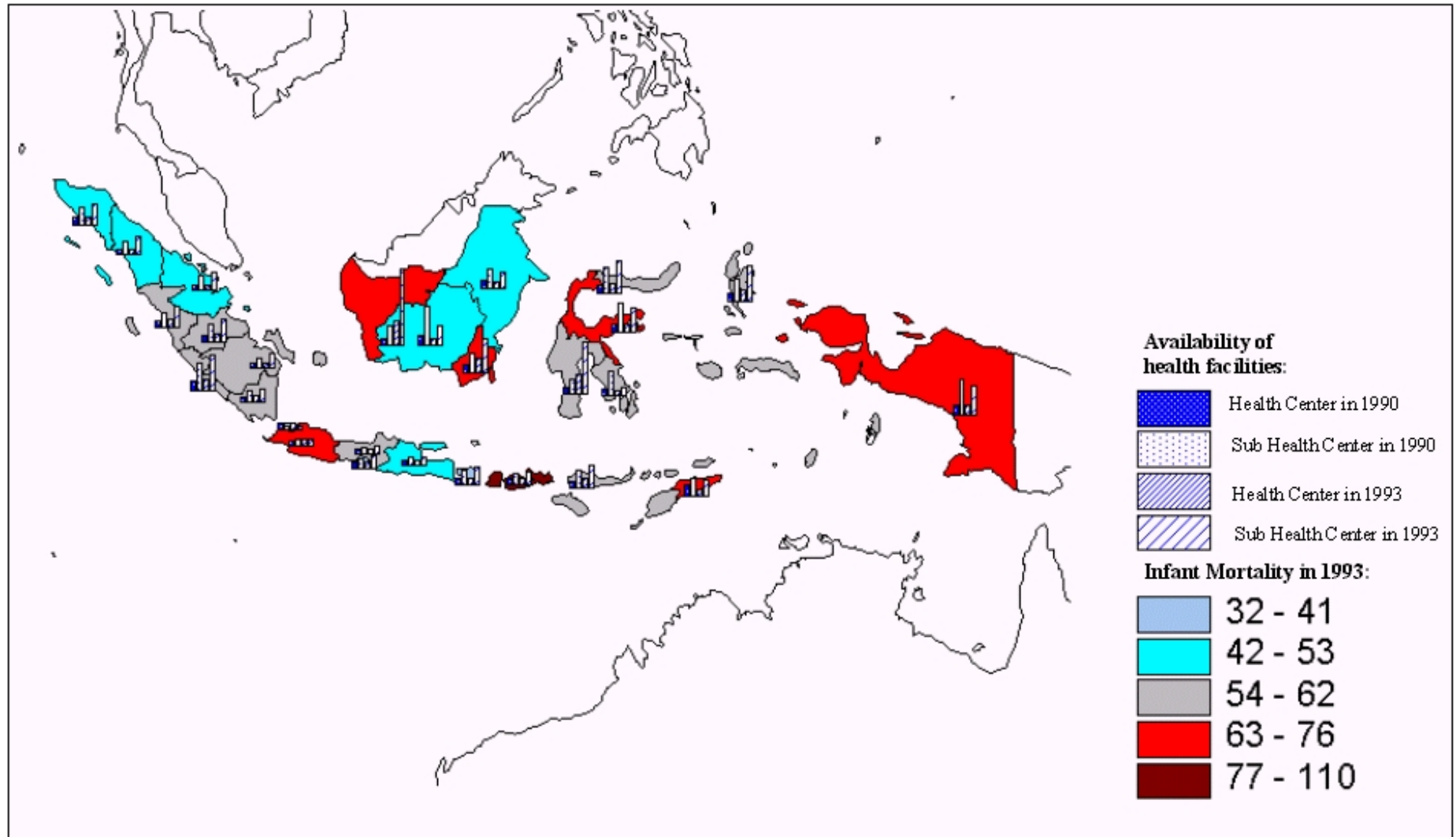


Figure 21. Infant Mortality Rate (1993) and Availability of Health Facilities (1990 and 1993)



Cost Recovery

The capability of local government and health institutions financing health care to maintain acceptable level of services is another important factor affecting the sustainability of the public services. The fiscal intergovernmental relations, as discussed above, is strongly biased to the central government. This fiscal scheme does not only impede scope for regional governments to generating their domestic financial resources, but also has little incentive for the regional administrations to contribute properly particularly in social programs including health sector. From local government's perspective, under the fiscal system, expecting the central government transfers as their main source of revenue is more determined and attractive than conducting the local 'experimental' reform to strengthening their financial resource base.

The result shows that proportion of cost recovery of health services for hospitals services, as reflected by a ratio of revenue to recurrent expenditures, was 22.0% in 1984/85 and declined to 19.9% in 1985/86. In contrast, a World Bank survey of Chinese hospitals showed cost recovery ratios averaging over 80% of recurrent expenditure (World Bank, 1991). This relatively low proportion of the cost recovery for health services in Indonesia suggests that local governments lack incentive and initiative to generate new financial sources to sustaining the sectoral development at local level, even though the alternative policy has a potential prospect.

VI. Concluding Observations and Policy Implications

The Indonesian experience demonstrates that the decentralization has taken the form mainly of limited delegation, with little 'real' decentralization (devolution). Elements of deconcentration and devolution exist, however, through general purpose grant, specific grant, and local governments' own funds. The central transfer for health, education, and infrastructure has contributed significantly in improving equity of health facilities and health status. The centrally-directed, one-size-fits-all program of public health service development, mainly financed by the central transfer program, has been instrumental in achieving the national goal of ensuring that certain basic health infrastructure is available throughout the country. However, once such primary needs have been met, it will become increasingly difficult to formulate a uniform health program that satisfies local needs in such a varied country as Indonesia. In addition, the demographic, economic, epidemiological transitions experienced by the country in the last four decades have contributed to the complexity. Underutilized health facilities among the poor, prevalence of unequal health outcomes, and the low cost recovery are main constraints of the centralized structure that might impede the sustainability of the health care delivery.

A number of pilot programs of decentralization in health care delivery implemented by the government have indicated potential benefits --more equitable, more efficient and better cost recovery--which are important elements in sustaining the public service at local levels. Sustainability of the health care delivery in the country can be potentially achieved by providing a greater degree of decentralization in planning and fiscal to local governments.

Given current political conditions demanding higher degree of local autonomy and common the obstacles to recent decentralization efforts in sustaining the provision of health care at local levels, further decentralization policies should continue to emphasize: (1) providing more expenditure responsibilities to local governments in the provision of public services including public health, (2) improving regional resource mobilisation by providing more local revenue responsibilities, (3) promoting equitable development by involving widespread regional participation in health planning activities, (4) improving the intergovernmental transfer by increasing proportion of the general block grant, (5) strengthening local capacity in human resources and institutions; and (6) promoting private participation in provision

of health care.

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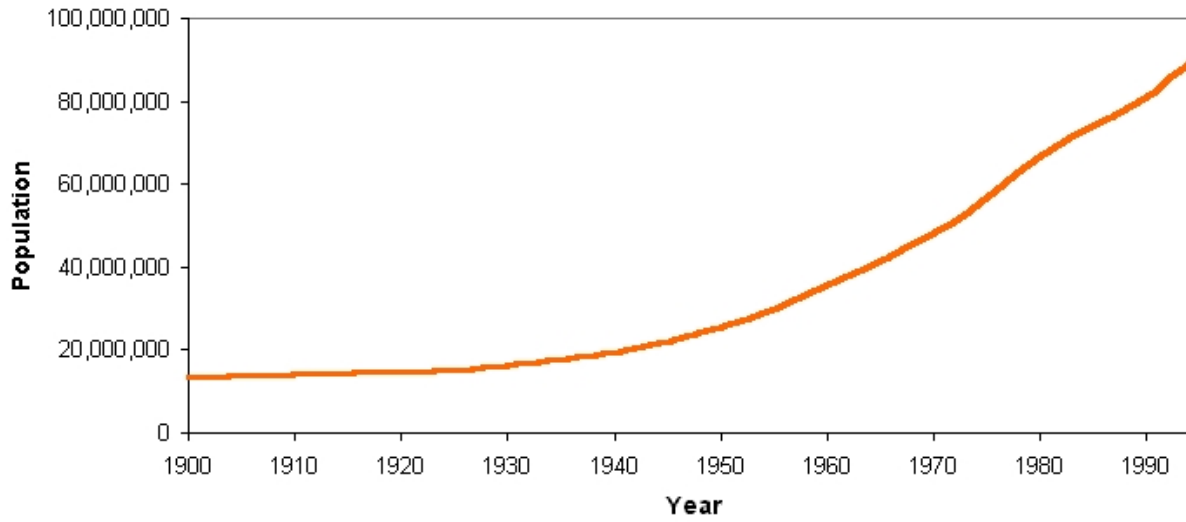
CHAPTER 5
A Nation in Transition:
The Mexican Government as a Cause and Cure
 by
 Natalie Samantha Henry



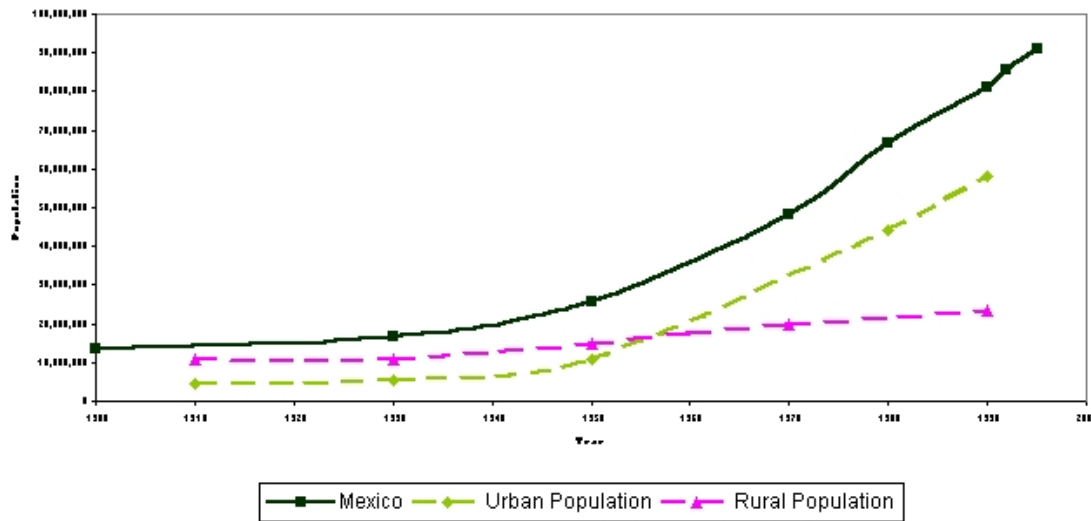
Mexico: A Transition in Progress

Mexico has undergone a significant amount of change during the twentieth century. Data collected provides evidence of a rapid population explosion in progress resulting from a relatively high and volatile birth rate until the late 1960's and a steadily declining death rate starting early in the century. At the same time, the nation now seems to be in the middle of an urban transition. These changes, taking place largely uncontrolled, have severely taxed the nation's traditional socio-economic structure.

The Population of the Mexican States, 1900-1995



The Urbanization of the Mexican States, 1900-1995



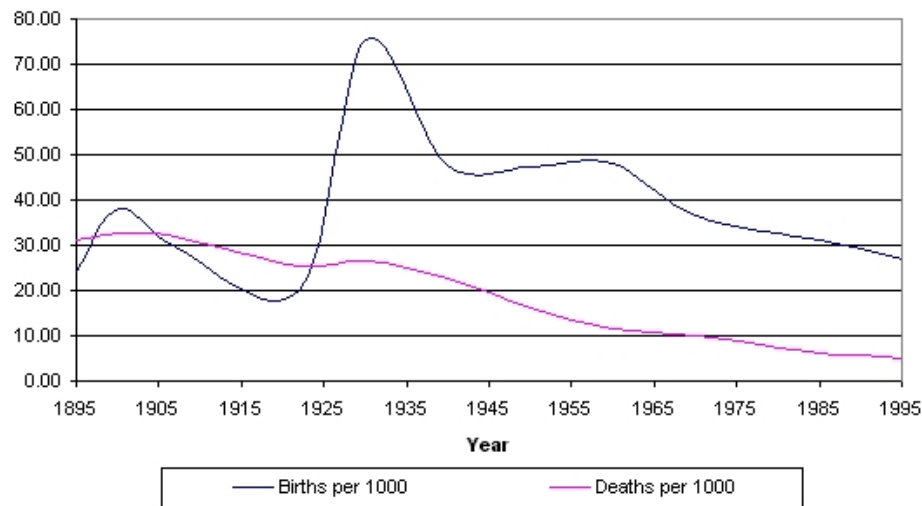
With these rapid developments, the nation has experienced economic growth through industrialization and investment by foreign entities that have resulted in an increasing GDP. Improvements in preventative medicine and treatment and control of disease have contributed to the decline in mortality. At the same time that these and other benefits have been experienced, it is also important to recognize that these changes have not been without cost to the nation and its people by virtue of an unbalanced allocation of the nation's resources. This study attempts to identify some of those costs, and make recommendations for changes in governmental policy that may mediate them.

The Seeds of Transition

Population Growth. With the end of the Mexican Revolution in 1920, population growth was viewed as being vital to the nation. Given the loss of life resulting from the period of warfare, the great numbers of migrants seeking safety in the U. S., the high death rate, and suffering birth rate, the nation found it difficult to support the growing needs of its' fast growing urban and industrial centers. The government's answer came through policies that clearly encouraged large families. Measures undertaken included, banning all advertisements promoting abortion or the use of contraceptives, structuring guaranteed worker salaries and family allowances with a bias toward greater numbers of children, rewarding mothers for the number of children they had, and providing free textbooks for all children. Policies such as this continued into the middle of the century, with the outlawing of abortions (except under specific conditions) in the thirties, and the adoption of laws promoting immigration and the institution of marriage for the purpose of increasing the birth rate.

The seventies were a period of change for the country as the government increasingly felt the pressure of supporting its' burgeoning populous. 1974 marked a crucial shift in this dynamic, as a massive nation-wide family planning effort was undertaken providing education and public healthcare services. Simultaneously, the National Constitution was altered guaranteeing equality of men and women in the eyes of the law; specifically declared was the right of all individuals to participate in family planning. Though there had been other periods of decline in the birth rate prior to this time, the seventies marked the beginning of the first continuous decline in the birthrate, which has continued into the nineties.

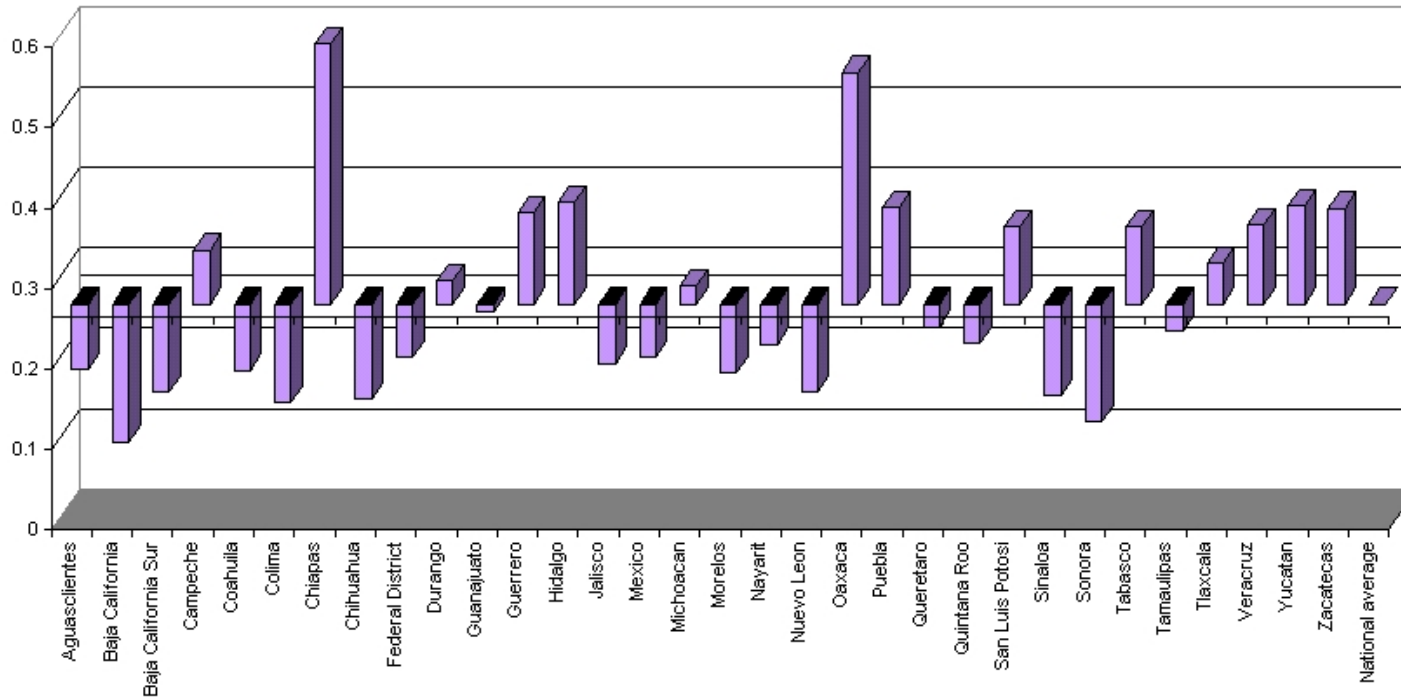
Birth and Mortality Rates in Mexico (1895-1995)



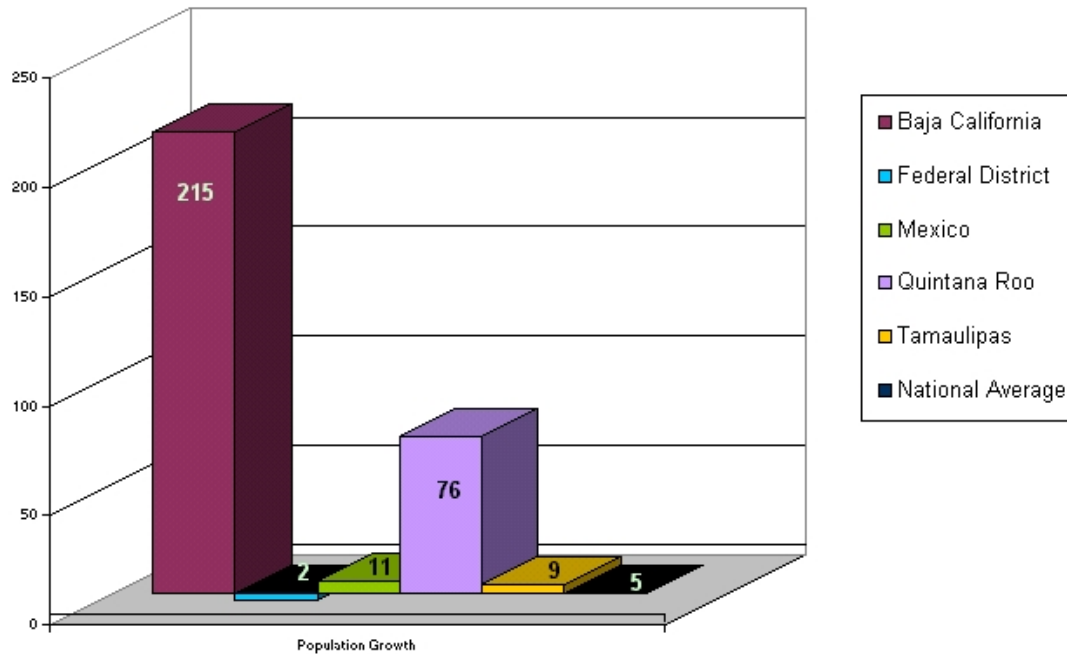
At the same time that these procreative campaigns were being promoted, other governmental policies also set the stage for demographic change that would determine the course of the nation's social and economic development. This becomes important, as we begin to look at regional imbalances in the investment toward economic and social growth. It is my thesis that governmental policy was the impetus for migration patterns within the country, that has led to above-average population growth in some regions. At the same time, the government's shifting focus on multiple sector development has resulted in a tremendous amount of disparity among the states in relative socio-economic terms. The figure below gives the reader a sense of this inequality as reflected by a breakdown of the percentage of each state's employed population above the age of 12 earning no more than the 1990 minimum wage. The results are zeroed at the

national average of 26.53%.

Percentage of the Population with No or Low Income in 1990



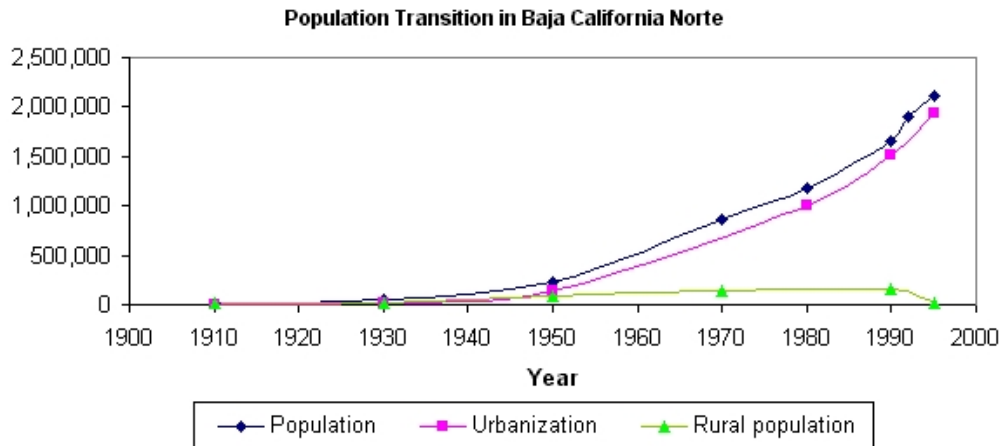
Relative Growth in State Populations (1910-1995)



A Case Study: Five States in Transition

In trying to uncover the drivers of the changes undergone by the nation, we examine data from the individual states with the assumption that clues to the drivers of this transition may be uncovered by isolating transitions within the states. Based on population statistics from 1910 to 1995, the following five Mexican regions exhibited the highest growth in population for that period: Baja California Norte, Quintana Roo, Mexico, The Federal District (not defined as a state), and Tamaulipas.

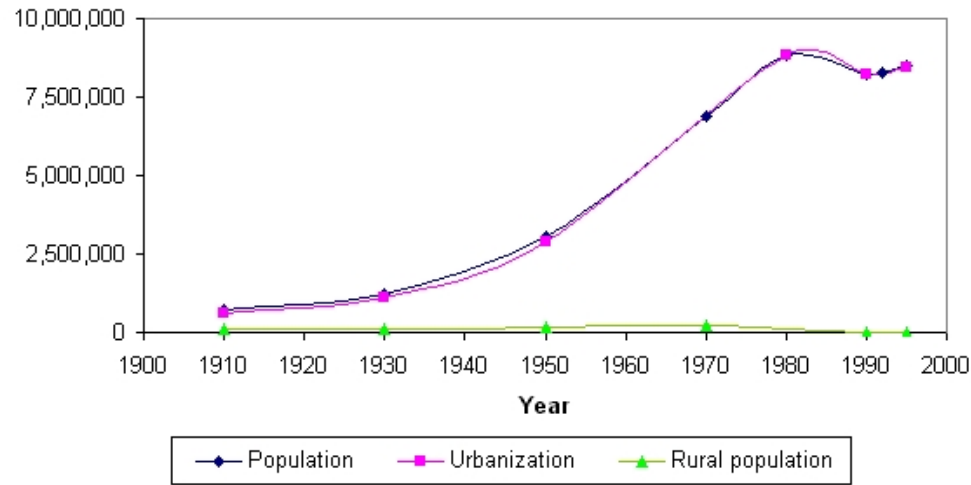
Baja California Norte. The population and subsequent urbanization of Baja California Norte came early in the century. The first big wave of Mexican settlers came during the Mexican Revolution as people sought the safety of the northern border states. At the same time, a wave of U.S. emigrants populated the surrounding area on both the U.S. and Mexican sides, seeking employment opportunities in emerging industrial endeavors. The Great Depression then pulled hundreds of thousands of Mexicans who had settled in the U.S. back across the border when many of their employment opportunities disappeared. Later, during the forties, as government attempts at agrarian reform increasingly failed, and the historic centers of industry and commerce became overcrowded, settlers in the central regions of Mexico moved northward.



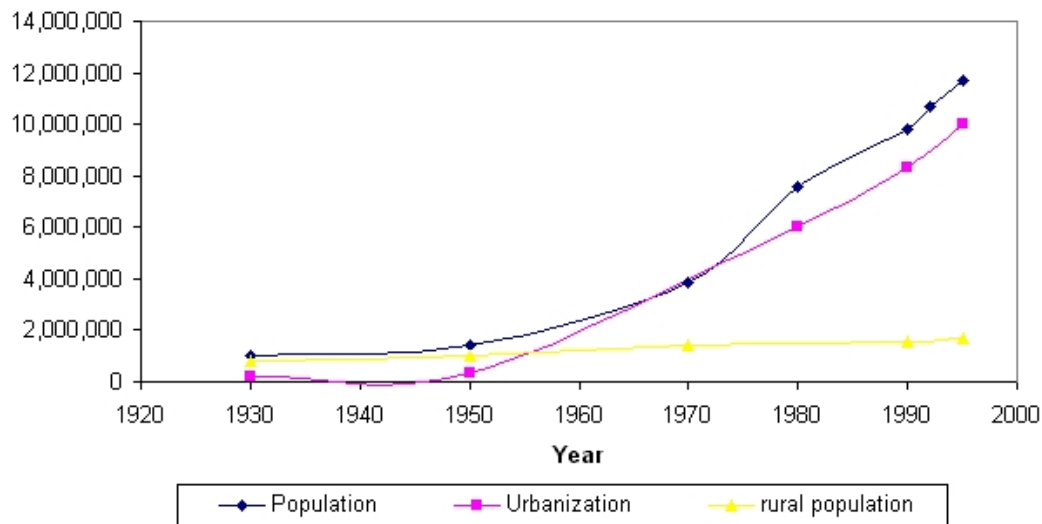
The Federal District and the state of Mexico. The growth both economically and in population of the state of the Federal District and the state of Mexico has its' origins early in Mexican history. The state of Mexico, located in the central plateau, surrounds the Federal District, where Mexico City, the capital city, is located. Settlement in the area of the capital city can be traced to the fourteenth century. Attracted to region because of its' agreeable climate and fertile soil, early settlers soon discovered that the region was also rich in minerals. From that time to the present, Mexico City has been established as, and remains the center of culture, politics, commerce and industrialization. The surrounding regions, including the state of Mexico, have been populated largely as a result of the spillover from the capital city. People have flocked to the area to be closer to the capital city, while still others have been drawn there to get away from the crowding and unpleasantries of life in Capital City.

Early in the 1900's the Mexican government made a concerted effort to modernize these cities, investing heavily in the roads, transportation networks, power generation facilities and water and sewage systems. The successful outcome to their efforts was in attracting many settlers including the elite of society. They brought with them, money to invest in industry. The success of this endeavor to promote economic development is a mixed one; along with prosperity through growth of industry and commerce, came uncontrolled growth of both population and industry. The nation inability's to develop and maintain the necessary infrastructure to deal with the situation that it promoted is an issue that today causes tremendous concern. Despite the relatively low fertility rates in the area, highly correlated with the higher levels of education, access to health care, and a higher percentage of women in the workforce, the region has experienced incredible population growth largely due to immigration.

Population Transition in the Federal District



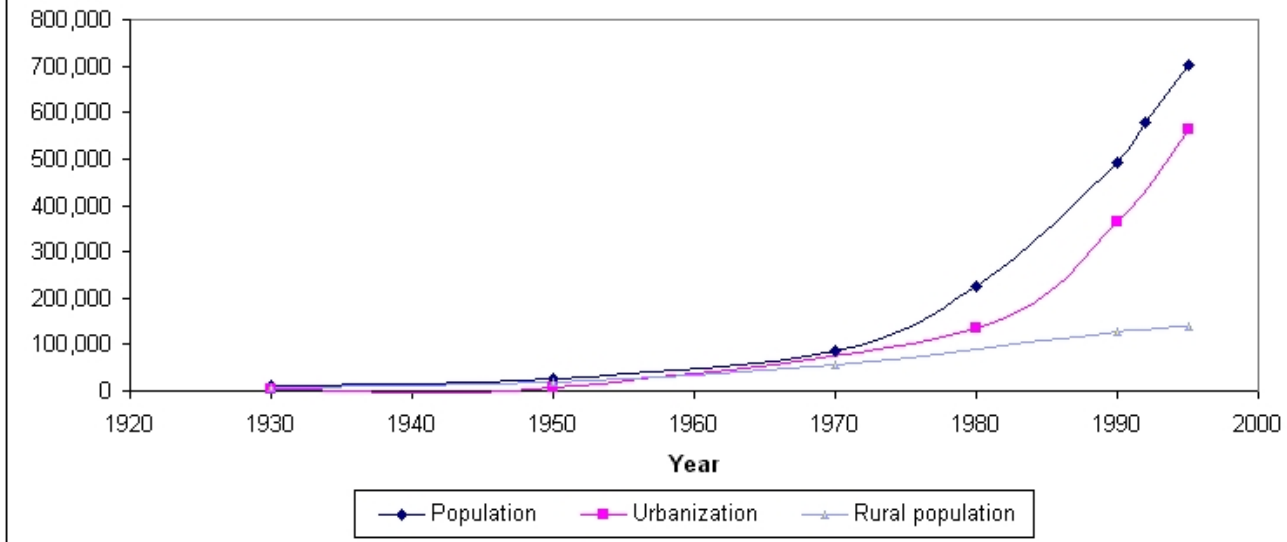
Population Transition in the state of Mexico



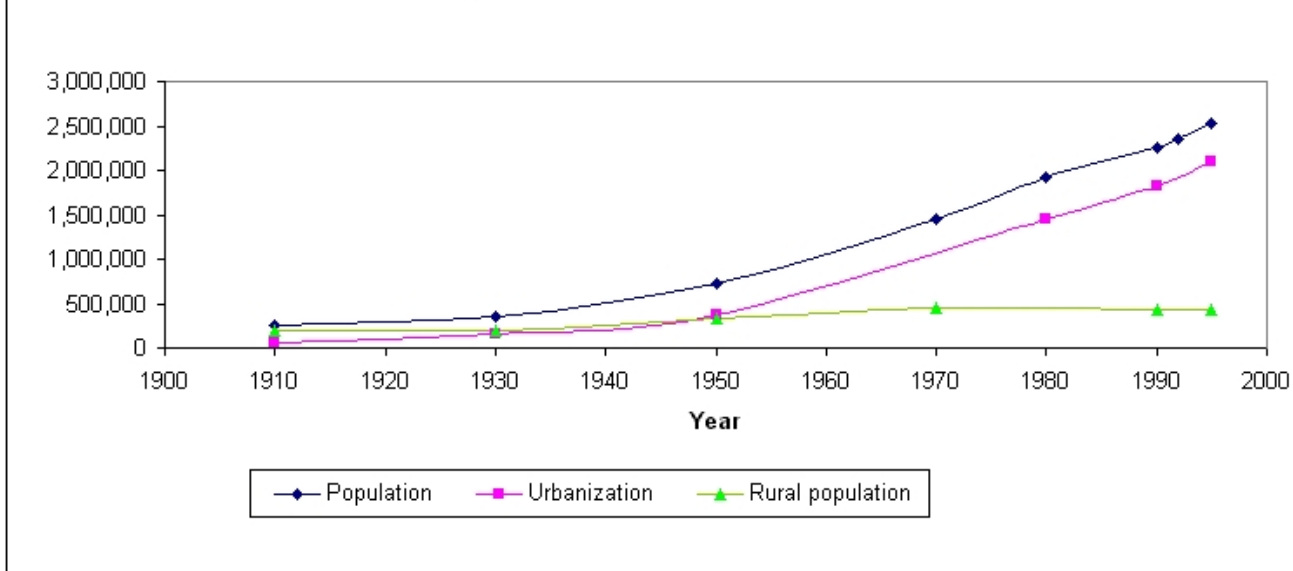
Quintana Roo. The influence of commerce and the service industries have been powerful forces in the population growth and urbanization of Quintana Roo. The state is on the southeastern coast of Mexico, bordered by Belize and Guatemala. Though the state's overall population is one of the lowest among the Mexican states, its growth since 1930 has multiplied by a factor of more than twenty-five. The state's population growth has been attributed to a high crude fertility rate combined with a high rate of immigration. While the government sponsored projects failed, the new colonists established small communities in the area that grew to become the urban centers of the South.

Favorable environmental conditions and above average income levels have contributed to the growth of the tourist industry, which in the past twenty has had a particularly powerful impact on the small state of Quintana Roo due to the increasing popularity of Cancun. This seaside resort area is also a product of government efforts to develop the region's economy via "planned" tourist centers; with this popularity has come investment. In 1988, the state had the highest number of corporations per 1000 persons among the states. The challenge for the Mexican government is to meet the ever growing demands of this region through investment in the state's infrastructure and to implement effective policy to deal with the unavoidable issues associated with the increasingly urbanized populous.

Population Transition in Quintana Roo



Population Transition in Tamaulipas



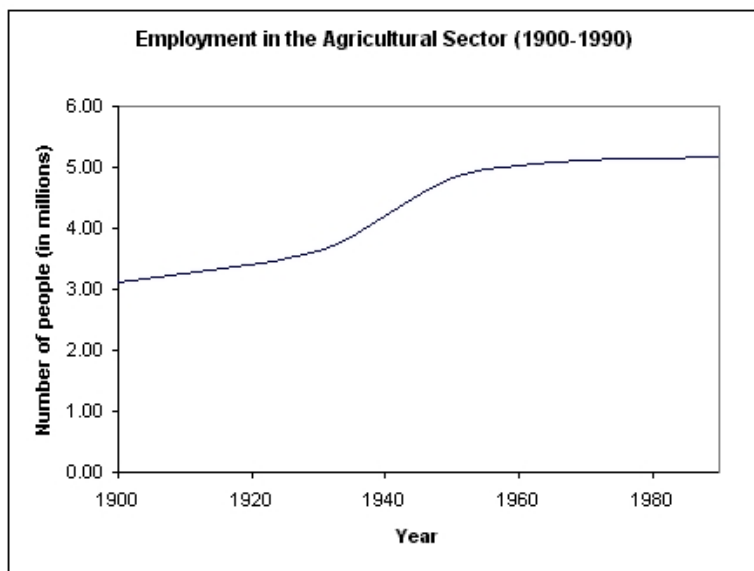
Tamaulipas. Located on the northeast coast of Mexico, Tamaulipas borders Texas. As such, it is one of the states that has been particularly influenced throughout its history by its close proximity to the US-Mexican border as it has attracted migrants from the South and Central regions. Early in the century, the populace fled to the Northern regions to escape the turmoil of revolution, and Tamaulipas was no exception. At the same time, the state's coastal location has contributed to the importance of the city of Tampico. Of the 102 ocean ports in the nation, Tampico is one of the five ports in Mexico through which 80% of Mexico's general cargo travels. Lately by virtue of industrialization and the subsequent growth of the US-Mexican border, the state has grown as well.

Transition Through Domestic Policy

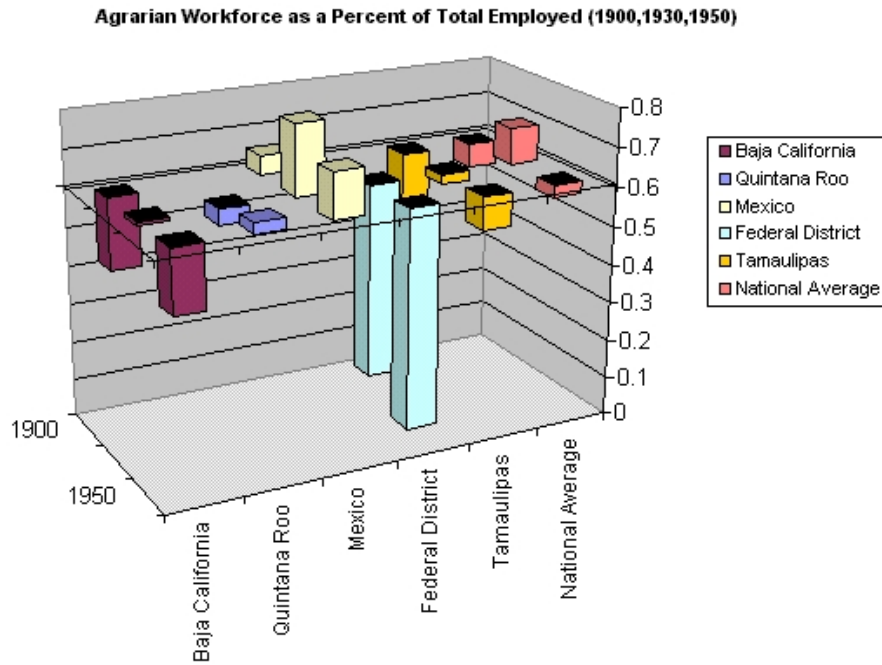
Mexico's history is one marked by a government that has taken a strong hand in intervention as it focuses on economic development. I believe that a few key policies stand out in terms of their impact on the socio-economic transitions experienced by the country in the last century. By implementing certain programs on a regional basis, the government motivated patterns of migration that led to extreme population growth in certain regions.

- *Land Reform (Early 1900's – 1950)*

Following the Mexican Revolution in the early part of the century, the Mexican government turned its attention to the colonization of its' southern region. In 1910, the nation was still predominantly agrarian. In fact, almost 70% of its' eligible workforce was supported by agriculture. With its sparsely distributed population, and the vast tracts of fertile forestland, the south was viewed as a potential "powerhouse" of agriculture. An added benefit of resettlement in the region would be in relieving the land pressures in the northern highlands. Thus were the origins of a government-sponsored agricultural program that for the next fifty years led to settlers relocating to the southern border areas. As a result of the various government programs, enormous tracts of previously privately held land were opened up for agriculture. It is estimated that as many as 10 million hectares were redistributed by 1960. Between 1900 and 1930, all of the states saw an increase in the percentage of the workforce employed in the agricultural sector. By 1950, the numbers of workers were still relatively high, but the rise of commerce and industry, were evidenced by a fall in the percentage of agrarian workers relative to other sectors.

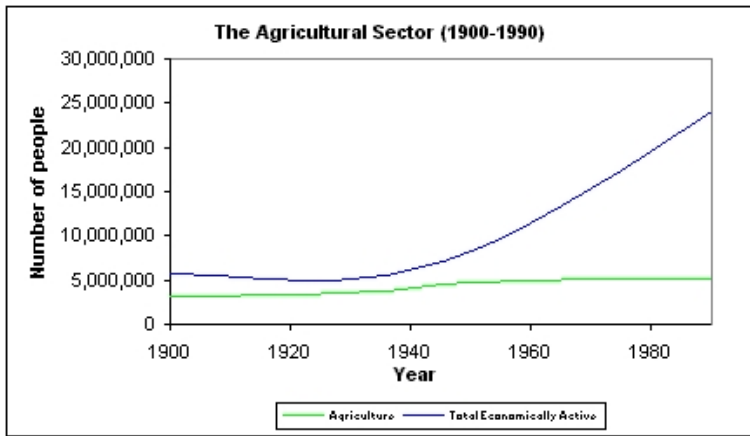


Unfortunately, poor planning and the realities of farming in the tropical forests resulted in a significant number of failed settlements. The result of this was migration and subsequent growth of the population beyond the limits of the land to support it. Increasing population swelled beyond what could be sustained by traditional farming and many turned to cattle raising. Increased population growth, limited capacity of cattle ranching to absorb labor and a downturn in the market demand for their crops led settlers to other options.



Examining data for the five selected areas, we should be able to isolate the impact of these land reform programs on the population. From the chart shown, comparing the growth in the agrarian population for each of the five regions relative to the national average from 1900 to 1930, it appears that only the state of Mexico experienced above average growth in the percent of agrarian workers. Quintana Roo seems to have experienced an above average growth in the sector only between 1930 and 1950. The delayed growth of the sector in the state could be in part due to its location on the far eastern coast. That might suggest either that development by the government came later, or it was more of a spillover effect after the more central areas were already settled.

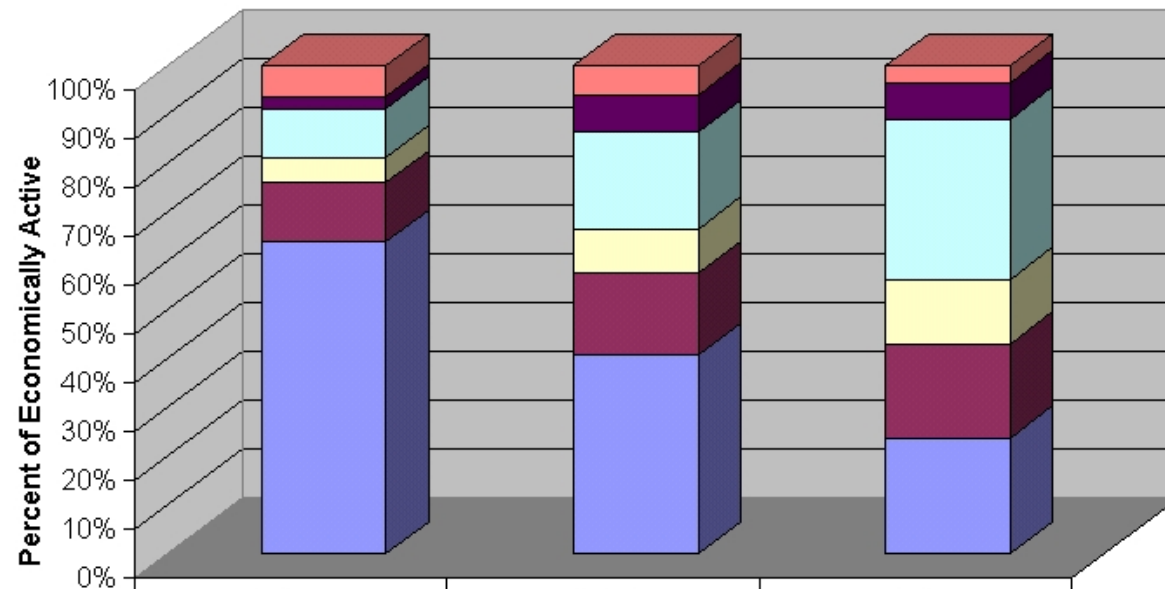
- *Urbanization*



With limited land naturally appropriate for agriculture, and the increasing land pressures created by a burgeoning population, the masses were naturally drawn to the urban centers that offered employment opportunities. Beginning around 1900, both the federal and state governments made a concerted effort to encourage urban development. Investments were made in the railway system, constructing roads and waterways, and developing hydroelectric power. Unfortunately, here too the practice of unbalanced policies left their mark. As the commercial districts of Mexico City were developed to the levels rivaling any major city in Europe early in the century, the lower-income neighborhoods were left without the most basic amenities. It was these investments that by the 1950's once again, drew the masses away from their rural settlements into the cities. The figure below shows the slight rise and stabilization of the agricultural sector and its decreasing importance as a source of income for the population.

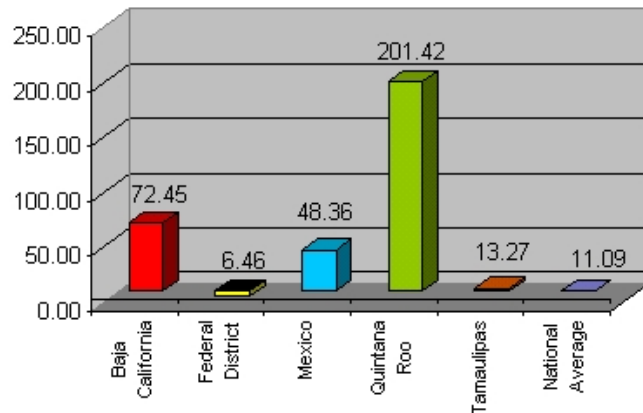
The next figure shows in detail, the growth of the various economic sectors since 1900.

Employment by Sector



	1900	1970	1990
Unknown	6.1	5.8	3.4
Other	2.6	7.7	7.5
Service	10.1	19.8	32.9
Commerce	5.1	9.2	13.2
Manufacturing	12.2	16.7	19.2
Agriculture & Extraction	63.9	40.7	23.8

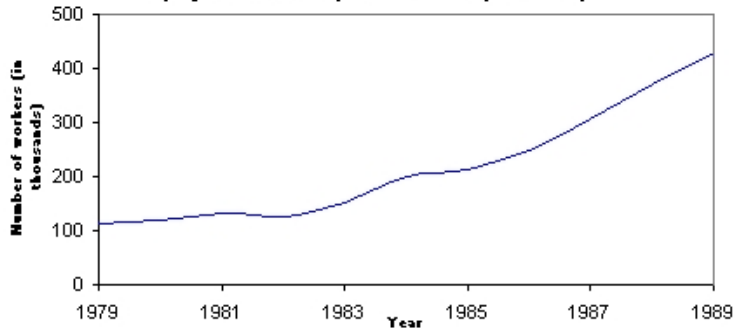
As is shown below, the rate of urbanization was particularly high in Quintana Roo and Baja California Norte compared to the national average. In the absence of significant natural resources, particularly land well suited for agriculture, the development of commerce would probably be the main reason for settlement in these non-central regions. The Federal District in particular was not very much affected by the national transition, as it had led the way in terms of urban development. While the rest of the nation went through an agricultural transition during the early part of the century, the Federal District was well on its way to becoming a modern center of commerce, culture and social development.

The Urbanization of the States (1930-1995)

- *Industrialization.*

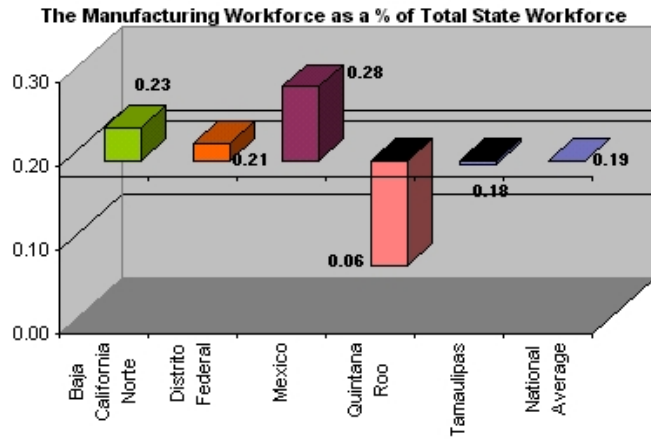
Migration increasingly put pressure on the northern communities that were not prepared to handle the vast numbers. Despite this, the Mexican government continued to promote population growth to feed the growing industrial sector, and continued to promote industry to feed economic development.

In 1965, the Mexican government introduced the Maquiladora program as a source of employment more stable than the seasonal jobs provided by U.S. agriculture upon which so many Mexicans depended. Concentrated primarily along the 2,000 mile U.S.-Mexican border, foreign-owned assembly and manufacturing facilities under the Maquiladora program employ approximately 950,000 people; a number that has doubled during the past five years. In May 1998 Julia Carabias, Mexico's Minister of the Environment, Natural Resources and Fisheries estimated approximated that the over 3,200 maquiladoras in Mexico generate more than \$40 billion annually in sales. Tijuana is the city hosting the greatest number of maquiladoras with 21%, followed by Ciudad Juarez with 11% and Mexicali with 5%.

Employment in the Maquiladora Sector (1979-1989)

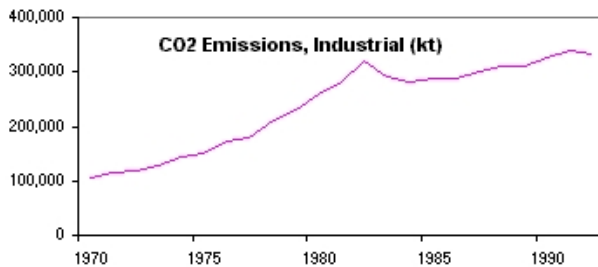
Under the program, a foreign individual or business entity is allowed to establish a wholly owned operation for the assembly or manufacture of products for the purpose of export. The provisions of Mexican law also allow these operations to bring

most capital equipment and machinery from abroad into Mexico duty free or "in-bond". In addition provisions are made so that temporary work permits are issued for foreign workers to function in technical, managerial or support capacities. The figure above shows the rapidly growing number of workers employed by the maquiladora sector just over a ten-year period.



A comparative study of the five states with the highest population growth also indicates the possible link to industrialization. In 1990, The Federal District, Baja California Norte, and the state of Mexico, all show a higher than average percentage of the state population employed in the manufacturing sector. Quintana Roo, in spite of being highly urbanized, is less affected by the industrialization of the nation. That is because of the greater focus on the service sector, particularly as a result of government investment in planned tourism. In 1989, the state had the highest number of hotels per capita and the highest gross revenues per capita from motels and motel services.

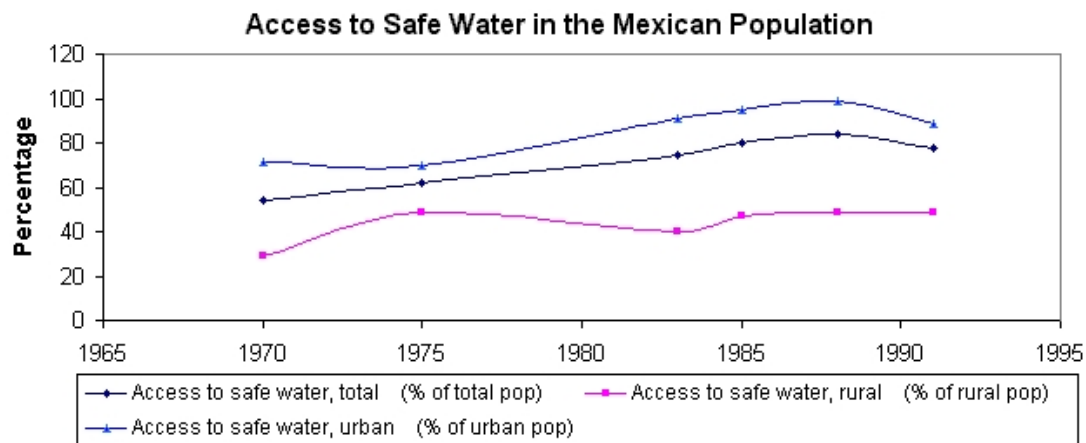
The Impact of Demographic Transitions in Mexico



The movement and growth of the Mexican population as stimulated by national policy has indeed been impacted by urbanization and industrialization that has led to economic development of the country. No doubt that has led to significant benefits for the population including better healthcare that has translated into decreased infant mortality rates and increased life expectancy. However, in recent years, not unlike in other industrialized and urbanized nations, mortality rates for cancer and cardiovascular disease have been on the rise. This can be attributed to a number of factors including change of lifestyle and diet, and increased exposure to industrial emissions of substances like Sulfur Dioxide and Carbon Dioxide.

In addition, there has been a reversal in what had been a downward trend for digestive, nutritional, endocrine and

immunity diseases in the nation. At the state level, there have also been increases in reported cases of infectious parasitic disease. In the most populated areas including some of the most urbanized settings, health risks have actually increased as a result of air and water pollution and unsanitary conditions. This is partly reflected by the fact that access to safe water has actually declined for the population at large since the late eighties. With its limited economic resources, the nation has failed in recent years to make enough of an investment in recent years to keep up with the basic needs of the growing population. Since the influx of industry to the border U.S.-Mexico border, the region has reportedly experienced increased incidences of diseases such as Hepatitis A and Tuberculosis, as well as elevated numbers of neural tube birth defects. At this point I have found no conclusive studies indicating that these incidences have increased on a per capita basis.



Deforestation has robbed the southern region of vast amounts of its' tropical forest, as the still expanding rural population continues its' struggle to support cattle-raising and agriculture. Data from 1990 indicates that over a ten year period there was a 12% decrease in forests and woodlands. This has led to soil erosion nation-wide. It was estimated in 1997 that 17% of the land was eroded. Most severe has been the condition in the semi-arid areas in the North such as The Baja Peninsula, and Sonora where farming and irrigation has eroded about 60% of the land.

From a socio-economic perspective another troublesome if not surprising trend has emerged. The national average literacy rate for ages 10 and above reported in 1990 was about 52%, lower than the reported rates of 57% and 76% for 1950 and 1970 respectively. Considering the government's pattern of selectively and unevenly allocating resources over the years, it may be of no surprise that though literacy has fallen in all regions, literacy remains the lowest in states such as Campeche, Chiapas and Guerrero. These are all states in the southern part of the nation which have maintained a relatively high agrarian labor force compared to the rest of the nation.

A Challenge for the Future

Mexico's history is one marked by a government that has taken a strong hand in intervention as it builds toward economic development, but the implementation of its policies have tended to vary from highly centralized control to state and regional control. From the national level, policies have tended to be very unevenly implemented, as the government seems to have focused on "low-hanging" fruit. At the same time, in doing so, the government has failed to build up the infrastructure at a local level uniformly. As a result, when control is yielded to the local level, there are varying degrees of success as the states struggle to implement policy with varying amounts of resources or access to them.

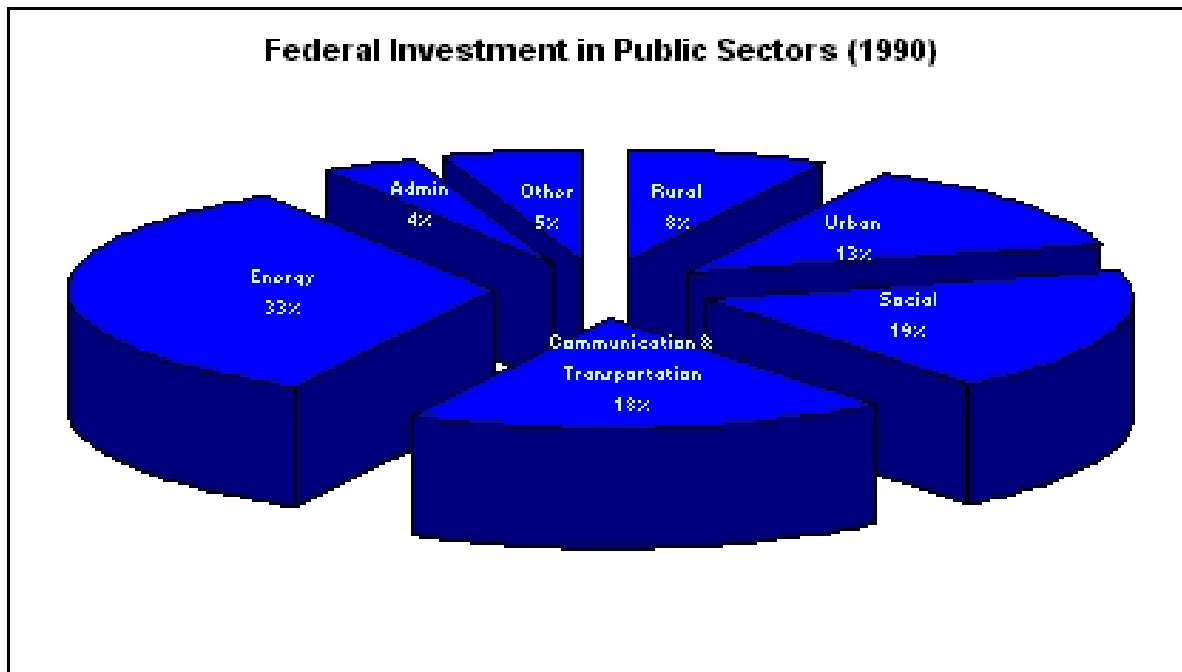
Though growth of the population has slowed in most of the states, this does not put Mexico in the clear by any means. In its' continuing efforts to fuel the nation's economy, the Mexican government faces a number of challenges. Findings of

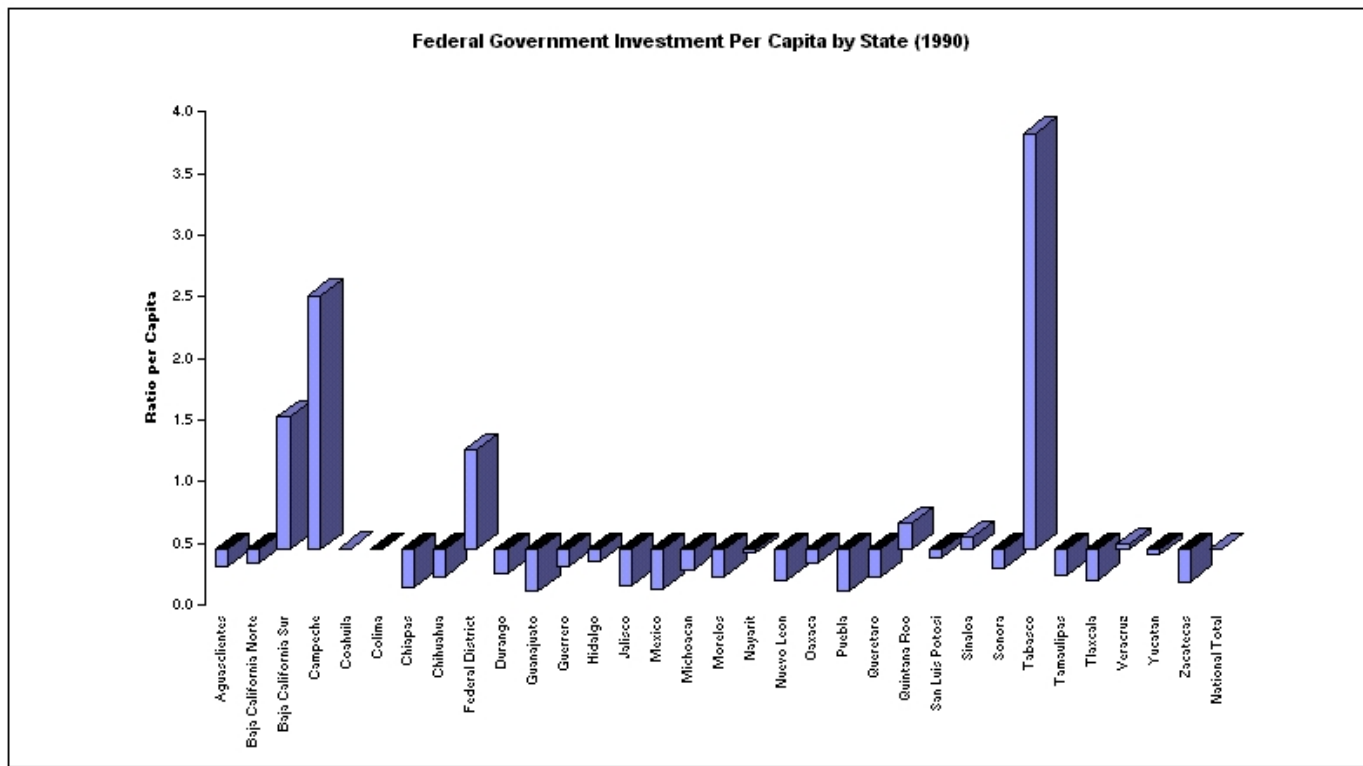
this study seem to confirm a linkage between government policy initiatives and the unbalanced growth of population in certain regions. In the case of all the regions studied, all experienced above average growth in the urban population. Land reform seemed to have a significant effect on the state of Mexico, and a slightly lesser effect on Quintana Roo. The move toward industrialization had its more dramatic effect in Baja California Norte, the Federal District, and Mexico. My conclusion from this data is that what was significant in the growth of these regions were the implementation of specific policies, which created an incentive for mass migration into these states.

Going forward this has significant implications for Mexico. As evidenced by data presented, the population is still undergoing transition, hopefully on its way to more stable growth. At the same time, both industrial and urban transitions are underway coming as a result of the governments latest attempts at economic development via free trade and increased industrialization. All this is taking place at a time when economic resources are limited, and the world is far more competitive. It appears that the incorporation of social development has been sacrificed in the pursuit of economic development.

Incorporate socio-economic concerns into pro-growth strategy

The government's pattern of public investment needs to be radically altered. Investment in the less capital intensive needs of society have never been a priority for the country, and in light of recent economic difficulties, it has been further reduced. Below is shown the breakdown of federal public investments in 1990.





The future calls for a more balanced pattern of investment in the regions. As evidenced by the above graph, even the per capita spending is highly skewed. By continuing this pattern the government only prolongs the challenges it now faces. The provision of basic healthcare and education remains a challenge still in much of the southern states. Outside of the capital city area, little investment has been made in roads, transport systems, sewage systems or water treatment facilities. Lacking these systems precludes vast numbers of people from participation in efforts of family planning and education.

While economic development of Mexico is important, economic sustainability is even more critical. In developing its economy, it would appear that the Mexican government has to a large degree ignored the issue. By investing in various sectors throughout history, the government hoped to bring growth to the country, but by prematurely reallocating those funds to other endeavors, the government reduced the likelihood that those sectors would ever be self-sustaining. Unfortunately, those sectors are what millions of people have built their lives around, and when growth of those sectors stagnate, the the population suffers along with it. It is important that going forward, the government of Mexico not repeat the mistakes of the past.

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Chapter 6
Returning to the Land:
Prospects for Agricultural Exports and Rural Development in Indonesia
by
Martha L. Masterman

[Abstract](#)

[I. Introduction: Theoretical Framework and Rationale](#)

[II. Government Policy in the Agriculture Sector since 1965](#)

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[Link to Indonesia Map](#)

CHAPTER 7
Below the Surface:
The Impacts of Ecotourism in Costa Rica
by
Sujata Narayan

Introduction

Originally conceived in the 1960's in response to declining environmental and economic conditions throughout the Developing World, ecotourism is described as tourism that has a low-impact on the environment, contributes to the local economy, engenders cross-cultural exchange, and fosters environmental education. Since its conception, many governments within the Developing World have embraced and encouraged ecotourism as a means of attracting foreign investment and exchange. Costa Rica, with its rich biodiversity and extensive ecosystem, is inarguably one of the leaders in this type of tourism, which is rapidly becoming the largest sector of that country's tourism industry.

To be sure, the promotion of ecotourism in Costa Rica has led to several desirable outcomes. For example, the continued expansion of ecotourism has created opportunities for income generation and employment, at both the national and local levels. Additionally, ecotourism has provided greater incentives for natural resource conservation in the form of state-protected areas and private lands. As a result, natural resource conservation is on the rise. With nearly ½ million acres of land designated as protected areas, tourism to that country has surged, with scientific and nature tourists from around the world converging on this naturally endowed, tourist's paradise. Finally, heightened emphasis has been placed on environmental education.

While the Costa Rican government has successfully stimulated economic growth and environmental preservation by marketing the country's ecotourism destinations, recent studies suggest that it has not invested adequate attention or resources for the management of the natural assets which attract tourists or in the infrastructure required to support ecotourism. As a result, fragile sites of ecological or cultural significance have been exposed to the threat of degradation by unregulated tourism development and over-visitation. In short, while the tourist explosion has attracted world attention and new funds to Costa Rica, it has also put a strain on the country's environment and population.

Clearly ecotourism is a multi-dimensional, complex practice that has resulted in tradeoffs, in costs and benefits for Costa Rica. All the same, it is a practice that is being promoted with increasing fervor by the Costa Rican government and the tourism industry. But how long can this practice sustain itself? Is ecotourism sustainable?

The purpose of this paper is to explore these questions, to go "below the surface" and take a deeper look

at ecotourism in Costa Rica, thereby facilitating a clearer understanding of the complexity of this phenomenon. Specifically, this paper examines ecotourism's impact on the economy and environment of the country. For that purpose, tourism, environmental, and economic transitions are critically researched, with an emphasis on how these transitions interrelate. Findings and conclusions around the benefits and disadvantages of ecotourism are presented. Based on these findings, this paper attempts to articulate creative and proactive policy measures for mitigating the drawbacks associated with ecotourism.

What Is Ecotourism?

Before entering into a detailed description of the various dimensions of ecotourism in Costa Rica, it is useful to have a clear understanding of what ecotourism is. As mentioned earlier, ecotourism is a concept that originated in the early 1960's, at a time when significant criticism was being levied against traditional tourism, otherwise known as mass tourism. Essentially, critics believed that mass tourism -- characterized by package deals to familiar destinations, limited interaction with local populations, high levels of security, and a contrived experience with local life and culture -- was resulting in adverse ecological and socio-cultural effects, the results of which were only beginning to be observed.

These critiques emerged at a time when a larger, more global environmental movement was beginning to take shape. Eventually, this movement culminated in the creation of the 1987 report of the Bruntland Commission, which introduced the world to the notion of sustainable development. This report also provided the first working definition for environmentally sustainable tourism, also known as alternative tourism, which differs from mass tourism in that it is characterized by a higher degree of risk, novelty, and interaction with local cultures. Essentially, this tourism can be defined as "tourism which is developed and maintained in an area (community, environment) in such a manner and at such a scale that it remains viable over an indefinite period of time and does not degrade or alter the environment" (Butler, 29).

Ecotourism is a form of alternative tourism which aims to achieve economic gain through natural resource preservation. While they disagree on its exact definition, many tourism experts generally agree that ecotourism is characterized by "ecological and socio-cultural integrity, responsibility and sustainability" (Cater, 3). For the most part, the success of this form of tourism in different locations depends on a variety of factors including the area's political stability; the host governments' and local communities' commitment to ecotourism; the extent of its promotion by local governments and tour operators; the area's image; ease of travel in the respective area; and "product" demand.

Ecotourism in the Developing World

As a form of tourism with smaller-scale infrastructural needs and less "sophisticated" consumer demands, ecotourism is ideally suited to the Developing World. It does not necessitate multi-billion dollar investments. Local, small businesses and entrepreneurs can successfully fulfill the demands of ecotourism, especially in the areas of lodging and food services. As a result, ecotourism has become incredibly popular within the Developing World, particularly as a means of stimulating economic development.

Struggling with severe balance of payments difficulties, ecotourism provides these countries with the opportunity to earn foreign exchange without destroying their environmental resource base. For the most part, countries in the Developing World have something of a “comparative advantage” when it comes to ecotourism, in terms of the vast biodiversity and extent of pristine, natural environments in those countries. According to the World Wildlife Fund for nature, that “comparative advantage” translated into nearly \$12 billion in ecotourism revenues for Developing Countries in 1988. Overall tourism earnings in the Developing World for 1998 were \$55 billion (Cater, 71 *The Earthscan Reader*). This segment of tourism is reported to have been growing at a rate of 10-15% per year, whereas mass tourism is said to average only a 4% annual growth rate.

Ecotourism’s popularity among Developing World countries has only increased since 1988, as evidenced by the proliferation of specialized ecotourism tour operators and by the increasing number of ecotourism conferences in those countries. For many destinations within the Developing World, ecotourism is becoming the most important tourism market segment.

An Introduction to Ecotourism in Costa Rica

Costa Rica is one Developing Country that has taken advantage of and benefited from the promotion of ecotourism. That success is illustrated in a variety of ways. For example, since 1964, tourism revenues in Costa Rica have grown significantly as can be seen in [Figure 1](#) (Tourism Transition in Costa Rica, 1964-1995, International Receipts). In 1995 alone, Costa Rica generated \$661 million in tourism receipts.

Similarly, from 1964-1995, international tourist stayover arrivals skyrocketed, as illustrated in [Figure 2](#) (Tourism Transition in Costa Rica, 1965-1995, International Stayover Arrivals, Source: Europa World Yearbook Selected Years. Taken from *Ecotourism in the Less Developed World* by D.B. Weaver). A comparative analysis of select tourism destinations in the Caribbean Basin highlights the fact that, despite its relatively small size (51, 100 sq. km), Costa Rica attracts a significant portion of tourism to that region of the world (refer to [Figure 3](#)). (Tourist Stayovers in Select Caribbean Basin Destinations, 1989, Source: Europa World Yearbook Selected Years. Taken from *Ecotourism in the Less Developed World* by D.B. Weaver).

Although most of the findings above reflect gains made within tourism as a whole in Costa Rica, it is reasonable to assume that a large percent of the general growth in tourism is the product of specific growth within the ecotourism sector, since that is the kind of tourism for which Costa Rica is known. That point is substantiated by results from a survey conducted by the ICT (Costa Rican Institute of Tourism) during the peak travel season of 1986, when nearly 75% of tourists who were interviewed indicated that they had come to Costa Rica primarily because of its natural beauty. 36% stated that they had specifically come to Costa Rica to observe its nature. For that year alone, nearly one-third of all peak-season tourists were ecotourists. (Budowski, 52).

A similar informal survey conducted in 1995 indicated that over 40% of American and European

(excluding German) visitors to Costa Rica came to the country for nature-related activities (refer to [Figure 4](#), Purpose of Visit to Costa Rica, Selected Results of 1995 Visitor Survey, Source: TTI, 1996d. Taken from Ecotourism in the Less Developed World by D.B. Weaver).

These facts about ecotourism in Costa Rica demonstrate the important role it has played in bolstering the country's tourism industry. However, a few questions persist. For example, why is ecotourism so popular in Costa Rica? What has made tourism the largest generator of foreign exchange there? Why has the Costa Rican government so aggressively promoted ecotourism? The following sections provide greater insight into these questions.

The Development of Ecotourism in Costa Rica

Around the same time the global environmental movement was galvanizing in the 1960's, the Costa Rican government was being criticized for its environmental policies, or lack thereof. Essentially, Costa Rica had no effective environmental policies, which was resulting in widespread deforestation of the countryside. As a result, a number of scientists and environmentalists who had studied and experienced, first-hand, the spectacular biodiversity and variety of environments in the country began to apply pressure on the government to create more proactive, aggressive environmental preservation programs. These same people began to lobby various international environmental organizations, such as the World Conservation Union (IUCN) and governments to intervene and take part in helping to protect the environment within Costa Rica.

Initially, the Costa Rican government was not very responsive. Up until this time, environmental protection had been a low priority for the Costa Rican government due to financial constraints, and that continued to be the case despite the rigorous lobbying efforts. However, when various foreign governments got involved and threatened to cut development assistance to the country if it did not implement environmental preservation programs, the Costa Rican government responded. In 1970, the government officially established the National Park Service, whose mission it was to consolidate natural lands into parks. The first four national parks were established between 1970 and 1971. These parks were created with the express mandate of preserving Costa Rica's biodiversity.

In 1987, during a reorganization of the Executive Branch of the government, the National Park Service was incorporated into the newly created Ministry of Environment and Energy. This agency was restructured in 1990 and became known as the Ministry of Natural Resources, Energy, and Mines (MIRENEM). MIRENEM was created as a response to increasing social demands to develop institutional guidelines for the protection of the country's natural resources. Finally, in 1995, the development of the Environment Organic Law delineated a more specific role for MIRENEM with regard to natural resource management, and it officially became the Ministry of Environment and Energy which it is known as today.

Since the establishment of the first four parks in 1970, the system has expanded to include over 70 entities, comprising approximately 1,000,000 hectares or 21% of the national territory (refer to [Figure 5](#), Costa Rica, Selected Protected Areas, Source: Boza, 1998; Rovinski, 1991; and Carey & Jones, 1993.

Taken from *Ecotourism in the Less Developed World* by D. B. Weaver). Within this system, the level of preservation differs, with just over one-half designated as completely protected national parks, biological reserves, and national wildlife refuges. The rest is comprised of forest reserves and protective zones, which accommodate a limited amount of lumbering and other extractive activities.

Since its creation, one of MINAE's primary objectives has been the consolidation of the conservation areas into a more organized system, in order to facilitate better management of those areas. To that end, MINAE has established the National System of Conservation Areas (Sistem Nacional de Areas de Conservacion – SINAC) which is a decentralized and participatory government agency that assembles MINAE's responsibilities regarding protected wildlands, wildlife, and forested areas. SINAC's overall goal is to plan and carry out the processes necessary for achieving sustainable management of the country's resources. To help achieve that goal, SINAC has established eleven conservation areas, or territorial units which are managed, in principle, under the same set of strategies (refer to [Figure 6](#), MIRENEM, Areas of Conservation, Source: www.inbio.ac.cr 1998). These are administrative areas where private and government activities come together around issues such as the use and conservation of natural resources, while sustainable development alternatives are sought as part of a collaborative effort with the citizenry of Costa Rica.

From the creation of the first four national parks in 1970 to the establishment of over seventy parks in the early 1990's, Costa Rica has come quite a long way with regard to environmental preservation. The government's most recent administrative undertaking, SINAC, is just further evidence of the progress the country has made.

Why Is Ecotourism So Popular in Costa Rica?

When the Costa Rican government first started setting aside land for the creation of a system of national parks, reserves, and protected zones, it did so under a mandate of preservation. Over time, however, the protected-area system has “emerged as a focal point for the Costa Rican tourism industry, as evidenced by the proportion of visitors spending at least some time within such areas and by the exponential pattern of visitation growth with the system” (Weaver, 89). This phenomenon can be linked to a variety of factors.

First, Costa Rica's location is unique in that it is situated in the Central American isthmus, the only region of the world which is both interoceanic and intercontinental (refer to Maps of Costa Rica in [Figures 7](#) [Source: www.excite.com] 1998 and [8](#) [Source: www.centralamerica.com 1998]).

The resulting bottleneck effect helps to explain why Costa Rica has such amazing biodiversity, despite its relatively small size (51,000 sq. km). The tropical setting and extreme variations in altitude also help create a situation where diverse plant and wildlife species can thrive. “Evidence of this biodiversity includes the presence of 20 ‘life zones’ (ranging from mangroves and coastal rainforest to subalpine grassland, containing at least 850 bird species, 1260 tree species, 1200 orchid species, 237 mammal species, and 361 species of reptiles and amphibians” (Weaver, 81). Topographically, Costa Rica is

covered by a series of young mountains, including several active volcanoes, running along the entire length of the country. These mountains are interrupted by the existence of a centrally situated plateau known as the Meseta Central. Extensive lowlands line both the Atlantic and Pacific Coasts.

It is the exceptional biodiversity and such great variety of ecoregions that attracts hundreds of thousands of tourists to Costa Rica each year to participate in some activity related to ecotourism. The Costa Rican government has responded to the tremendous growth in this sector of the tourism industry by enhancing preservation efforts within the national parks system.

To be sure, Costa Rica's reputation as a premier destination spot has only been further enhanced as a result of its social and political stability which has given it the image of "Switzerland of Central America." Similarly, the fact that nearly one-third of all national tour operators specialize in ecotourism and that the government has spent a considerable amount of money on infrastructure related to tourism has only made travel for ecotourists in Costa Rica easier and more attractive.

The Benefits of Ecotourism

The promotion of ecotourism in Costa Rica has had positive impacts on the environment and the economy within the country. As already mentioned, while not the case initially, over time ecotourism has become one of the main justifications for preservation of natural areas throughout Costa Rica, resulting in rapid expansion of the national park system which now includes seventy different entities. Looking at it from a different perspective, close to 14% of the country has been designated as national protected areas, which puts Costa Rica among the leaders in environmental preservation throughout the Caribbean (refer to [Figure 9](#), Comparative Perspective on % National Land Area Protected--Caribbean Basin).

Similarly, the emphasis on natural preservation for the sake of ecotourism has helped stem the widespread deforestation of the countryside. Although deforestation in Costa Rica is still problematic, [Figure 10](#) (Total Deforestation in Costa Rica, 1980-1995) illustrates that such deforestation has decreased over time.

In addition to fulfilling its mandate of promoting environmental sustainability, ecotourism in Costa Rica has also generated significant economic development, at both the national and local levels. As already mentioned, since 1964 international tourism receipts have risen considerably. Since 1984, international tourism receipts have grown from \$117 million to \$136 million in 1987, and \$577 million in 1993 (Weaver, 83). Such phenomenal growth has made tourism the leading source of foreign exchange in Costa Rica; it surpassed the banana trade in 1992. This trend has certainly been felt at the national level, where the GNP has literally taken off (refer to [Figure 11](#), Costa Rica's Gross National Product in US\$, 1970-1995).

Specifically, since 1970, Costa Rica's GNP has grown from approximately \$1000 million to roughly \$9000 million in 1995. At a more micro level, Costa Rica's GNP/capita has risen from around \$1500 in 1978 to nearly \$2000 dollars in 1992 (refer to [Figure 12](#), Costa Rica's GNP per Capita in US\$, 1978-

1992).

While the growth of the GNP is ostensibly linked to many factors, the fact that tourism is the greatest source of foreign exchange in the country makes it a prominent factor in Costa Rica's economic growth. To illustrate this point, [Figure 13](#) (Tourism Revenues as Percent of GNP in Costa Rica, 1970-1994, Source: World Resources Institute 1994-1995) represents the percentage of Costa Rica's GNP that is derived from tourism revenues. As can be observed in this figure, since 1970, when ecotourism was just beginning to take off in Costa Rica, tourism revenues have comprised an increasingly significant portion of GNP. Specifically, tourism revenues as a percent of GNP grew from 2% in 1970 to around 8% in 1994. Clearly, then, the Costa Rican government's efforts to promote ecotourism have "paid off" in terms of the national economy.

The benefits of ecotourism have not been felt just at the national level, however. At the more local level, parks have spawned a number of ecotourism-related activities in adjacent communities, such as the Talamancan Ecotourism and Conservation Association (ATEC). ATEC is an organization that was established by local communities in south-eastern Costa Rica to service visitors to the extensive park network of that region by providing trained local guides, food and lodging. While the full economic activities of the Talamancan initiative have yet to be determined, some indication of the effects of ecotourism can be derived from a 1990 study of Tortuguero, a village of 211 residents bordering the park of the same name. According to this survey, most tourism activity was indeed related to ecotourism, and additional surveys revealed that most residents were highly satisfied with the development (Weaver, 91). Other similar studies indicated that in several instances, ecotourism-related activities have raised the standard of living within certain local communities.

It is evident, then, that ecotourism has had positive impacts, both large and small, on the environment and economy of Costa Rica. Certainly, such outcomes are embraced by a country that has worked diligently to promote this segment of its economy. However, as with any type of tourism, ecotourism has also had negative impacts on Costa Rica. The following section describes those impacts in greater detail.

The Costs of Ecotourism in Costa Rica

While there have been many benefits associated with ecotourism in Costa Rica as outlined above, there have also been costs. One of the more fundamental issues surrounding ecotourism is the lack of standards regarding its practice. Presently in Costa Rica, there are few national laws and regulations that dictate who can rightfully engage in ecotourism and how it must be carried out. Similarly, there are no licensing procedures. Therefore, any tourism outfit can claim to conduct ecotourism even if it has little to no experience in that kind of tourism. Such unrestricted practice of ecotourism by inexperienced tour operators has inevitably resulted in types of ecotourism that do not adhere to its basic principles of environmental sustainability and local income generation.

Several other problems related to ecotourism are the byproducts of inadequate funding, poor park management, and insufficient monitoring and evaluation of programs. For example, while significant

investment has been made in creating a national park system geared towards ecotourism, overall funding falls severely short of the amount necessary to support adequate park management, infrastructure, and programming. As a result, problems such as trail deterioration, habitat disruption, pollution, and litter are becoming more commonplace.

Over-visitation is yet another factor that compounds the problem. Although policies in Costa Rica direct ecotourists into areas expressly designated for that purpose, thereby alleviating the pressure on other more fragile environments, the fact is that even the ecotourism designated environments are also fragile. That reality is precisely one of the reasons so many people converge upon such areas; they cannot experience such unadulterated nature in their own countries. What has happened, then, is that areas that are already strained are becoming more strained by the presence of humans. [Figure 14](#) (Visitation to Select Costa Rican National Parks, 1996) represents the total number of visits to various national parks in 1996. As can be seen in this figure, there are some areas that receive well close to 200,000 visitors a year. Together, they account for close to 65% of visitation to the national parks. These parks, however, are negligible in terms of their share of the protected land area. Clearly, there is an issue of carrying capacity in these parks. How many more visits will these parks be able to sustain before trail deterioration, litter, pollution, and habitat disruption become even more problematic?

In addition to the ecological and biophysical problems related to ecotourism, there are other, economic and socio-cultural problems. For example, while ecotourism can be attributed with generating some economic development at a local level, quite often, it has resulted in disruption of local economic activities. Not only does ecotourism disrupt the local economic activity, often times, the economic benefits of ecotourism in a particular area do not accrue to the local community. In those cases, the income is repatriated to some national tour operator, and quite often, to an international tourism agency.

In a similar fashion, high levels of visitation by foreign tourists have led to disturbance of local cultural practices and lifestyles. Essentially, many communities that were previously isolated have had to adapt to the constant presence of strangers in their backyard. While the exact nature of the effects of ecotourism on cultural and lifestyle practices are yet to be determined and quantified, given the prominence of ecotourism in Costa Rica, there is sufficient reason to believe that it has had and will continue to have fairly significant socio-cultural implications.

Clearly, the aforementioned points beg one question: Is ecotourism in Costa Rica truly a sustainable practice? Has it fostered community empowerment, local income generation, and linkages with existing communities, while promoting environmental sustainability? While on paper, this may seem to be the case, when one looks under the surface and studies the evidence, it does not appear as if ecotourism in Costa Rica has achieved those goals. Moreover, it does not seem that ecotourism in its current form will be sustainable in Costa Rica. So what measures should the government take to ensure that ecotourism is a more positive force in the country and that it fulfills its original mandate – that of, promoting and protecting the environment into the future as a means of generating economic development? The following section contains a series of ideas and suggestions on how the Costa Rican government can revise its policies around ecotourism, thereby making it a sustainable option for economic growth and

environmental preservation throughout the country for many generations to come.

Mitigating the Con's, Emphasizing the Pro's

In many ways, ecotourism is a desirable model for achieving environmental prosperity and environmental sustainability. However, in Costa Rica's case, the ecotourism model has to be seriously revisited and revised if it is to be beneficial. The following suggestions provide a working framework for how the Costa Rican government can initiate the process of practicing ecotourism more sustainably.

Better Management Key to the success of ecotourism in Costa Rica is better implementation, monitoring, and evaluation around this practice. Specifically, there needs to be the establishment of a system that considers all aspects of ecotourism ranging from the biophysical to the social. To that end, more scientific studies related to the biodiversity of the parks, habitat and its disruption, park carrying capacities, pollution, visitation, and other similar issues will need to be conducted. Similar studies related to income generation and economic development activities, as a result of ecotourism, must also be carried out on a regular basis in order to determine if local economic growth is indeed occurring. Likewise, the government, in collaboration with different governmental and non-governmental agencies, needs to identify issues regarding ecotourism's impact on the cultural practices and lifestyles of local communities, to assess and hopefully forestall any negative consequences.

Increased Funding To be sure, many of these measures will require additional funding. To that end, the Costa Rican government needs to develop more creative ways to generate income for the maintenance of the parks system and for other issues such as the training of park rangers and staff. One way the government could accomplish this goal is to set up a more comprehensive differential fee and admissions structure to parks. Such a system is based on the principle of charging a higher admission rate to foreign tourists, who typically comprise the majority of visitors to the parks. While it is being employed in some parks, such a system is not presently universal. Standardizing the system would be justified on the grounds that it is largely the presence of foreign visitors which necessitates comprehensive park management. Therefore, they should be required to pay for it. Such a structure would also be desirable since it keeps the costs of admission for local residents low, thereby enabling them to also enjoy the parks' natural beauty.

Stricter Standards In addition to funding the parks better, the government needs to develop a more stringent set of standards and regulations regarding the practice of ecotourism. For example, within certain protected areas, only visitors with trained guides should be allowed to enter. Similarly, in other areas, the government should restrict the number of visitors that can enter the park each day. Establishing such regulations would require a better understanding of the carrying capacity of each park within the system, which is something that the managing bodies should work towards.

The government could also set up a ratings system for all self-proclaimed ecotourism operators. Such a system would essentially assign a rating to each operator, indicating its level of environmental sensitivity in its operations. This kind of system would provide a means for potential ecotourists to better align themselves with tour operators that are conducting ecotourism in a proper way. Hopefully, such a

system would result in more responsible ecotourism to fragile environments.

With regard to local economic development, the government needs to increase the involvement of local communities within various ecotourism enterprises. Studies in some parts of Costa Rica, and in other parts of the world such as Nepal, have proven that where local communities are actively involved in ecotourism, there is an evident increase in standards of living. No doubt, the sociocultural impacts of ecotourism are not quite as severe, as well.

Development of Alternatives Eventually, the Costa Rican government will have to develop other sectors of tourism and the economy, thereby generating income. In order to do this, the government can capitalize on its existing reputation as a prime tourist destination with one of the most stable economies in the region. Developing other sources of income will mean less dependence on ecotourism as one of the primary means for economic development. That will translate into less strain on the national protected areas. Moreover, it will mean that more money can be spent on creating programs and policies to preserve the natural environment in other parts of the country. Finally, the generation of other kinds of income will hopefully reduce the need of activities such as lumbering which have led to the deforestation of the majority of the country.

To be sure, in order to achieve all of these goals, the Costa Rican government will have to more earnestly commit itself to the environmental preservation component of ecotourism. While it is evident that the government has seen the economic development value of ecotourism, it has not been as effective in supporting the preservation ideals inherent in the concept, as illustrated by the inadequate funding and management of the national parks system. Basically, the government needs to start making preservation as high a priority as economic development. Just as it spends significant money to promote ecotourism, it needs to spend greater money to support the infrastructure that supports the practice (i.e. the national parks). Additionally, the government will need to take the lead in orchestrating cooperation between a wide range of actors including itself, NGO's (especially environmental groups), tour operators, and local communities. Moreover, all of these players will need to recognize the limitations of ecotourism. However, with the sincere and earnest commitment and stewardship of all of these groups, ecotourism can become a means for economic development and environmental sustainability in Costa Rica, both now and into the future.

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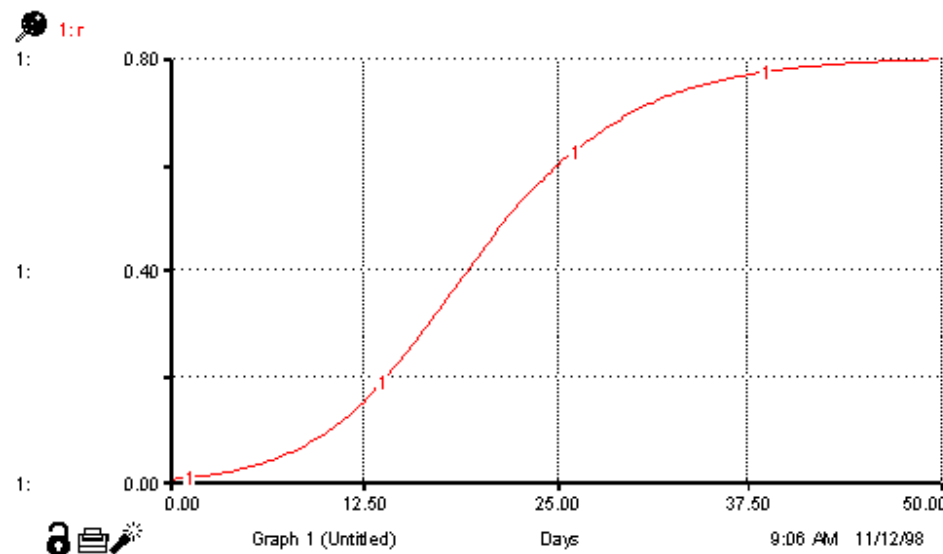
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CHAPTER 8
Uganda: A Study in Transitions and the Emergence of HIV
by
Mark Schmidt



Introduction to Transitions

Transition dynamics describes a process of development. There may be many different transitions, but they all share a characteristic shape, when graphed, of a sigmoidal curve. In any process, the beginning stages rise very slowly. At some point, though, this growth begins to take off and will rise at an exponential rate. This characterizes the most volatile region of the transition, but this time will not last for very long. Soon, there will be factors that counteract the exponential growth, slowing it down, and bringing growth once again to what appears to be a stable level. Here is a graph of a typical transition:



The above graph lacks the appropriate labels, but could be used to describe the transition of any process. First, and probably most common, it is used to describe the population transition. In looking at any area, country, or even the world, throughout history there had been relatively little growth in the human population. Only recently, human population growth has begun to take off, and it is currently in the exponential growth phase. Eventually, however, factors such as fewer resources to sustain life will begin to limit the growth of the population and it will level off at some certain value. Unfortunately, experts do not know now what that level will be and can only extrapolate current estimates.

Second, the graph could represent demographic movements, such as urbanization. In any country, it appears as though the population begins by living in small, rural areas. There is a period of rapid rural to urban migration, increasing the percent of the population urbanized, until finally a stabilizing effect becomes apparent. There is also a transition of industrialization as a country shifts from an agrarian to production-based economy. Normally, the two transitions appear to coincide, but it is important to note that this may not always be the case.

Third, this graph could be used to describe an environmental phenomenon, such as deforestation. This shows the percent of the land deforested. At some point, the low level will start to increase as humans clear forestland. There will be a point where deforestation will reach a plateau, and the graph will level off. One could see how urbanization and industrialization could lead to clearing of land for cities and a need for timber for production, respectively, and so there may be an interaction between all three. This graph can thus apply to numerous factors, such as education, health care, agriculture, etc.

In any case, it appears as though every individual transition can be a part of the transition of a country, from developing to developed status. The transitions are not only important by themselves, but also as how they relate to one another for the gestalt of the developing country transition.

This paper will attempt to view only a couple of these transitions to get a better understanding of their mode of action and interaction. Specifically, I will be looking at the population, demographic, political, and familial transitions of Uganda, which in part are shaped by the agricultural transition. This will then be applied to show how these factors may have led directly to the emergence and current distribution of the human immunodeficiency virus (HIV) and the disease that

it causes, acquired immune deficiency syndrome (AIDS). HIV/AIDS itself is a complex example of an epidemiological transition.

Introduction to the HIV/AIDS Epidemic

The Epidemiological Transition

Before exploring more profoundly how the HIV/AIDS epidemic manifests itself in Uganda, it is good to get a feel for how profoundly HIV/AIDS has affected the world. The emergence of HIV/AIDS, in only a few short years has developed into one of the largest public health problems in history. Indeed, HIV/AIDS is a world problem, as over 190 countries on all continents have been affected. (Mertens, 1996) Yet, any attempt to simplify the view of the global HIV/AIDS pandemic into one comprehensive picture would prove to be futile. No dichotomy is greater than that explaining the epidemic between developed and developing countries. However, even among these two groups, the epidemic is composed of multiple facets of smaller epidemics, sub-populations, and vast differences in transmission and risk groups.

The first cases of HIV/AIDS were recognized in Europe in 1976 and in North America in 1981. The introduction of the disease into South and Southeast Asia occurred later, probably in the middle to late 1980's. Regardless of the time of introduction, there has been a characteristic transition pattern of prevalence. At first, there is introduction of the virus into a population and an initial period of slow growth in the number of new cases. Once established, infection takes off and there is an explosion in prevalence. Finally, as incidence goes down to a lower level, prevalence will begin to stabilize. The transitional period for rapid growth in the number of AIDS cases has been thought to be around 10 years, but recent theories found that in certain sub-populations, the transitional period may be as short as one to four years. (Mertens, 1996)

A current profile of the pandemic indicates that an estimated 30 million people have contracted HIV/AIDS worldwide, and around six million of these people have died. (Worldbank, 1998) This number is also increasing: there are 11 people *per minute* becoming infected with the HIV virus. (UNFPA, 1997) Although AIDS has had a devastating effect here in the United States, an exclusive domestic focus sometimes causes us to lose sight of the international impact of the disease – an impact much more profound than here. Indeed, the burden of disease is much greater outside of the United States, for as a region with only 10% of the world's population, sub-Saharan Africa accounts for 63% of the world's HIV/AIDS cases. (World Bank Group) At the end of 1995, North America had an estimated HIV/AIDS prevalence of 788,000. By contrast, the highest prevalence region of sub-Saharan Africa had a prevalence of 12.9 million. (Mertens, 1996) Of countries in this region, Uganda has experienced one of the highest burdens of disease. According to UNAIDS and the World Health Organization (WHO), the prevalence of HIV in adults (aged 15-49) at the end of 1997 was 9.51%. (UNAIDS, 1998) Although this is extremely high, this is down from the estimated 14.5% prevalence rate in 1994. (Center for International Health Information, 1996) Even so, we can see the difference in disease rates between Uganda and the United States. Ten percent of Uganda's population of around 20 million corresponds to around 2 million persons. This is in comparison to the 788,000 persons out of almost 275 million.

One of the major differences in the shape of the epidemic curve between developed and developing countries is the mode of viral transmission. In most industrialized areas of the world – North America, Western Europe, and Australia for example – HIV/AIDS is spread primarily by men who have sex with men (MSM) and those who report injecting drug use (IDU). (Mertens, 1996) In South and Southeast Asia, IDU and male and female sex workers are the highest risk groups. In both situations, however, the distinctive high-risk groups are associated with a high prevalence. Low-risk groups, though, show a marked decrease in prevalence. Africa, on the other hand, experiences a different situation over 90% of all HIV viral transmission occurs through heterosexual sex. Maternal to child transmission is also a considerable factor in

transmission. (Mertens, 1996) There are definite high-risk groups (for example commercial sex workers and truck drivers), but these groups seem to be driving the infection through the general population. As we will see, this has a large effect on AIDS mortality as well as implications for future population growth.

One of the scariest aspects of the HIV/AIDS epidemic has been the age of the individuals most affected. Eighty percent of AIDS cases in Uganda have been found among people aged 15-45 (UnicefUSA, 1997) and AIDS is currently the leading cause of death of adults, 25-44 years old. In fact, in Africa, HIV/AIDS-related mortality accounts for more than half of all adult mortality (Mertens, 1996) as well as one-third of the mortality from all infectious diseases. (World Bank Group) Across sub-Saharan Africa, there is a 1:1 female to male sex ratio of seroprevalence. Yet in the 15-19 year age range, Ugandan girls have an HIV infection rate that is six times that of boys (UnicefUSA, 1998). This has profound effects considering the high rate of adolescent pregnancy. In fact, the percentage of teenaged girls who are pregnant with the first child increases over this age range from 7.7% in 15 year old girls to 70.8% in 19 year old girls (UNAIDS, 1998). Uganda is therefore facing a crisis whereby it is losing its most productive members of society, as well as parents, while leaving a large (and increasing) number of AIDS orphans. The impact of AIDS orphans will be discussed in context of HIV/AIDS and the familial transition.

The transition from a world without AIDS to one with it has been a tumultuous one. We can now get a better idea of how factors in Uganda have caused the epidemic curve to display its current pattern. In particular, we can see the role of sociopoliticism, urbanization and migration as responsible factors for the emergence of HIV/AIDS. Then, we will see the impact of HIV/AIDS on the population transition and the role of the changing family structure.

The Emergence of HIV/AIDS

The Historical/Political Transition

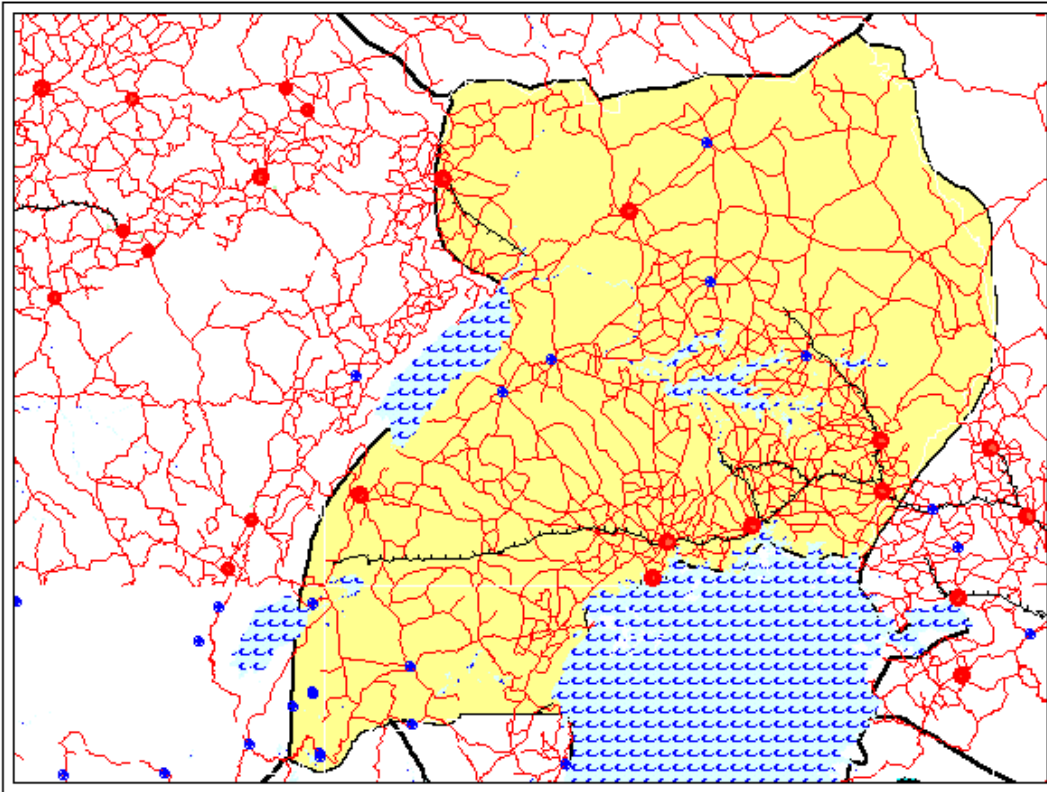
Any attempt to understand how sociopolitical factors may have led to the emergence of HIV must first be preceded by an understanding of the history of Uganda.

Before 1900, the country of Uganda did not exist. Instead, the region consisted of many independent tribes and kingdom monarchies. British colonizers around the turn of the century, through force, threat of force, or peaceful treaty alliances, incorporated the kingdoms into the Uganda Protectorate. (Furley, 1987) There was no logic into the incorporation of these diverse populations, except for the drive for imperialism. The most powerful of these kingdoms, Buganda, was located in the southern region of what is now Uganda, a very fertile region on the coast of Lake Victoria.

Throughout the colonial period, the British tried to increase development and a sense of national unity. However, many differences existed between the northern and southern regions of the Protectorate -- differences that would have far-reaching effects. (Furley, 1987) The people of Buganda, the Baganda, were more receptive to British imperial thought. Therefore, most of the early transitions, including those in education and agriculture, occurred in this region. The South was a much more fertile region, and therefore much more suitable for growing crops to be exported. Kampala, although not the capital of the Protectorate, became the main commercial center. (Furley, 1987) In effect, British policy reinforced and natural transitions occurring by forcing agriculture to occur in the South and preventing a large growth in this sector in the North. This was due mainly to the proximity of the agricultural area to main trading routes. In any case, growth in agriculture and commerce created a demand for an educated workforce, thus beginning the educational transition. Schools began to develop all over the region. Although the Baganda did become more educated, they did not fully contribute to the development of the region. The British began recruitment of Indians into the modern trade

sector, and soon the "Asians" began to fill every role in Kampala and came to dominate the commercial economy. (Furley, 1987)

In contrast to the educational, commercial, and agricultural transitions that were experienced in the South, the North was still stagnant. The land in the North was more arid and therefore not as suitable for growing crops. In addition, as the people in the North did not as readily accept British influence, they were considered hostile and barbaric. Therefore, there was no educational transition, as schools did not exist in the area before World War II. One important note, though, was that the British considered the Lango and Acholi tribes of the North to be "martial races," (Furley, 1987) and so would heavily recruit these members into the military. The following map shows how the transitions of the time resulted in the development of the Southern region. Large urban areas (red dots) are predominantly located in this region, as are many of the primary roads in the country.



Uganda became an independent state in 1962, and was headed by Milton Obote. The agricultural and commercial transitions, set up under British rule, continued. Also unchanged was the military recruitment from northern tribes. What did change, however, was national unity. In 1966, Obote set into motion a political transition as he expelled the leader of the Buganda kingdom and abolished all kingdoms. (Furley, 1987) Obote's action of abolishing the kingdoms made him incredibly unpopular in the South. It also began a period of great social unrest and civil wars that has only recently stabilized.

Obote was overthrown in 1979 by Idi Amin, who then began a reign of terror that lasted for the next eight years. The actions

of Idi Amin in effect destroyed Uganda. In 1972, Amin expelled all of the Asians from the country. His reasoning was that this move would bring the Ugandan economy into domestic control. However, the action removed the entire commercial and industrial class from Uganda, destroying the economy and dissolving all foreign confidence in the country. Again, industry and agriculture were in transition. . This time, though, production in both sectors decreased. (Kasozi, 1994) The can be represented on the graph of urbanization (p10). Although urbanization will be discussed below, we can see how the expulsion of the Asians for a time caused a cessation of urban development. One can assume that this is representative of many transitions at the time, with either a slow down or a reverse, depending upon the effect on the particular transition.

Amin further destroyed the economy of Uganda by allowing Kenyan trucks to use Ugandan roads. The truck traffic increased dramatically, destroying the Ugandan infrastructure, setting up principle corridors of smuggling, and establishing Kampala as an illegal trade center. (Kasozi, 1994) The map above shows how the development of the region was conducive to illegal trade, with major roads leading out of the cities and directly to neighboring countries. These economic policies –along with his social terror – set the stage for his overthrow in 1979.

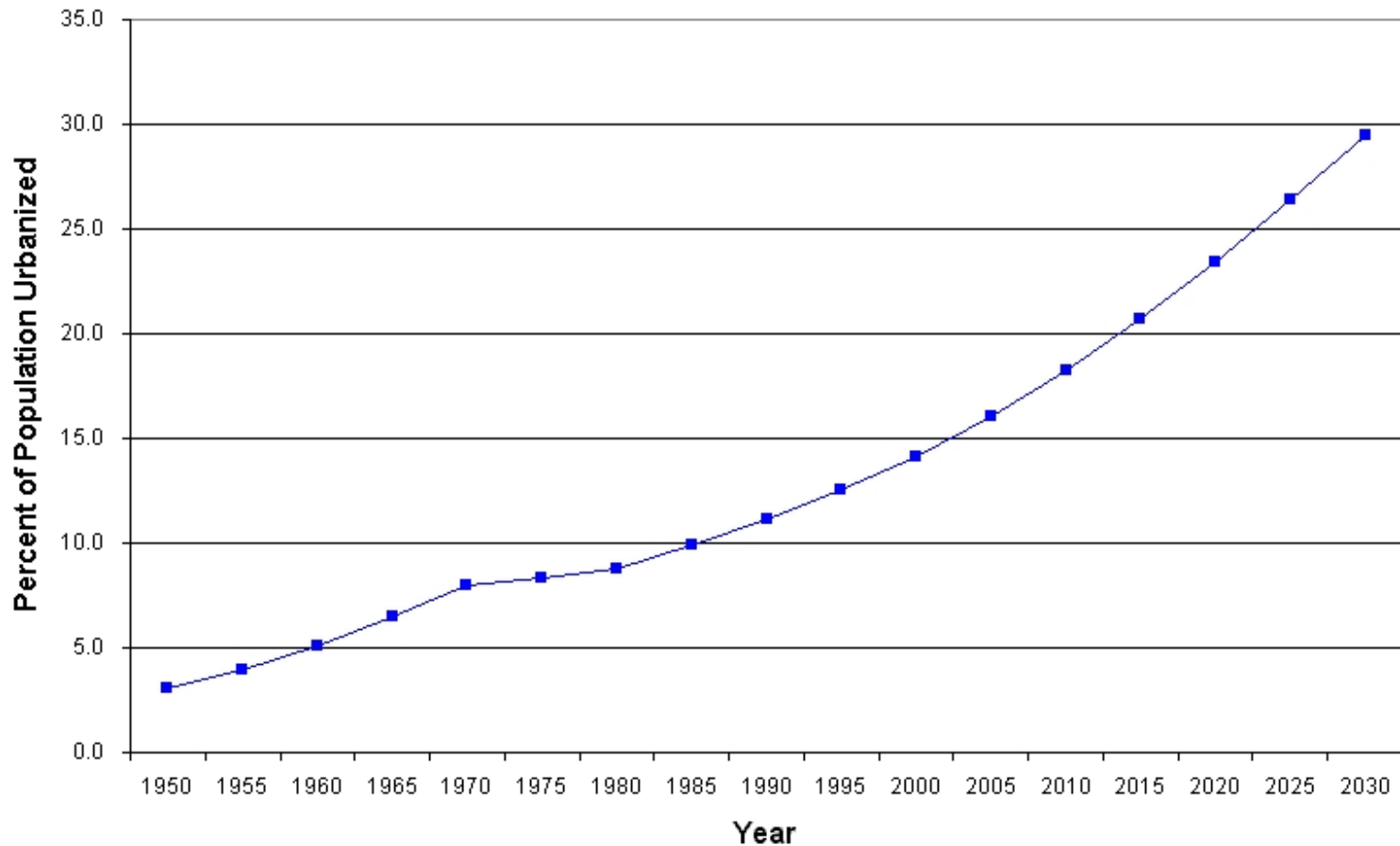
From the time of his exile in 1962, Obote had resided in Tanzania, and received support from the Tanzanian government. In January 1979, Amin had launched an invasion of Tanzania, allowing retaliation and an opportunity to " 'liberate' Uganda from this tyrant." (Furley, 1987) Along with Ugandan exiles and Tanzanian forces, there was a recruitment of the northern tribes, Lango and Acholi, still supporters of Obote, into the Ugandan National Liberation Army (UNLA). The Ugandan military dictatorship, headed by Amin, was effectively destroyed with the fall of Kampala on April 11, 1979. This is not to say that events occurring after this date are not important in the epidemiological transition. However, it was during this time that Uganda was in the midst of a political transition. It was also during this time, as we will see, that AIDS first emerged into worldview.

The Urbanization/Industrialization Transitions

The above historical/political transition was not the only one taking place during this time in Uganda. In fact, this transition was the impetus for other transitions: urbanization and industrialization. The below graph represents the urbanization of Uganda

As was said earlier, the southern region of the country, in the area of the Buganda kingdom, underwent the greatest developmental transitions as the British colonized the area. Demographic changes that were set up under British colonial rule were intensified after Uganda's independence in 1962, (Quinn, 1994) and there began a trend of migration towards a growing urban area. Uganda is typical of much of the sub-Saharan African region in the urbanization began late, mainly after gaining independence in the 1960's. The above graph shows how this region has been the least developed, with less than 10% of the total population being urbanized throughout the 1960's. (Quinn, 1994) The country is only at the beginning of its exponential growth phase.

Percent of Population Living in Urban Areas in Uganda



In any case, the South region became one of labor supply, while regions in the North and West became regions of labor demand, setting up definite vectors of internal migration. (Smallman-Raynor, 1991) The trends of rural to urban migration were not representative of the population as a whole. Due to several factors, there was at first a one-sided bulge of young males into urban areas. (Quinn, 1994)

One main factor causing predominantly male migration was a "push" factor that forced males away from their villages. (Little, 1974) This was, in effect, the result of an agricultural transition of land fertility. Traditionally, land was owned communally by a clan (family structure unit). It was cultivated to provide for all of the food needs of the family. However, as the village resources grew, villages and families increased in size. Crops were planted and harvested in shorter and shorter cycles. In addition, due to the British influence of agricultural exportation, there as also a shift

towards single cash crop plantings, such as coffee. These factors reduced the fertility of the land, resulting in families having less food for themselves. Young men would therefore leave their families for the cities, to reduce the burden of having another mouth to feed.

A second factor for male migration involved societal attitudes. It was socially acceptable, and even encouraged, for men to leave their families to gain employment in an urban setting. He would leave to make money and then return to help provide wealth to the family. These factors led many young men to the city. (Little, 1974)

Women, on the other hand, were not encouraged to migrate. Economic necessity, though, forced women to go to the cities in an attempt to find employment. Women were not as lucky at finding jobs as their male counterparts, and so many were forced into the commercial sex trade.

It is also necessary to look at how urbanization and industrialization are related. At the time of increasing (albeit slowly) urbanization, Kampala was also starting to develop as a commercial and industrial center that was drawing people into the city to look for work. Yet, as urbanization was responsible for internal migration from rural to urban areas, industrialization caused international migration, especially from India. We have noted that the Asian immigrants developed into the economy-controlling segment of the population. They controlled most, if not all, of the commercial and industrial sector. This makes sub-Saharan Africa a relatively unique region in that the industrialization transition is actually independent of the urbanization transition. (Quinn, 1994) Resultant of these factors was a lack of available employment opportunities for uneducated workers.

Both urbanization and industrialization thus ushered in a whole new era of brining people together in one central area. This was accompanied by a change in both attitudes and behaviors that brought not only a change in sexual contact patters, but also the development of a core group of individuals that could drive the HIV/AIDS epidemic.

Sociopolitical Transition, Urbanization, and the Flow of HIV

Since the first few cases of AIDS emerged, there has been much discussion into the origins of the disease. It is now commonly accepted that the virus had its origins in the Lake Victoria region of central, sub-Saharan Africa. Several theories have been developed into how the virus developed. The first hypothesis suggests that HIV is a variant of an analogous virus, Simian Immunodeficiency Virus (SIV), found in monkeys in Central Africa. This is supported by some computer models, which have suggested that HIV has evolved from SIV within the last 100 years or so. It was only recently, due to increased human-primate contact occurring from changing human activities that the virus has crossed species into Homo sapiens. A second hypothesis is that the virus has existed in the human population for a very long time, going unnoticed in local villages. This is supported by retrospective evidence, which found AIDS cases in the human population in Central Africa as early as the late 1950's. (Quinn, 1994) The virus probably existed at a low level for 20 to 30 years without being detected by hospitals or other health resources of the small villages. In any case, it is postulated that recent changes in human demographics, resulting from social and political upheavals that occurred during the 1960's and 1970's, were responsible for the emergence of a true HIV/AIDS in Uganda, and indirectly worldwide.

There are three main hypotheses that have been linked to the emergence of HIV/AIDS in Uganda: (1) the migrant labor hypothesis, (2) the truck-town hypothesis, and (3) the military involvement hypothesis. (Smallman-Raynor, 1991 and Quinn, 1994) All of these theories probably had a role in the emergence of HIV and were intricately related to the sociopolitical forces operating at the time.

The migrant labor hypothesis views the emergence of HIV as the result of population movement from one area to another

in search of labor. The policies of British imperialism, followed by developmental transitions following independence resulted in internal migration towards the southern region. It seems that this migration occurring during the 1950's and 1960's brought the virus from areas of low endemicity to this southern region of Uganda (Quinn, 1994). A large, young male population with a high prevalence of multiple sex partners, and female commercial sex work trade were probably then the contributing factors to HIV amplification of infection in the urban population. In fact, this was probably the initial driving force in the epidemic.

Second, although the urbanization transition is one of population movements from rural to urban areas, return migration of workers has also been important. AIDS first became evident in the professional urban class of Kampala. Then, it started to manifest in the lower professions and commercial sex workers used by the professional class. Through disease, or fear of disease, people would leave the city and return home. Some of those would go home to be cared for by their family, but a majority would return not even knowing that they were infected. This was an important factor in bringing the infection back to the villages. (Monk, 1997) In this way, we can assume a smaller transition of urban to rural movement of migrant workers is responsible for helping to disseminate the virus.

In any case, migration has been shown as an independent risk factor for HIV infection. One study was done, which investigated the seroprevalence of individuals who had migrated. It was found that the prevalence rate for those who had not moved during the study was 5.5%. Those who moved within a village had an 8.2% prevalence rate, while that of people who had moved to a neighboring village was 12.4%. Finally, those who had joined the cohort during the study had a 16.3% seroprevalence rate. (Nunn, 1995) This should give a clear indication that the HIV epidemic and population migration are intricately related.

The second hypothesis for the emergence of HIV is the truck-town hypothesis. This seems to account for the spread of the newly amplified AIDS epidemic out from the urban Kampala area. It also appears that the truck-town hypothesis accounts for much spread of the virus during the tumultuous reign of Idi Amin during the 1970's.

As Amin destroyed the economy and opened Ugandan roads to international trucking, there began a boom of illegal trading and smuggling of goods across the country. Typically, there would be heavy truck traffic moving out from Kampala along main corridors towards other countries. As trucking spread out along the roads through towns, so too did commercial sex work. HIV-infected truck drivers would pass along these roads and infect the commercial sex workers. This would provide for further transmission to truck drivers and the chain of transmission continued. One study found that 35.2% of truck drivers were infected with the HIV virus. (Quinn, 1994) On the map of Uganda above,

Finally, the military involvement theory is one that implicates the overthrow of Idi Amin in 1979 to a specific spread of HIV to the northern regions. As I have noted previously, Obote had continued the recruitment of members of the northern tribes of Lango and Acholi into the military. Therefore, they made up a good deal of the Ugandan National Liberation Army (UNLA) that fought to bring down Amin. UNLA servicemen are thought to have used commercial sex workers while in the urban area of south Uganda. After the coup, the soldiers would return to their villages in the North and bring with them the HIV virus. A study (Smallman-Raynor, 1991) which used regression showed a significant positive statistical relationship between UNLA recruitment patterns and later cases of AIDS. The migrant worker or truck-town hypotheses alone could not account for this relationship.

The above three hypotheses account for a majority of the spread of HIV/AIDS in the beginning of the epidemic. They also show the importance of many different factors on the emergence of an infectious disease, in particular HIV/AIDS. Industrialization, urbanization, agriculture, education, migration, commerce, and politics are all necessary in the development of a country. However, they also bring processes that may make the human species susceptible to

the emergence of new infectious diseases. This situation has been especially portrayed in the case of the HIV/AIDS epidemiological transition. Any attempt to control the epidemic must not lose sight of these very important factors as well.

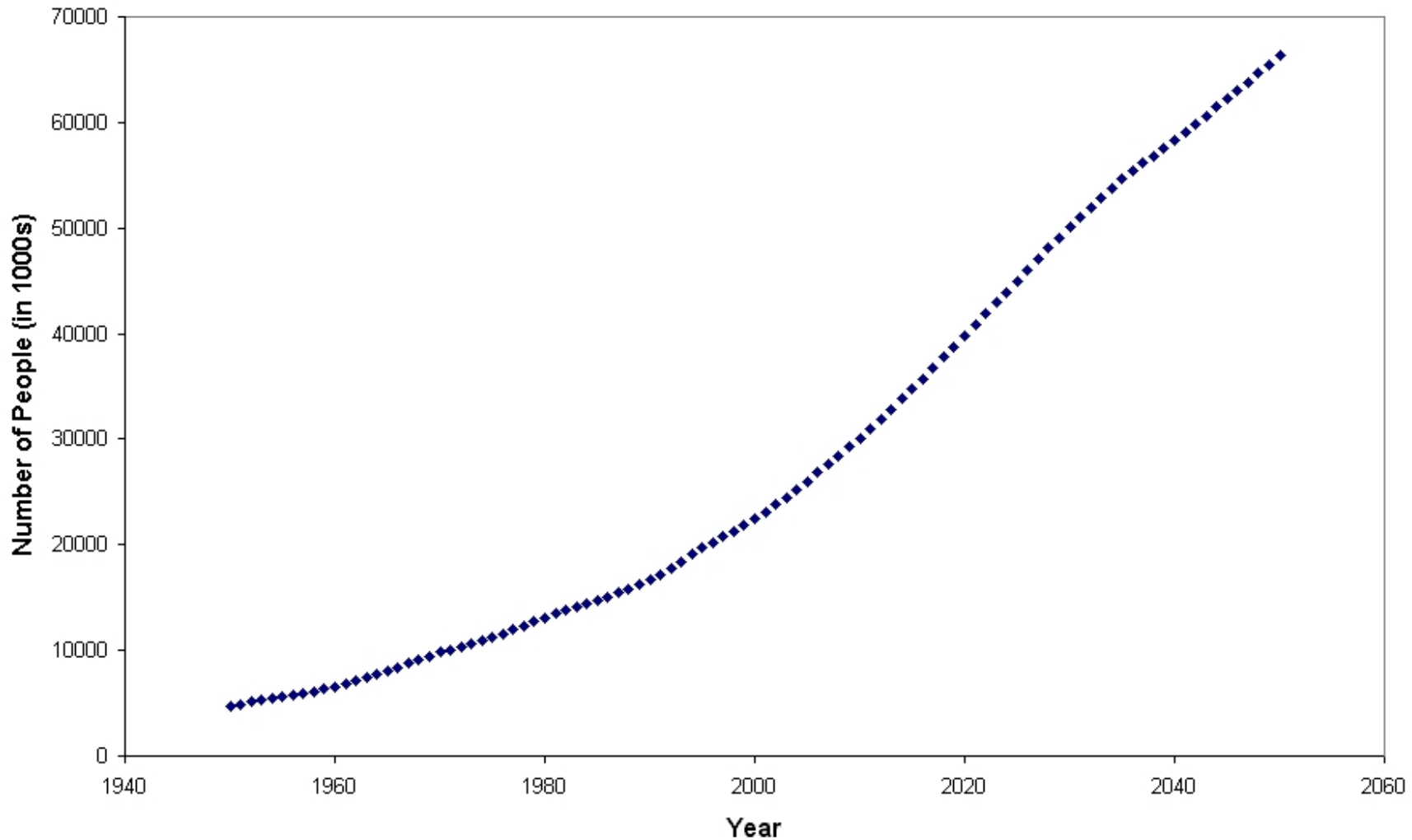
The Impact of HIV/AIDS

The Population Transition

The population transition is a prototype transition dynamic model and is fundamental in the development process of any country. Developing countries have a characteristic pattern of a high birth rate and a high death rate. Factors relating to increasing the survival of individuals start taking effect to cause a decrease in death rates. The population transition is the successive period of high fertility and low mortality, which corresponds to an exponential growth in population. Eventually, there will be a decline of birth rates, and population growth will diminish to a more stable level. Developed countries will thus have patterns of a low birth rate and a low death rate. Along with this population transition is an increase in life expectancy.

One can represent the population of a country in terms of numbers of individuals in each of many age ranges, covering the age range of the entire population. For countries in the midst of a population transition, the representation will have the characteristic appearance of a pyramid. The representation will be narrow at the top, corresponding to few individuals in the upper age range, and which will get progressively wider for each younger age range, with the base group representing the greatest number of individuals.

Population Growth by Number of People

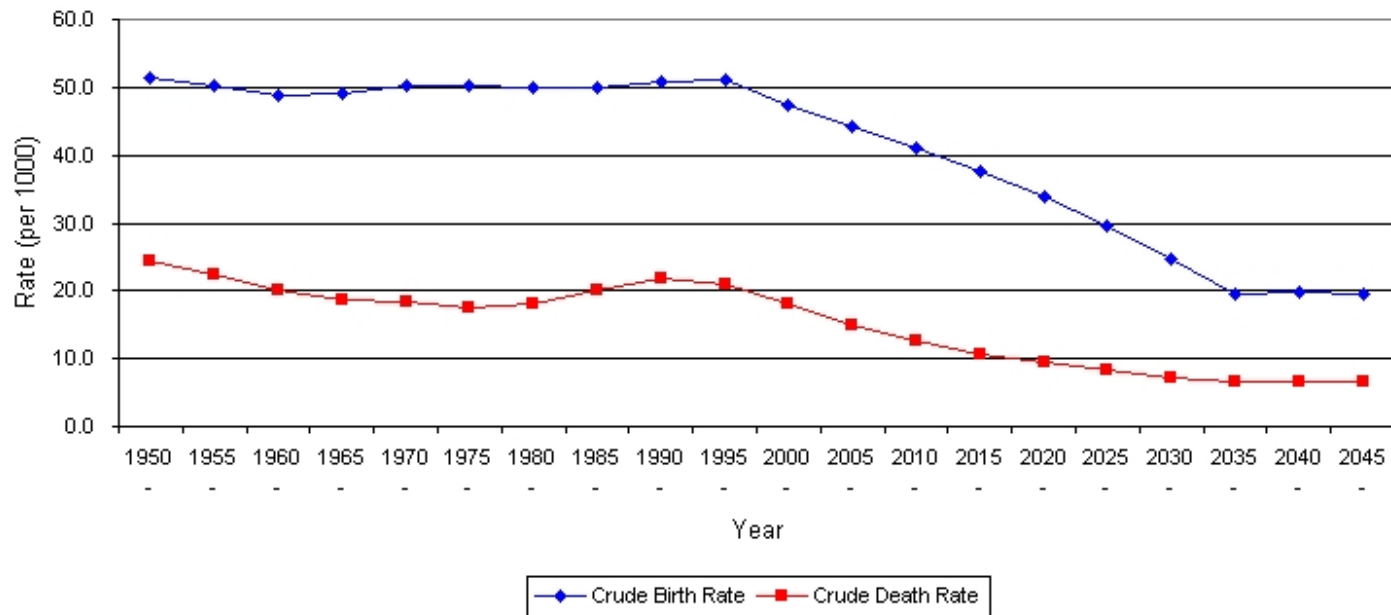


Uganda is in a region of the world currently in the exponential phase of the population transition. The entire region has an average 3% increase in population per year, and is expected to contain over one billion people by the year 2025. (Worldbank) Uganda currently has a population of 20,791,000 with an annual population growth of 3.2% over the range from 1980-1995. (UNAIDS, 1998) Here is a graph depicting population growth by the number of people, projected to 2050, from data by the World Resources Database.

We also see the crude birth and death rates for the country. As long as the large gap exists between the number of births and

the number of deaths, there will be a great increase in population

Crude Birth and Death Rates in Uganda



The population transition has great implications for the status of the HIV/AIDS epidemic. We will see that not only is the population transition important in shaping the epidemiological transition of HIV/AIDS, but the reciprocal relationship is also important.

HIV/AIDS Shaping a Population

We have seen how different transitions (social, economic, demographic, etc) have played out in Uganda alone, in combination with each other, and how they have all affected the HIV/AIDS epidemiological transition in that country. Here we have the opportunity to see the reciprocal of how the HIV/AIDS epidemic is interacting with the demographic transition.

The HIV/AIDS epidemic, occurring at such a volatile time in the population transition of Uganda, threatens to make a drastic effect on the outcome. With such a high mortality rate associated with this disease, there is bound to be an effect on the future population, both on numbers and on growth rate. Current estimates are that Uganda will face an additional 1.5 million deaths directly due to AIDS by 2025. (United Nations Population Division, 1996) The total effect on population is therefore the object of many studies, in hopes of coming up with a more accurate estimate of the population transition. One of these studies (Low-Beer, 1997) looked at the effects of HIV/AIDS mortality on the demography of Uganda, in particular the Rakai district.

Within high seroprevalence parishes within the district, there was found negative population growth by 1990-1995. This

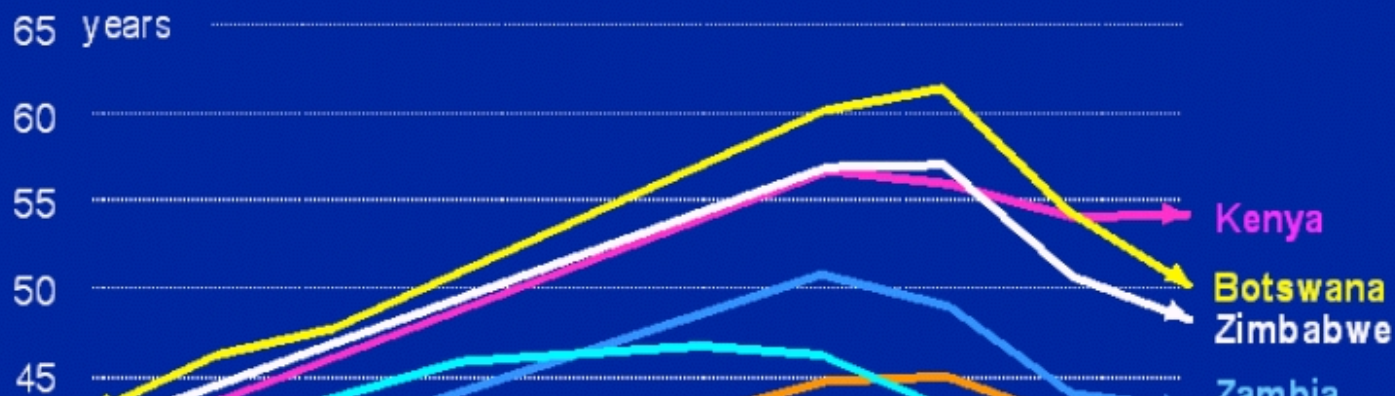
was seen as a direct consequence of mortality from AIDS. The effects of AIDS mortality on a population must be extremely severe in order to reverse the trend of a high population growth rate. These dramatic effects seen on a local level, though, were muted as the view was expanded. As of yet, there were not even moderate effects on the district level and indeed, there was still strong national population growth.

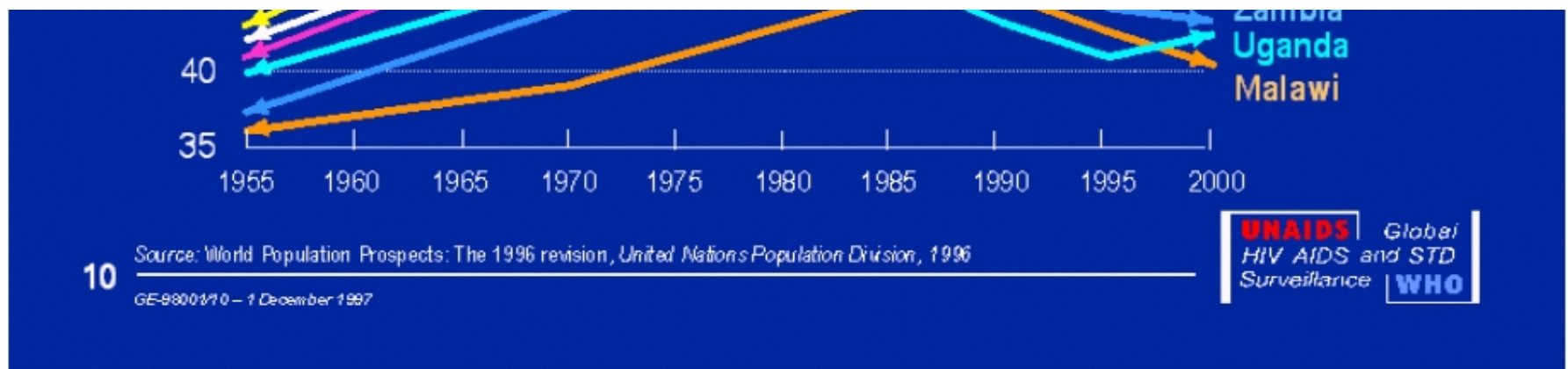
Also attributable to direct effects of AIDS mortality is the shape of the population pyramid in severely afflicted parishes in Rakai. (Low-Beer, 1997) The youngest age ranges (0-9) are most affected, with the pyramid contracting inwards. The age range 10-14 years is the widest category of the pyramid, corresponding to the greatest number of individuals. There are fewer individuals in the 5-9 year age group and still fewer in the 0-4 year age group.

Besides these direct effects of having fewer people in the population, there will be indirect effects as well. As those individuals in the lowest segment of the population mature to reproductive age, there will be fewer to give birth (than predicted) and so population growth will be slower than first thought. This effect will be reinforced as the epidemiological transition shifts the burden of AIDS mortality to the younger age groups.

Population Transition

Projected life expectancy at birth Selected sub-Saharan countries





Included with the decrease in fertility is the decrease of life expectancy. Currently, the life expectancy for a child born today in Uganda is 41. (UNAIDS, 1998) This represents greater than a five-year drop in life expectancy already, and it is expected to continue to drop in the near future. (United Nations Population Division, 1996) Increasing mortality and decreasing life expectancies will be the rule, as the prevalence of HIV/AIDS remains high. The above graph shows how the AIDS epidemic has affected the entire sub-Saharan region. We can see that although the effect is great in Uganda, it is less severe than that of other countries of the region.

This data highlights two points. First, it shows the interrelatedness of the epidemiological and population transitions. Second, this highlights the instability of the exponential growth phase of any transition. Exogenous events, occurring at an inappropriate time, can alter the course of a transition and make the future more uncertain. It will be necessary to revise current estimates of population in the future as epidemiological models change and the direct and indirect effects of HIV/AIDS mortality is taken into account.

The African Family Structure in Transition

A factor intimately tied to the HIV/AIDS epidemic in Uganda is the role of the family, as well as the changing family structure. Most of the sub-Saharan region of Africa, including Uganda, is characterized by extremely poor health resources. Most of the time, the family is called upon to provide support, both emotionally and economically, to those suffering from disease. This is one of the largest roles for the traditional family unit. However, two factors are challenging this role in the modern day HIV/AIDS epidemic. First, the sheer numbers of people afflicted with both sickness and death is taxing even the most stable traditional family structure. Second, the family structure itself is in a state of transition, which serves to both impact and be impacted by the HIV/AIDS epidemiological transition. In order to understand how the family functions in the face of this current crisis, it is first necessary to understand the traditional family structure, and how this structure has changed.

Throughout its history, the family in Africa, and Uganda in particular, was the principle unit of social organization. A basic understanding of a family is "...a social group characterized by common residence, economic co-operation and reproduction..." (Ankrah, 1993) Families consisted of, in order of increasing complexity, the nuclear family – husband, wife, and children; extended family – several nuclear families living together in a common residence; and clan network – a social unit with a common ancestor and common totem. (Ankrah, 1993) A clan network has indeed been

found throughout Uganda through the course of history, and even today provides strong kinship ties for most Ugandans.

The purposes of the clan are several. In the largely agrarian society, the clan was the basic social and economic unit of productivity. As land was owned communally, labor needed to be divided accordingly. Men traditionally would perform such duties as land clearing, while women and children would plant and harvest the crops. (Kilbride, 1990) Thus, the clan would be larger and more productive as the fertility of the family increased and more children were produced. In addition, the clan consisted of many extended families with a common residence, strengthened by solidarity and lack of mobility. (Ankrah, 1993)

In addition to the economic purpose, the clan also served to socialize the younger members into the family unit. In the social hierarchy, elders carried wisdom that was involved in the continuous operation of the clan. The younger members, on the other hand, would be the productive force which would not only provide for themselves, but also for the elders who were approaching the twilight of their life; a sort of social welfare. The socialization also involved learning the clan's norms of behavior, both on the individual and collective levels. An action by an individual reflected on the entire clan. It is through those intergenerational roles that the individuals would learn the most appropriate internal and external social activities.

Most importantly, the clan provided a support network. A characteristic of a clan is its permanence, contrasting to the short duration of the individual members. The clan functioned to maintain its continuity across multiple generations. Any "phenomenon which threatens the survival of the clan system is undoubtedly a major concern of the elders." (Ankrah, 1993) Therefore, the clan network assumed the role of caring for all members of the group. As far as the sick are concerned, extended family members would usually try to support them, both socially and economically. In addition, if there was a death of one or both parents, the children were normally cared for by the clan network.

This traditional view of the social network of the African family is still evident in some rural areas of Uganda today. However, there has been a change recently in the structure of the family unit. Euro-centric ideals as well as influence by the urbanization transition have been responsible for the familial transition seen in Uganda.

As we have seen, there has been a trend towards urbanization as people migrate from rural areas in hopes of getting better opportunities. Concurrent with the increasing urban population has been a reduction in family size and a trend towards nuclearization of the family unit. (Ankrah, 1993) this is mainly due to the inability of urban jobs to provide for enough economic resources for many members of extended families. In addition, as industrialization has resulted in a shift from agrarian to market-based production, there has been a reduced need for many offspring. An important point to note, though, is that the size of the modern African family is small compared with the traditional African family, and not with the modern family of most developed countries. The "small" family still has, on average, five to six member per family. (UnicefUSA, 1998).

The smaller, more urban African family experiences less pressure from clan members than the traditional African family. Socioeconomic interests as well as Euro-centric thought have been shown to undermine the capacity with which the clan influences the behaviors of its individual members. (Ankrah, 1993)

Finally, the social network that was seen as so central a purpose to the kinship has been weakened. For many, a lack of economic resources and/or social desire prevents extended families from aiding other clan members unconditionally. "Only when one family in a kinship is seriously hit by famine, disease, or death does the traditional social obligation of sharing and support become obvious." (Ankrah, 1993) Instead, associations and non-governmental organizations of welfare and common interests, typically seen in Western, industrialized countries, are replacing the support networks of the

traditional families. This is seen mostly in Kampala for those families who can afford them. In rural areas and for the less affluent families, the family network may still be important and called upon in times of crisis. How the family responds is important, as well will see, in how individuals, and indeed the entire population, cope with the AIDS crisis.

So far, I have concentrated on the study of various transitions occurring on a general level in Uganda. It has been through the study of these transitions, in particular population, sociopolitical, urbanization/industrialization, and familial that we can put into context the emergence and resultant HIV/AIDS epidemiological transition. As no transition is entirely independent of any other, I will show that the current AIDS epidemic is intimately linked to the above four transitions.

The African Family Molded by HIV/AIDS

The emergence of the HIV/AIDS epidemic has brought a serious challenge to not only the traditional family structure still seen in some rural areas, but also to the transitioned modern urban family. Indeed, this epidemic has forced most individuals to reform their concept of family and to produce social networks not previously seen in African family life.

One consequence that was previously stated is the heavy mortality of parents. The death of a parent due to AIDS has a devastating effect on the immediate family. Normally, this is the result of the loss of the most productive members of the family. As the mother/wife has the role of being the essential health provider, her death has "profound socioeconomic consequences for her orphans and for her husband, if he survives." (Ankrah, 1993). There have been an estimated 1.2 million children orphaned due to AIDS by May of 1997 (UnicefUSA, 1998). Traditionally, to maintain the continuity of the clan, the extended family was called upon to take up and care for orphaned children. A study in Uganda found that 38% of the orphans were indeed taken by their grandparents, 7% by aunts, 5% by uncles, 5% by sisters/brothers, and 2% by children themselves under 16 years of age (UNAIDSb). However, the role of the extended family has changed due to the shift from traditional to modern family structure.

With smaller, urban families, parental death may cause irreversible damage on the immediate family unit. Unlike in traditional systems, there may not be an extended family nearby. Even if there is, the family may be unwilling or unable to help financially. This was illustrated in the case of a 40 year old man, for example, who was unassisted by a brother living nearby. His brother stated that he was unable to help due to financial responsibilities of his own (Seeley, 1993).

HIV/AIDS has also challenged the socialization role of the family. The data show that a majority of the AIDS orphans is taken in by grandparents. Grandparents are thus forced to provide economically and productively for the grandchildren. In addition, they must continue to provide for themselves because the system of social welfare has been disrupted by the death of the producer generation (Ankrah, 1993).

As HIV/AIDS has a large stigma attached to it, many families will refuse to care for members afflicted with the disease. In some cases, sickness of a member is seen as arising from their behavior – behavior contrary to the social norms adopted by the group. If individual behavior has consequences for the entire clan, then a clan may reject an HIV/AIDS victim to preserve their own integrity. Such is the case for a 35 year old woman studies who was blamed for her own illness by her family and left to die alone (Seeley, 1993).

The impact of the AIDS epidemic on the structure of the Ugandan family has been great. In destroying a large portion of one generation, the resilience of the family in the face of this crisis has been tested. In urban areas, the formation of modern, Westernized institutions of medicine and interest association resources have helped some families to reduce the impact of disease and suffering. However, this assistance is given only to the small proportion of the families who can afford it. For the rest, the family unit still needs to be a strong coping and support mechanism for the needs of its sick members. In

any case, the interaction of family structure and the HIV/AIDS epidemic is one that will determine how easily a devastated country can retain some stability.

What do we do now?

Policy in the face of the epidemic

The above discussion has illustrated the effect of transitions on the emergence and spread of HIV/AIDS. It has also considered the present status of the epidemic as well as the potential for future impact. The role of public health is one not only to observe the status of the epidemic, but also to develop strategies to counteract the problem. However, the initial optimism of ridding the world of HIV/AIDS has been replaced by a more resigned attitude of managing a world containing HIV/AIDS. It is said that, "The question is not one of winning or losing the fight against AIDS but rather of cutting our losses. It is time to move from crisis management to epidemic management." (Hearst, 1997) This crisis management is much different, depending upon whether the crisis takes place in the developed or the developing world. As Uganda is very much a developing country, the context of developing country policy recommendations can be directly applied to Uganda.

First, one must consider briefly HIV/AIDS management in the developed world. The perception of a person living with AIDS in the United States is one of a person living with a chronic disease. With the introduction of combination therapy, most people can continue with their daily life activities throughout most of their significantly extended course of infection. However, these drugs come with a price tag of around \$10,000 per year per person. Nevertheless, the availability of wealth in the United States has allowed for most of the infected individuals to obtain this sort of treatment.

Such is not the case in developing countries in Africa, where the per capita annual health expenditures typically range only from US\$5-10. A study in 1991 found that in Uganda, 97% of the mean cost of care of individuals suffering from AIDS was spent on drugs, although this corresponded to only roughly US\$6.40 per episode of treatment. (Okello, 1994) The same study also concluded that the cost of essential drugs for AIDS alone could total more than the entire health budget of the country. Therefore, as a review of much literature has supported, future policies should not focus on drug treatment. Rather, resources should be spent on interventions leading to the prevention of HIV transmission.

With the limited number of resources available in developing countries, the best possible strategy for intervention (and the one used so far) is education. As it is through behavior that people are infected, the ultimate goal of education should be behavior modification. Yet, despite the fact that the epidemic has been around for 15 years or so, many people still do not know how HIV spreads or how to protect themselves from infection. This must be the first priority for prevention education. It is only through understanding the disease that people can be proactive, change their behavior, and protect themselves. There are two behavior modification methods that have been emphasized to curb HIV transmission: abstinence and condom use.

Since abstinence is the only sure way to prevent HIV transmission, this is a logical target for behavior modification education. As strict avoiding of sexual contact is overwhelming and, in reality, unrealistic there has been rather a stress on the importance of avoiding casual sex partners, as well as monogamy with the primary sexual partner. As we have seen, one of the initial factors for the amplification of HIV/AIDS was the use of female commercial sex workers by young, urban, male professionals. Reducing the number of sexual contacts with this high-risk group will have two effects. First, direct effects will predict that those who abstain from this sexual behavior will not become infected. Second, as those men are not becoming infected, they will not be passing on the infection to their primary female partners, and the chain of transmission will be broken. In addition, as the men are not infected, they will not further infect other female sex workers,

and the pool of amplification will not occur. This will result first in a decline of the level of infection in the high-risk population, will subsequent decline of levels of infection in the general population. The importance of abstinence, particularly of high-risk sexual behavior, and monogamy as the two most important behaviors leading to decreased transmission is well documented. Recent widespread evidence supports the trend that education is working and the number of men having sex with casual partners is decreasing.

The effects of condom use on infection in the population are similar to those for abstinence. However, the risk of transmission with the use of condoms, albeit low, is still higher than the risk associated with abstinence. Therefore, one could say that interventions stressing condom use are not as effective, in terms of resource use, than those stressing abstinence. In reality, though, behavior modification leading to the use of condoms is probably much more realistic than trying to prevent sexual contact at all. Therefore, increasing condom use is a goal that one should not underestimate. Research done to achieve this goal has identified problems inhibiting condom use, such as embarrassment or not knowing how to use a condom. (Kamya, 1997) This study gives targets for educational interventions aimed at promoting condom use among men. Widespread evidence indicates that due to such research, condom use is on the rise.

The above two interventions are indeed extremely important in reducing transmission, and have been two targets of resources so far in Uganda. Yet, these interventions will not be completely successful. The main reason for this is that these interventions are very specific and reactionary to the HIV/AIDS epidemic. As I have discussed above, the epidemic did not emerge simply because men were having sexual contact with casual partners without the use of condoms. Indeed, this behavior has occurred throughout the whole of human history. A mixture of many exogenous variables (imperialism, civil war, migratory patterns, developmental processes, etc.) resulted in a particular dynamic of sexual behavior. With the introduction of the HIV virus, this dynamic set up the characteristic processes of spreading infection. Therefore, the goals for interventions must address the root causes of the sexual behavior dynamic, as well as address the grand scope of development. (Topouzis, 1998) I will highlight two of these more basic factors in particular.

First, cultural norms have established sexuality as a taboo in Uganda. It is socially not acceptable to openly discuss sexual behaviors. Even if they are aware, women are not supposed to talk about their husbands' other casual sex partners. It is not acceptable to ask a partner to wear a condom, or for men to talk about using condoms. This has several negative impacts, when considering the above behavior modification interventions. Men may neither feel pressure to be monogamous nor to wear a condom with his sex partners. A second cultural factor limiting these interventions relates directly to sexual practices. When a man dies, his widow is expected to have sexual intercourse with her husband's brother. In this way, the brother is cleansing the brother's death. (Magezi, 1991) This practice is an important factor in HIV transmission. These two examples show the importance of trying to understand why contact patterns exist in order to look for ways to change them.

Just one example of a more broad-spectrum intervention would be the empowerment of women. As it is now, 25% of women in a town in Rwanda with one lifetime partner are infected with HIV. (DeCock, 1994) The poor status of women plays a direct role in causing this infection. One expects a woman to be dependent on her husband. In addition, the taboo prevents women from talking about sexual practices or the use of condoms. The result is that many women, even if they are aware of how HIV is transmitted, have no choice but to submit to their husbands. Many of these women will thus become infected due to their husband's sexual pattern.

Empowerment of women will allow them to resist this dependence on men. They will be educated on how to protect themselves, and encouraged to stand up for their own rights. This may force men to become monogamous, use condoms, or face loss of their wife. In addition, empowerment of women would give women increased economic opportunity. Further, increased competition for jobs could reduce the number of sex workers, reducing the high-

risk core group. Empowerment of women may be able to prevent HIV transmission to a much greater extent than other interventions presently in place. However, it is an intervention that requires a reevaluation of an entire society as well as a much more profound commitment to change. Even if this commitment is taken, there has to be an availability of resources, which is even more difficult in a developing country. This is one example of an issue that is much more difficult to resolve than by distributing pamphlets and free condoms.

We have seen how the emergence of HIV/AIDS was intricately linked to exogenous causal factors and transitions. In addition, the HIV/AIDS epidemic has the potential to have an impact in many spheres of Ugandan society. Policies developed to manage a world with HIV/AIDS must not lose site of this fact and must address the development of the country as a whole in order to combat this horrible crisis.

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CHAPTER 9
Children of the Twilight:
Nature, Nurture and the Struggle to Survive
by
Chandra Sivakumar

INTRODUCTION

[Link to Charts](#)

[Link to selected full-sized pictures](#)

Over 100 million children currently struggle to survive on the streets of cities around the world. UNESCO, 1995]. Their tale is a humiliating testament to the degradation in moral values, respect and concern for the neediest members of the global community. Children, the most precious resource for our future, are in burgeoning numbers migrating to the streets without shelter or a job, usually to escape poverty, abuse, violence or death in their homes and communities. The forces behind this phenomenon are as varied as they are tragic, but in many instances groups and individuals are organizing themselves to bring a sense of hope and support to these children. This paper will begin by providing a conceptual definition of street children, followed by descriptions of daily conditions faced by street children, causal factors contributing to this problem and a psychosocial profile of street children. The next section deals with some sub-national data collected in the summer of 1997 in the country of Ghana. It will start with a brief overview of the street child phenomenon as it exists in Ghana, followed by an analysis of the data collected from my survey. At this point, I will detail some innovative interventions in practice today. This will set the stage for my proposed intervention, based in part upon a historical model that has inspired similar programs for the past 60 years. a rudimentary description of innovative interventions around the world will be provided, setting the stage for my proposed intervention which is based upon a historical model that has also inspired similar existing programs guiding my ideas. I hope to conclude with an attempt to analyze the conditions leading to the existence of street children, as contextualized within the transitional dynamics shaping the nations of the world.

WHAT IS A STREET CHILD?

LABELS

Names and terms for street children take on a creative array of descriptive forms, reflective of the respective culture's attitudes towards them. In Naples they are called "Scugnizzo", derived from the word for a spinning toy always on the move. "Pajaro Frutero" means fruit bird in Peruvian referring to the child watching out for police in the marketplace. "Gamin" in Colombia and "Saligoman" in Rwanda both mean nasty kid. "Moustiques" are the mosquitoes to the Cameroon police force and "Poussins" or chicks to the field workers, while in Vietnam they are the "bui doi" or dust children. In Brazil, a country notorious for its brutal treatment of homeless children, they are called "marginais" or criminals/marginals and here in America we call them homeless children. These are a brief international sampling of terms referring to children whose lives revolve around the streets of major urban centers around the world [Phillips, 1994]. Others name them according to idealistic or poetic influences. "Twilight Children" is used to signify their fragile and ephemeral nature. The United Nations Children's Fund has labeled them as "children in difficult

circumstances" to avoid the stigma and negative connotations so commonly linked to the term "Street Child", though this is the term selected for usage within this paper. Still others have proposed calling them "Working Children" since the majority of children on the street must work in one form or other to survive [UNESCO, 1995].

CATEGORIES

Street children are classified as children between the ages of 5-18. However, abandoned babies fit this category as well, and are usually cared for by older siblings or soon die from exposure and neglect. Street children are officially defined by UNICEF as, "...those for whom the street (in the widest sense of the word: i.e. unoccupied dwellings, wasteland, etc.), more than their family, has become their real home, a situation in which there is no protection, supervision or direction from responsible adults" [UNICEF, 1988, p.5]. This can be broken down into three categories based upon the extent of their familial ties and are as follows: Children on the Street, Children of the Street, and Abandoned and Neglected Children, [Covenant House, 1995].

Children on the street are those kids who still live with their families, attend school part time or not at all, and must work or roam on the streets for a period of the day. Their jobs range from prostitution, shoe-shining, and scavenging marketable scraps, to sellers of cigarettes or candy, with the proceeds going directly to the family at the end of the night. These children play a role in the economic maintenance of their families, upon whose collective salaries they all depend for survival. This group accounts for the largest percentage of street children. For example, 85% of children in the urban centers of Zimbabwe return to their homes at night, although the days are spent desperately attempting to make money on the street, [Makombe, 1992].

Those children who have a nominal attachment with their families, i.e. see them very rarely, are known as children of the street. Although these kids retain a remote familial connection, they still consider the street as their home, shelter, and community. They must work on the street to survive and cannot depend upon their family for support or sustenance. This form of isolation is widely apparent in both Canada and the U. S., where runaways and unwanted youth survive on the streets of major cities by their own wits, with a vague inclination of their parent's whereabouts. The parents are usually not interested in the condition of their children and will do anything necessary to keep them out of their lives (sending money periodically, bailing someone out of prison, etc.) On occasion the youth will reconcile with their family and return home. This group is also made up of those kids sold into sexual bondage, a well-developed practice in Cambodia and Thailand.

Abandoned and orphaned children suffer many of the same tribulations as children of the street with the main difference being their complete lack of familial relations. Family or community are constructs that must be self-created from the tenuous resources on the street. Their lives are an endless struggle to get by, both physically and psychologically. Their fear, disillusionment and mistrust of adults evolve into an integral part of their identity, thereby presenting unique challenges for those attempting to help them. These children are common in Guatemala where 50,000 orphans have been created as a result of the civil war, leaving more than 6,000 kids alone in Guatemala City [Mathews, 1993]. There are 5,000 children buried in unmarked graves every year within the United States alone [Levi-Strauss, 1992]. This starkly

contrasts our glorified and celebrated ideals of "family values" and "Leave it to Beaver" or "The Brady Bunch".

It should be noted that the boundaries around these categories are of a flexible and permeable nature. Often, children under one subset will fall into another without much resistance. In all too many instances, a child living with their family but working on the streets will not be allowed back unless they have wages to contribute to the family. It does not take much for a child staying away for days at a time, to gradually avoid entirely the beatings and abuse suffered at home by simply not returning. As well, in areas of unpredictable political strife, the loss of one's parents or relatives is a very legitimate risk, leaving a child devoid of a family support system and forcing them to migrate to the urban centers to begin life anew on the streets.

THE STREET: CONDITIONS AND ELEMENTS

Anyone familiar with developing countries, or even Times Square, NYC can invoke a mental image of "the streets". The urban centers of the world share elements of a most destructive and invidious nature. The areas that attract and sustain street kids are oftentimes the dirtiest, most pernicious, and marginalized sections of a city. Life in these areas is an unstable, transitory quest for warmth, shelter, food, work, and companionship. It is a scavenger's existence, granting very few options. Some children adapt and are resourceful enough to get by, others do just enough to acquire "medicine" for a hallucinatory release, while the lucky ones are found by someone who cares or make it to an agency where they can work towards reintegrating themselves into society. Many simply expect to die on the streets after having witnessed numerous friends and acquaintances perish from a litany of nefarious forces. The most powerful of these forces affecting life on the streets are police brutality, sexual subjugation, child labor, and drugs.

"ALL I WANTED WAS TO BE A CHILD, BUT THEY WOULDN'T LET ME..."

These were the last words spoken by Nahaman Carmona, a 13-yr. old boy kicked to death by police in Guatemala City eight years ago [Jeffrey, 1993:45]. Casa Alianza, an organization fighting for the rights of street children chapters in Guatemala and Honduras, sued the four police officers involved and after a year of pressure, the officers were sentenced to fifteen years in prison. However, a few months later the Appeals Court annulled the prison sentence, not surprising given Guatemala's corrupt and debased judicial system. Latin America's record is by far the worst in terms of State sanctioned homicide. Crimes committed by the police or death squads outweighs in intensity and quantity anything that street children do to each other. This fact takes on monstrous proportions in Brazil, where in the past three years 4,611 children, 3,781 of them black, were murdered by police or death squads with three to four kids continuing to disappear or die violent deaths each day. Fifteen death squads targeting children operate in Rio alone working "under the protection of the police and justice system" [Jeffrey, 1993:50].

Poor children wandering on the street embody a society's worst inefficiencies and faults. It is easier for the public to blame them for society's collective ills than to try and understand the macro forces propelling them to a life of begging and stealing. By eradicating these distressing signs of societal breakdown, a form of class cleansing, the respective nation's consciousness can once again ignore the inequities rampant within their country. As we have seen, this lethal violence against children has been adopted as acceptable

social policy for many nations, especially in Latin America, and can only be abolished through the study and transformation of larger economic and socio-political issues governing the behavior of individuals.

SEXUAL EXPLOITATION

Although child prostitution is a form of labor, it will be treated separately from the issue of forced child labor due to its particularly heinous and intolerable nature. The International Labor Organization has stated that child trafficking in the sex industry is on the rise, an alarming fact in light of increased international awareness and vigilance. In Asia, the number of child prostitutes is placed at one million with slightly lower numbers for Africa. The ILO has identified sex rings that kidnap Latin American and Asian children, train them in prostitution centers, and then send them to U.S., European and Middle East countries, with children as young as four being taken [Olson, 1996]. These numbers include children as young as four years old that are bought from impoverished families, as well as kids who are kidnapped from the streets and slums. In developed countries such as America and Canada, we find children who are already on the streets and lured into the flesh trade by flashy, smooth talking pimps, who hook them on drugs and false affection, eventually pressured to sell their bodies in order to get by.

As stated before, the majority of street children in the world are boys. Girls are very quickly appropriated by the sex industry once they are dislocated from their homes, taken off the streets and placed in brothels. However, in every country that employs girls as sex workers, there is always a market for boys as well. Some places are more notorious for this than others. Sri Lanka and the Philippines, for example, has been a favorite vacation spot for male pedophiles for decades. Nonetheless, the circumstances under which girls are forced to sell their bodies are on the whole much worse than they are for boys. Underage male street youth in Canada's cities are under the strict supervision of a pimp for a few years, but once older they either take control of the sale of their bodies, or quit altogether, whereas women of any age must almost always work under abusive male "protection" [Webber, 1991].

The Canadian experience is reflective of the American phenomenon of child prostitution: they are not bought from their families by brothels, do not end up on the street due to warfare or natural disaster, or get kidnapped from another country. Rather, they are all the products of dysfunctional homes, the majority having suffered sexual abuse by family members or acquaintances. After running away they find themselves on the street with nothing but the stub of a bus ticket. Naive and gullible, between 12 and 18, these kids provide easy targets for pimps looking for new meat to market. Once lured into the clutches of a pimp, they are forced to sell their bodies to pay for protection from other pimps, shelter and food. If they try to escape they are beaten savagely. Running away to another city only places them in a strange environment dependent on the same skills they utilized before, thus perpetuating the cycle. Paradoxically, many of the prostitutes admit to being "in love" with their pimps, regardless of their beatings and abuse. Webber explained this as a common trait among survivors of sexual abuse who find their first friend and lover in their pimps and forgive him his periodic "rages".

CHILD LABOR

Most of the children who call the streets their home must work in one capacity or another to get by. Those children resourceful and tough enough to survive the merciless conditioning process of street life, concoct

many different self-enterprising schemes to sustain themselves. Viewed with disdain bordering on contempt by most of society, they are relegated to the most insufferable jobs, as the sex trade attests to. The conditions in factories or businesses employing children are unsuitable by any standards, the pay is negligible if not inconsistent, and the hours are excessive.

Many of these child laborers, similar to the prostitute situation in Cambodia, are the sons and daughters of impoverished families who have been sacrificed and sold into a life of bondage in the hopes of saving the family. An infamous example of this emerged in 1995 when a 13 year old Pakistani was killed by an organized carpet Mafia, while crusading against child slavery and labor. At the age of four he had been sold to carpet manufacturers for \$16 [Shane, 1996]. America has seen its share of child labor too. Amidst the crowded slums and industrial factories of the early 1900's, thousands of kids were killed or injured as a result of accidents, exposure, exhaustion [Jansson, 1996]. Work equals survival, and even those begging or stealing consider themselves as legitimately employed; the harsh means to an end that is painfully insufficient at the end of a 12 hour day.

The latest projections from the UN labor agency show that 250 million five to fourteen year olds are employed around the globe, half of them full time workers. This was broken down as follows: 153 million kids working in Asia, 80 million in Africa, and 17.5 in Latin America. Many of these were bought from families and forced to work in the carpet weaving industry, where small, nimble fingers are necessary for detailed weaving and the glass manufacturing companies, where expendable and valueless bodies are required to drag loads of molten glass from glowing furnaces amid deafening noise levels. Children as young as three years old were found working in match factories, exposed to dust, asbestos, and other hazardous fumes. Environmental poisoning from dust and fumes inhalation is a daily occurrence for kids employed in repair shops, woodwork factories, and construction sites in Egypt, the Philippines and Turkey. In Sri Lanka, more kids die from pesticide poisoning than from a combination of all other childhood diseases such as malaria, tetanus and whooping cough. Up to five million child domestic servants are currently working in Indonesia, including 400,000 in the capital of Jakarta [AP, 1996]. In South Africa alone 100,000 child laborers exist, with more than 10,000 children on the streets and unlike Zimbabwe's street child population, the majority of those in South Africa are truly homeless, i.e. children of the street [Makombe, 1992].

Suffice to say, child labor offers no recourse but continued poverty and disempowerment for its underaged participants. Working at such a young age prevents the attainment of an education necessary for long-term self-sufficiency, while further perpetuating the ignorance that molds children into non-entities. As child workers, they are forever denied the tools and knowledge base required to break free of generational poverty. Thus, they will continue to be innocent victims of a capricious society that has lost sympathy for the rights of its youngest denizens.

SUBSTANCE ABUSE

The most common form of substance abuse naturally involves the cheapest form of drug. Glue sniffing is an activity utilized from the streets of Honduras to the slums of New Delhi to the reservations of South Dakota. Traveling through Central America, it was a disturbingly common sight to see boys under the age of 12 sniffing into a paper bag filled with glue, for no more reason than to escape their unloving and unjust

environment. A 1991 study of 150 Guatemalan street children found that 100% of them used inhalants, glue and other solvents, as their drug of choice, with 96.5% sniffing daily and 3.5% using them weekly [Covenant House, 1995]. Glue is widely available in different forms, from rubber cement to cobbler's glue, and is thus highly accessible to children in every society, before they discover and are able to purchase alcohol. Canadian teens talked about pitching money together to buy gasoline for use as an inhalant, and in Asia the widely used drugs include opium, ganja and tobacco [Filguerias, 1992].

"When I sniff glue I go everywhere. I don't need to eat and I can do all the crazy things" [Filguerias, 1992:10]. Glue, as well as smoking marijuana, and injecting any kinds of drugs they can get a hold of, are in many cases the only real supports that allow them to compensate for their constant street companions of solitude, fear and hunger. Additionally, it numbs them from the pain of the cold streets and beatings from other kids and the police. However, in exchange for such temporary deliverance, these inhalants present a multitude of problems, including hallucinations, pulmonary edema, kidney failure, and irreversible brain and nose membrane damage [Covenant House, 1995]. The following quote also symbolizes the potentially comforting remedies found through drug use by street children. Jorge Mahomar, a small boy from Honduras, explained that one friend of his sniffed because, " when he inhales Resistol he hallucinates about his mother caressing him" [Griffin-Nolan,1991:51]. It is small wonder that drug use is so rampant among kids on the street, it asks no questions, makes no immediate demands, and grants a tormented child brief passage into a childhood they'll otherwise never know.

PSYCHO-SOCIAL PROFILE

The attitudes adopted in conceptualizing street children are as multifarious as they are biased. One version, represented for better or for worse in this paper, identifies the street child as the victim of a corrupt society, existing in a counterculture with separate values and ethics, motivated by relentless and ruthless forces. Another image strives to remain positively biased of these homeless children, especially while they are cute, pitiable and small youngsters wandering the streets, but mutates as soon as they become hardened teens with an aggressive, resentful and sometimes delinquent personality. Then these same voices cry out for their imprisonment and removal. Still other factions perceive them as mentally ill, feeble-minded contagions, or conversely, as especially clever and talented kids of above average intelligence.

The image of a street child is an amorphous, mercurial entity, constantly shape shifting to fit the agenda of its author. For example, Lewis Aptekar, in a study on homeless kids in Columbia, postulates, "Given the poor and impoverished beginnings why did the children seem so intelligent? It may well be that street life, rather than taking away from cognitive growth, actually adds to it..." [Aptekar, 1989:6]. He goes on to quote another study indicating that street kids weighed more than their siblings at home which, "speaks to the children's ability to organize their lives productively" [Aptekar, 1989:7]. As well, his results apparently indicated that, "time on the streets did not lead to poorer emotional or neurological functioning" and that " Once on the streets, they joined a lively peer group that gave them a good deal of friendship and support"[Aptekar, 1989:7]

It should come as no great surprise that children who have spent a majority of their lives in the street to develop a hostile and antagonistic attitude towards society. This anger, in conjunction with a need for companionship, finds a niche within ganglife. Frequently, kids are recruited by drug lords, using them as

drug runners or soldiers to guard a gang's "territory" [Michaels, 1993]. Street gangs sometimes offer the only sense of belonging or acceptance ever experienced by a child. Gangs represent a vehicle through which kids can create an identity for themselves, gain "respect" for deeds accomplished, and create a family for themselves. However, the forces which unite most street gangs and cause them to assemble in the first place, lead also to violent encounters with other gangs, inspire acts of malice to garner respect, and encourages illicit behavior which in turn reinforces and justifies society's pejorative view of those living on the street.

"Adults fear and hate kids because of the kids' relations to boundaries-the boundaries between 'good' and 'bad'. When kids 'go bad', they transgress the all-too tenuous boundary separating 'civilized behavior' from barbarism. Roving gangs of wilding youths make good news copy because they reify our fears and justify our enmity. Fear is one of the two main obstacle to dealing with the real problems of street kids. The other is empathic overload" [Levi-Strauss, 1992:754].

Older children, hardened and usually fallen prey to the vices of the street, provide role models for younger kids, thereby passing on a legacy of self-abuse and deleterious behavior. By contrasting his view with other accounts, we can view a sample of the empirical and attitudinal differences personified in different authors/researchers. However, more than one author spoke of the remarkable maturity displayed by many of the street children sharing their stories. Obviously, the more articulate one is, the greater their inclination to speak out, but nevertheless, in light of their respective pasts, it was a notable and touching surprise.

If the profile of a street child seems contradictory or confused at times, it is only because of the often enigmatic and diverse array of experiences faced by street children around the world. It is futile to construct a universal conceptualization of a street child, for observation and ethnographic description will forever be tainted by personal bias. Yet, we can rely on factual information and personal testimonies to establish that children left to their own defenses, are destined to suffer.

OVERVIEW OF CAUSAL FACTORS

There exist a few different factors leading to the existence and escalation of the phenomenon of street children.

Increased urbanization is one such element of this problem. By the year 2000, four out of ten urban dwellers will be children under the age of 18, by 2025, that number will increase to six out of ten residents [Malamud, 1996]. These children are increasingly moving to the cities due to economic hardship in the rural areas. This movement "is exacerbated by natural disasters and by the political upheavals which are a common correlate of the socioeconomic disparity that exists" [Johnston, 1995:23]. Highlighting this disparity is the lack of agrarian reform which Al Gerwing points to as the "prime breeder of street children" [Gerwing, 1995:1]. In Brazil, the richest country in Latin America where the top 20% of the population earns 26 times as much as the lowest 20%, the country has gone from being predominantly rural to mostly urban in the space of just 40 year [Michaels, 1993]. Such inequality has forced millions into the slums of the cities looking for a better living. These families for the most part are dispossessed rural workers, as plantation owners change their operations from cane to cattle raising, or begin to mechanize their ranch production [Gerwing, 1995]. In Guatemala, 3% of the population own 98% of the available

arable land, also propelling thousands of families into the urban areas [Gutman, 1991]. The chief exports in Guatemala are sweet peas and coffee; in a country where 85% of the children are chronically malnourished these figures are despicable. The plantation owners manage to sell these products to the world cheaply because their workers are being paid subsistence wages, leaving 70% of the population living in extreme poverty [Gutman, 1991]. In Honduras, a similar lack of progressive land reform has resulted in 80% of its people under the poverty line, barely able to meet their most basic needs. It is no wonder then that families are forced to migrate to the slums, where the pressure for survival leads to the disintegration of many families [Covenant House, 1995].

James Grant, the late Executive Director of UNICEF, talked of the problem of the street child as being rooted in a gross imbalance in the distribution of resources globally. "Lines of causality can even be drawn connecting the street child to an international economic system that has accelerated impoverishment and stalled development in much of the Third World"[Covenant House, 1995:4]. This quote is supported within processes ranging from increased industrialization and urbanization, to capitalism's greedy quest for high profit margins, to corrupt governments, and the global free market consolidating wealth in a few elite families.

War has also played a major role in breaking down family units, casting millions of children into the streets. In the past ten years, approximately 2 million children have died in wars and over 4 million have been physically disabled [Seufert-Barr, 1995]. The civil war in Peru has created 50,000 orphans and 120,000 displaced children, eventually causing 1.2 million children to take to the streets from economic hardship which devastated the ties of thousands of families. It is predicted that as a result of the internal wars, urbanization and abuse occurring in Latin America and the Caribbean, there will be an astounding 300 million street children, half of them born into extreme poverty. In many parts of the world we also see an alarming increase in child soldiers, forced to fight and kill against their will. Also in Peru are 5,000 such conscripted soldiers in the army or guerrilla forces [Mathews, 1993]. This has occurred in Mozambique as well, where children are a direct target for the Mozambique National Resistance Movement. The atrocities committed here are some of the worse known to mankind. Children are routinely forced to kill their parents or watch as their fathers are killed and mothers raped and tortured. The soldiers capture children as young as six to the military bases where the boys are trained to kill, and the girls become "wives" and domestic servants to the soldiers. Children who become free of their captors have invariably lost their parents and take to the streets. Save the Children Federation became involved with these kids through a government program, and attempts to help these traumatized children how to "relearn a moral code", and how to learn to cope with some of the horrible things they have performed or witnessed [Neustatter, 1992:27]. Economic forces also inspire war, especially when individuals or groups fighting for resources don't feel the need or desire to share such resources with others.

Abuse in the home is another leading reason why children end up on the street. This was evident in Webber's work with Canadian street children. Additionally, a study in Guatemala of street children, found that 100% of them had been sexually abused. Fifty-three percent claimed to have been abused by family member: 64% of the girls had their first sexual relations with their mother or father, with 7.7% having their first sexual encounter with a father or mother, 22% with an uncle or aunt, and 51% other, none of them reported to have the first encounter with a girlfriend. Ninety-six percent of the had contracted a sexually transmitted disease while living on the street [Casa Alianza, 1995]. Stephen Malamud says of the study,

"They flee their homes to escape from abuse, and once in the streets they often must submit to further exploitation and abuse to survive. Quickly they learn that, again, people who are supposed to protect them are the ones they need to fear the most. In their homes it was one or both of the parents. In the streets, the police present the biggest danger" [Malamud, 1996:2].

A deeper analysis of what causes sexual and physical abuse to occur in the first place would identify historical cycles of parental abuse, economic frustration, lack of a supportive network/community, and social isolation. Financial straits in North America, warfare in Africa and Central America, natural catastrophes in India, and inequitable land reform in South America, all contribute to these corrosive conditions generating abuse in the home, leaving the children fearful for their lives and sanity.

THE GLOBAL COMMUNITY

The rights of the child were not given specific international recognition until 1924 in the "Geneva Declaration", a five point document put together by the "Save the Children Fund International Union. It was accepted by the League of Nations and eventually expanded into the Declaration on the Rights of the Child adopted by the General Assembly of the United Nations in 1959. The declaration granted special rights to children, on account of their particular needs "as especially vulnerable, essentially dependent and developing human beings"[Phillips,1994:166]. The difficulty in creating universal rules as to the treatment and rights of children stems from the divergent perceptions of children around the world. Methods of raising a child, ages for when childhood ends, and the child's role in family, community and society are all very culturally specific. Taking this into account, the international community used the "three P's: Provision, Protection and Participation" to codify a set of laws and stipulations regulating the human rights of children [Phillips, 1994:166]. The three P's, striving to avoid traditional and ethnic conflict, simply says that children must have the right to possess, receive or have access to certain things and services (education, health care), the right to be protected from certain acts and practices (torture, abuse), and the right to do things, express one's self and have an effective voice and role in conditions affecting their lives (to have their opinions valued and appreciated) [Phillips, 1994]. As more and more laws were created attesting to the human rights of children, governments decided to try and assimilate them into a more cohesive proposal. Polish authorities proposed a Convention on the Rights of the Child in 1979 and ratified in 1989. It requires however, that countries sign and ratify the Convention individually, marking a dedication to upholding civil and human rights for children in their nation. Many of the Convention's 54 articles have relevance to street children. Article 20 calls for special protection for children without families, Article 19 provides the right to protection from abuse by parents or other caregivers, Article 28 recognizes every child's right to an education, and Article 32, 34, and 36 covers the right to protection from economic, sexual and other forms of exploitation [Covenant House, 1995].

Of course, this Declaration has no power in terms of enforcement, making it in some cases a symbolic and useless promise to uphold children's rights. Guatemala was the sixth country to ratify it but they continue to target children for abuse, torture and murder. The World Summit for Children in 1990, witnessed the signing of the World Declaration on the Survival, Protection and Development of Children by 154 governments. Out of this Summit came the National Programs of Action (NPA) adopted by each country and designed to outline a course of action to be taken by the respective countries in regards to implementing development schemes. These strategies will focus upon: Health, Education, Nutrition, Water

and Sanitation, Child Development Issues, and an Overall Plan to guide the strategies. Projects relating to health, nutrition, and child development issues were being jointly funded by the World Bank [World Summit, 1990].

GHANA

CHILDREN OF THE ACADEMY

I had the good fortune to serve my social work internship in the capital city of Accra in Ghana the summer of '97. Once there, my field liaison introduced me to Mr. Ataa Lartey, the founder and director of the Sports And Cultural Academy For Street Children. Mr.Lartey conceived of the idea of the school in 1992, in recognition of increasing numbers of children spending their days working or roaming about on the streets of Bukom and Jamestown, poor urban areas of Accra. Mr. Lartey decided to establish a "safe place" for the children to gather together, in the attempt to teach the children some basic academic skills while also pursuing sports and cultural activities. Since the street culture of both Bukom and Jamestown are dynamic and lively entities, the decision was made to tap some of the unreleased talent within the children who have grown up in these areas, specifically in the areas of boxing, football, traditional dance and drumming. Due to the many negative influences easily found on the streets, the school was designed as a locale where positive exchanges and interactions could take place. Literacy and math classes are held on Monday, Wednesday and Friday while cultural activities such as singing, dancing and drumming as well as sports activities such as Tae Kwon Do, football and Ping-Pong were organized on Tuesday and Thursday. The reasoning behind the non-traditional curriculum emanates from the transient and unstable existence of most of the children before they began attending school. To take a child who is used to a lack of discipline and structure and attempt to sit him/her down five days a week on a bench is not a realistic goal.

The Academy aims to help these children break free from cycles of poverty which overwhelm their lives, by giving them some basic skills, emotional support, peer connections and opportunities for employment, in order to transform them into productive and self-sustaining citizens. The Academy is also desperately trying to feed the children attending the school as much as they can, since many of them do not get enough to eat at home, the physical ramifications of which can hinder their mental development. They hope to provide an environment where children could feel supported and nurtured, due to the many deficiencies in their homes. The school has future plans to train teachers as social workers in order to document, record and counsel abused children. The Academy is trying hard to raise funds in order to hire more teachers, buy enough school supplies for all the students, provide breakfast and lunch, fix up the facility housing the school, as well as to help support motivated and talented children go on for higher education.

COUNTRY BACKGROUND

In Ghana, there are no social agencies or NGO's which focus on the hidden problem of child abuse. Thus, these children have in some instances attended regular schools, but due to dislocation, poverty or parental neglect, have had to drop out of school and either work to support their family or at the very least work to support them.

Abused children do not have a place to go to report perpetrators and most adults are not equipped to

identify such occurrences. Since 70% of the adults in Bukom and Jamestown are illiterate, 30% of the women are single mothers, and 60% of the children have no permanent homes, as well as high unemployment rates and poverty, it is not hard to understand the insidious circumstances which can lead to abuse, both of one's self as well as those around you. Although primary and secondary education is free in Ghana (our equivalent of K-8), students are expected to buy uniforms, pencils, books and other small but necessary school items. While the Social Welfare Department of the University of Legon, Accra has done some excellent work in determining the street children problem as it exists in Ghana, it is the only institution in the country which was collecting reliable data concerning the lives and conditions of the poor urban child of Ghana. There were a few NGOs catering to the needs of street children but from more than one source, I discovered that embezzlement, inter-agency conflict and corruption were more of an influential factor in the daily workings of these organizations than was effective and identifiable methods for social change. Ancillary evidence of the inefficiency prevalent within NGOs was the fact that both UNICEF and Save The Children Fund had temporarily desisted in providing funds for several groups, due mainly to the discovery that thousands of dollars were found to be either "missing" or spent on non-agency materials.

DATA COLLECTION

During my summer internship, I surveyed 103 students on a variety of subjects, then broke down the data by gender in a computer-generated report, which was given to Mr.Lartey as a school profile for funding purposes. Below are some basic demographic facts as well as some significant findings from the data analysis.

SELECTED DEMOGRAPHICS

HOMETOWN	RELIGION	LANGUAGES	ETHNICITY	FAVORITE SPORTS
<ul style="list-style-type: none"> • 53.5% from Accra • 35% from outside of Accra • 11% from outside of Ghana 	<ul style="list-style-type: none"> • 84.5% Christian • 16% Muslim 	<ul style="list-style-type: none"> • 92% Ga • 41% English • 40% Twi • 12% Fanti • 57% More than two 	<ul style="list-style-type: none"> • 37% Ga • 10% Hausa • 7% Ewe 	<ul style="list-style-type: none"> • 32% Football (soccer) • 12% Boxing • 26% Running • 17% Ampe

SELECTED RESULTS OF THE SURVEY

69% of the children said they had to stop their formal education due to poverty and 21% due to dislocation	49% of the children believed they had enough to eat every day, while 50% claimed they either were not satisfied or were sometimes satisfied with their daily food intake	80% of the children work before and/or after school	54% of the children work as vendors in the market
33% of the children claimed they were not satisfied with their sleeping conditions	40% of the children claim to get sick very often (once or more/month) during the year	Fevers and Malaria accounted for 61% of the illnesses suffered most frequently	70% of the children stated they were unhappy at home due to beatings and insults

PRELIMINARY ANALYSIS

There were very few correlations which proved to be of statistical significance. This can be attributed to a variety of factors, the least of which is the relatively small population size the data was drawn from. However, one interesting result which was significant at a p-value of .05, was the correlation between children's satisfaction of their daily food intake and the number of times they get sick per year. It seemed that those children who claimed they were not satisfied or sometimes satisfied with their daily food intake, were more likely to have been sick very often (once or more/month). This held true across gender and age categories. If presented with an opportunity to return to Ghana, a follow-up project studying the connections between children's eating patterns and their health would be a valuable study. It would be important to discover how often children really eat, what they eat, how much they eat at one sitting, do they like what they eat, as well as specific health information measuring their general well-being, checking symptoms they may complain of having, and beginning some kind of long-term research project beginning with the collection of baseline data. Comparing some of these findings with national data could provide us with some strong empirical evidence concerning the Academy's cohort of children.

By taking a more generalized view of the findings, paying less critical attention to statistical significance between variables, other connections emerge which may be of importance. For example, there were connections between a child's satisfaction concerning their sleeping conditions and their choice of what they were most unhappy with at home. Children who said they were not satisfied with their sleeping conditions due to reasons such as too many people on the bed, discomfort from sleeping on the floor, too cold, too hot, etc., were generally inclined to be unhappiest about being beaten and/or insulted at home. This may reflect a lack of attention on the part of the parents/guardians of the child, who are either unconcerned with or unable to act upon the child's needs. Due to the poor background of the most of these children, as well as the fact that over 50% of them came from single parent homes, it is not surprising that their living conditions were less than comfortable. Again, how displeasure at home relates to health is an important research question to be followed up at a later point. In addition, girls were found to be more likely to work before and/or after school than boys, which is reflective of the gender constructions/roles in Ghanaian society. Other research questions I would like to explore further include:

- How does a child who has moved around quite a bit in his/her early years compare to his/her counterparts in terms of health and general satisfaction?
- Do children who claim to be unhappy at home due to beatings/insults have a harder time at school where corporal punishment is highly prevalent?
- How do specific living conditions such as where a child sleeps, how many people they live with, sanitary conditions of the house and what they are fed correlate with incidence of illnesses? or types of diseases?
- What do the children most strongly believe will

allow them to
rise above
their current
conditions?

As is apparent, there are many questions that need to be asked and researched, involving both quantitative and qualitative research methods. A long-term commitment must be made to these children, in terms of academic interest, resource sharing and emotional participation. Without such dedication, ethnographic/research studies in the field as well as their inspired interventions will lead a very tenuous existence. More resources have to be targeted for studies such as these, whereby the results are analyzed for correlational variables, contextualized within the national statistics, and the appropriate measures are taken to follow up on community needs and problems. This is the responsibility of both the researcher involved with the study as well as those who endorse such projects. In time perhaps the academic community may realize the importance of researching the lives of street children in order to get a broader sense of their true conditions as well as to attain statistical evidence necessary for funding dollars.

MODELS FOR INTERVENTION

Although the situation facing the world's street children is dismal, there are many examples of unique and intelligent programs currently in practice which address this problem. One highly successful tactic used in programs in the Philippines as well as Brazil is called Peer Counseling. This methodology works under the assumption that street children are seen as the most effective listeners and counselors for other children in similar situations. They are trained by psychologists or social workers to run and facilitate groups' discussions in hopes of letting kids share their views and feelings. The solutions and insights into the phenomenon of street children that are generated by the kids in these group meetings, are as valuable if not more so than research by professionals. The ability to see the world through the eyes of a child is a precious and essential component in seeking ways to alleviate the problem. Just as importantly, it proves to children that their stories and views are valued and worthwhile [UNESCO, 1995].

Another effective tool has been the use of Streetworkers, also known as Street Educators. These are caring compassionate adults that the children will first meet on the street in attempts to assist them. They can be professionally trained social workers or simply ex-street children/sex workers, trying to make a difference. At an Asian conference on street children, 20 children from the streets of Manila reported their preferred qualifications in a street educator: someone who is a friend, who is sympathetic and affectionate, a source of encouragement, who knows self-defense, who is non-threatening, and someone who gives importance to what we can do [Rialp, 1991]. In Brazil, Mexico, and many other parts of the world, the street educators are the first contact to the outside world of adults that the street children will come to know and value. They are almost always trained by an external agency, such as the Khmer women who were former sex workers doing AIDS education and prevention programs in the streets of Cambodia. Similarly, Webber met ex-prostitutes in Canada who were employed by social service agencies to provide education and counseling to young kids selling their bodies. The street educators that are former street children can relate to the experiences of the children, establishing trust and confidence much quicker than others can.

URBAN DEVELOPMENT

The breakdown of the family in urban centers was initially addressed by the Undugu Society in Kenya back in the seventies. This organization evolved from a residential care facility to a comprehensive urban community development program assisting slum families. Their programs consists of: an urban agricultural project which helps children who have come off the streets to learn and earn a livelihood; a community health center which teaches primary health, AIDS prevention, and family planning, and a housing assistance program to prevent families from taking to the streets. Most importantly, they have relied on cultural traditions to push for integrating kids into their communities. Ezra Mbogori, current director of the agency says, "We are trying to get the community to take responsibility for these street children in keeping with African tribal traditions. We tell them: 'You're the guardians of these children. Why on earth are you letting them live like this?' We give the responsibility back to the community" [Rialp, 1991:10].

THE CIVILIAN CONSERVATION CORPS

A consequence of the devastating economic hardship brought on by the Great Depression of 1929, was an unprecedented lack of jobs in the country. In 1933 there were 13.7 million unemployed men [Hill, 1990]. The President at the time, Franklin Delanour Roosevelt, proposed a new project under the auspices of his "New Deal" economic revitalization project. It was an ingenious plan called the Civilian Conservation Corps, designed to provide employment while at the same time protecting the nation's natural resources. The criteria for joining the Corps were strict: only single, physically fit, unemployed men from "relief families" between the ages of 18-25 would be accepted into the program. The CCC projects lasted for nine years, with a total of 3 million men, the majority of whom was white, having served their country. At the end of the nine year project, there were some remarkable achievements to mark the efficacy of Corps employees. Over 2 billion trees were planted as soil erosion controls, 40,000 bridges were constructed, hundreds of state parks were build and many other large-scale projects were undertaken and completed [Hill, 1990]. The CCC was considered a success and was heralded as a significant tool in having shaped the character, values and work ethic of millions of American men.

THE CCC LEGACY

In 1988, the state of New York initiated a new program with old roots. The New York State Conservation Corps was designed based on the 1930's Citizen Conservation Corps. Corps members work in teams, under qualified adult supervision, developing and completing conservation efforts to help their local communities. The New York program, unlike its' predecessor, engages both boys and girls, as well as members from all ethnic, social, economic and cultural background, in their summer programs. While working on projects aimed at introducing children to the grand world of ecology and environmentalism, corps members are required to attend classes on writing, reading, ethics, personal responsibility, employment skills, first aid as well as safety. Although the pay is low, it is enough to support the children during their summer internship, with sponsors helping to provide some grants, work projects, professional expertise and local funding. The lessons many of these children learn are invaluable, not only allowing many children to work in an organized team for the first time in their lives, but also granting them a measure of success, accomplishment and heightened self-esteem [Steele, 1988].

In addition, there are various case studies around the world in which organizations and individuals are

attempting to bring nature to poor urban areas. This is reflected as well in the community garden movement in New York City, as well as an innovative project in South Africa. In these instances, the blight connected with urban poverty is replaced in piecemeal, by the planting of trees, shrubs and vegetable and herb gardens. If one could encourage children to become involved in such projects, using the proper/ appropriate incentives and rewards, one might see some benevolent changes. Transformations can take place both in the local environment, but as well in the emotional well-being of the children, who will work towards beautifying their community, garnering the appreciation of their neighbors, and perhaps getting some kind of tangible benefit from their work, be it food, shelter or healthy companionship.

THE CCC AND STREET CHILDREN

So, can this prototype be applied to street children in a developing city where the national emphasis on environmental preservation is much less than what is found here? I believe with the right balance of financial resources, governmental support, international assistance and compassionate, energetic teachers, the project could provide an excellent opportunity for the urban poor child.

Let us use Ghana as our test case nation. If we acquired a simple nod of approval from the president, J.J. Rawlings, a few National Service volunteers, who are required to donate a year or two to serving their country, some international donor agencies willing to commit some hefty dollars and a potential location for a camp, then this plan would be well on its way to actualization. Street children with no filial connections could be recruited from the streets by street workers who already spend their time getting to know the children. Children will not be forced into this pilot program; in fact many would rather be a part of the excitement and communality of the streets than be herded to the country for an experimental program. However, enough children will surely be found who either have lost all contact with their family, or are a long distance away from their family, in which case we can do our best to track their family down and insure they have no problems with their child participating in our group project.

We can explain from the outset that participants will be under no obligation to stay once the project begins, that food and shelter will be provided, and that the program is an effort to help them get off the street for a set period of time, learn some employable skills, meet some caring and trustworthy friends, become as literate as possible, and have a chance to settle down peacefully in a stable and safe environment. Prior to recruiting children participants, a large number of acres would be bought or leased, teachers would be carefully trained in working with children from the street, structures would be built to sleep and dine in, and outdoor projects would be devised by pre-selected project leaders who have knowledge of hands-on skills such as carpentry, animal husbandry or construction. Hopefully, all the tools and resources and land required to create a permanent camp in a rural area would be funded by donor agencies, both domestic and international in nature. Such donations would be seen as investments into the future of a few young Ghanaian citizens. If funds had to be diverted from other NGO sources, I can honestly attest to witnessing more than a few suspicious monetary transactions where financial resources from the World Bank or UNICEF were "mismanaged" and "redirected" into personal accounts. So, with a few well-placed phone calls, I'm sure we could come up with enough money to fund this project.

In addition, there must be a determined effort to incorporate some fundamental conservation efforts as were seen in the CCC. Rural projects involving villages or communities could provide an amazing

partnership between urban homeless children and families living outside of the city. There are always various projects and plans being undertaken in rural areas and this would present an excellent chance for street children to gradually become socialized in relating to and working with other people. If the children were allowed to stay in their camp for the night but spent a large part of their days assisting in development projects around the countryside, I believe their spirits would experience a much needed boost in terms of self-efficacy, confidence and trust in others. As well, if the idea of a camp was deemed implausible, then similar development projects could be initiated within the confines of the city, employing street children and compensating them for their work, perhaps through shelter and food. Such urban projects could include revitalization efforts like garbage collection, construction of affordable housing, the digging of new ditches for better sanitation, as well as training selected children as street educators/counselors.

Well, I have not worked out all the logistics yet, and so some questions remain, such as:

- How long will children be allowed to stay in the camp?
- What opportunities will these children have once their stay is completed?
- What do we do about children who present major behavioral problems while in the camp besides tossing them back on the street?
- How do we evaluate and measure success in order to please our funding sources?
- If the children are involved with urban renewal projects, how do we make sure they stay off drugs?
- What happens when the children run out of activities or projects to do?
- Can a nature-based ideology be infused into the program and if so how would that help street children?

However, I am confident that with a little luck, some financial aid, a few capable and dedicated individuals, as well as the proper political and social environment, the CCC Street Children Prototype could provide an amazing opportunity for street children to realize their potential and regain hope for their future.

TRANSITIONAL THEORY

It may be informative to our discussion to look at the phenomenon of street children within the context of transitional theory. Transitions refer to the process of changes, an ephemeral condition present within all aspects of the natural world and society. The changes which take place, be they climactic change, economic change or mortality rate changes, are the result of intertwined and synergistic relationships between different variables. Demographers attempting to explain patterns of behavior within countries developed this theory to make sense of how, why and when populations undergo significant changes affecting their population. However, while this model is highly effective in demonstrating the dynamics between life/death rates, population growth and development stages, it can also be applied to a number of other variables, also known as a "family of transitions" [Drake, p.302]. Thus, there are transitions occurring in relation to agricultural practices, deforestation, energy use, urbanization and many others. In fact, the transitional model can theoretically be applied to any phenomenon that involves multi-dimensional interactions occurring over time.

Essentially, all aspects of our existence are affected by an unknown number of variables. Transitional theory tries to take a few distinct factors and plot them against each other, over a period of time. The

concept of time is critical to this model. In order to measure changes between dynamic sets of factors, one needs to place the reactions within an overarching context (time) in order to visualize the relationship patterns that exist between them. It is also important to note that these interactions are both driven by the process of change, but as well, create change [Drake, p.303]. If we look at the production of automobiles over the last century we find that they have contributed greatly to the degradation of air quality, which in turn can cause acid rain, leading to the sterilization of lakes and the death of aquatic life. The original condition of air pollution from exhaust fumes continues on, but has now caused a change which sets into motion an infinite number of other reactions; the ripple effect so to speak.

However, there is a dilemma faced in placing the street child phenomenon into a transitional context. The causal factors that were discussed earlier, such as urbanization, war and the disintegration of families, are ubiquitous conditions, transcending all political, economic and cultural boundaries. For instance, in the United States, cases of child sexual abuse have been on the rise over the past few years. This is due to both increased awareness and acknowledgement of such practices as well as the continuing erosion of family conditions, leading to dysfunctional/abusive behaviors. Although the country experiences high economic growth and low unemployment, there are still forces at work that contribute to an overwhelming loss of community, care and understanding between individuals.

These tragic circumstances are reflected in the fact that 30,000 kids currently sustain themselves on the streets of New York City, with a reported 50% rate of exposure to HIV [Levi-Strauss, 1992]. The problem of runaways and prostitution is rampant among the streets of America's largest cities as well as in Canada where an estimated 200,000 teen-agers struggle to survive within urban environments. Marlene Webber, in a two year study of Canadian street children, found that over 90% of the kids prostituting themselves had been sexually abused or raped as children [Webber, 1991]. The situation of teen-aged prostitutes working for pimps in the U.S. and Canada are not too unlikely from the experience of children in Cambodia, India or Thailand sold to sex traders and forced to work in brothels. Similarly, in Brazil, the wealthiest nation in South America, the numbers of street children are on the rise as thousands of families stream into the megacities looking for work. Countries such as Sri Lanka and Ghana, where children are considered a precious and highly valued part of the community, are also faced with the problems of dispossessed youth that wind up on the streets for a multitude of reasons. As you can see, countries with stable governments, nations with booming economies as well as countries that have strong moral codes all share the common condition of lost and lonely children forced to create a precarious niche on urban streets.

So what are the conditional patterns which are apparent in countries where street children are not a reality? The few countries whose name escape the list of nations facing thousands of children living on the streets for survival include the Scandinavian countries such as Sweden and Finland, Costa Rica and Fiji, as well as places like Saudi Arabia. It is important to distinguish between individuals who are employed in the sex trade, which is a response to a market for sex that exists everywhere, and youth who are relegated to working and living directly on the streets. This distinction distinguishes between situations like the red-light district of Amsterdam and girls prostituting themselves on the streets of Toronto. The former is a semi-institutionalized form of sexual labor, while the latter represents a less stable and structured form of survival.

To aid our understanding of transitional theory and its relationship to the condition of homeless children, it

is important to identify factors that drive the transition forward. We can do this by analyzing some of the underlying pressures which contribute to the causal factors mentioned before. The chart below help illustrates this relationship:

Causal Factors	Driving Forces
Urbanization	<ul style="list-style-type: none"> • Rural Migration: Ecological Devastation, Natural Disasters • Population growth • Consolidation of Capital: Build-up of Corporate Institutions
Violent Conflict	<ul style="list-style-type: none"> • Cultural/Ethnic Passions • Dictatorial Rule • Economic Inequality: (Land/Resources)
Breakdown of the Family	<ul style="list-style-type: none"> • Economic Instability Social Isolation • Substance Abuse • Cycles of Abuse

Subsequently, by viewing countries through the matrix above, we can get an idea of their transitional stage, the key variables driving the transition and the timing of events within the various populations/sectors of the society. Some of the opposing qualities of countries that have progressed beyond this transition include the presence of stable governments, strong economies, a well-preserved sense of nationalism devoid of land, ethnic or religious conflict, homogeneous populations and a rigid tradition of either socialism, monarchy or cultural preservation. Although this analysis may lack supporting data, it helps us realize that street children provide a vivid and dramatic indicator of a nation's well being. In other words, the welfare of a particular nation's children, symbolize the collective conscience and compassion of that nation. Let us call this process the "Moral Transition", whereby countries develop and evolve into compassionate states. This can be determined by a country's commitment to actualizing a conceptual model which does not accept the presence of suffering, exploited children living on their streets. For example, I had the good fortune to spend two weeks in Fiji a few years ago. My most indelible memory of my time there was hearing multiple sources claim that Fijians as a society and country simply did not accept the condition of homelessness, especially when children were involved; such people were taken in by various families or provided with shelters.

The same is the case with Sweden or Norway, socialist states that have made a national commitment to provide for those individuals unable to care for themselves. Perhaps exceptions exist within these countries or conditions have changed recently which create an environment where homelessness will secure a foothold, but nonetheless, these few countries are in a transitional state where equality and social justice are more than shallow buzzwords. Obviously there exist a great number of conditions in countries such as

the U.S., Kenya or Brazil that defy the logics of democratic participation and social welfare for all. Either their populations are too large, or there are internal conflicts or the nation is devoid of a unifying ideology / political philosophy which would serve to create a safety net for its less fortunate citizens. Whatever the reasons, the state of the respective countries' children will always be a telltale sign of their moral transitional stage.

CONCLUSION

I hope the reader comes away from this paper with a better understanding of the multidimensional nature of the street child phenomenon, as it is currently perceived around the world. As well, the reader should have a basic idea of the social conditions existing in the country of Ghana, both through some of the charts I have included and via the survey results of one small cohort of children on the street. Finally, the reader should be able to visualize some of the innovative and progressive methods currently being utilized by groups concerned with the well-being of street children. I have included a preliminary model for an intervention that I feel may be effective in addressing the needs of street children as well as the communities in which they exist. My model was based in part upon the Civilian Conservation Corps of the 1930's, which has also spawned similar projects over the past 60 years. The idea of Moral Transitions was presented, embedded within a larger framework of the transitional dynamics that countries undergo as part of their evolutionary development. These transitions can occur with almost any scenario, and in this case I have attempted to portray the existence of street children as an indicator of a country's stage within a "moral transition", whereby the flux of social conditions within the country either allows for or simply does not accept the presence of homeless children.

The lives of street children are unimaginably difficult, their childhoods are stolen from them forever and many die a premature death. But, there are concerned individuals and groups in many different countries who are striving to conceive of and apply effective interventions designed to get kids off the streets, provide them with some basic amenities and plot a healthy course for their future. Although the underlying forces giving rise to the problem are as diverse as they are persistent, there may come a day when humanity considers the welfare of a child, any child, to hold greater worth and value than profits, land or political power.

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CHAPTER 10
The Tuareg People and the Air Tenere Conservation and Development Project, Niger, West Africa
by
Jennifer Talbot

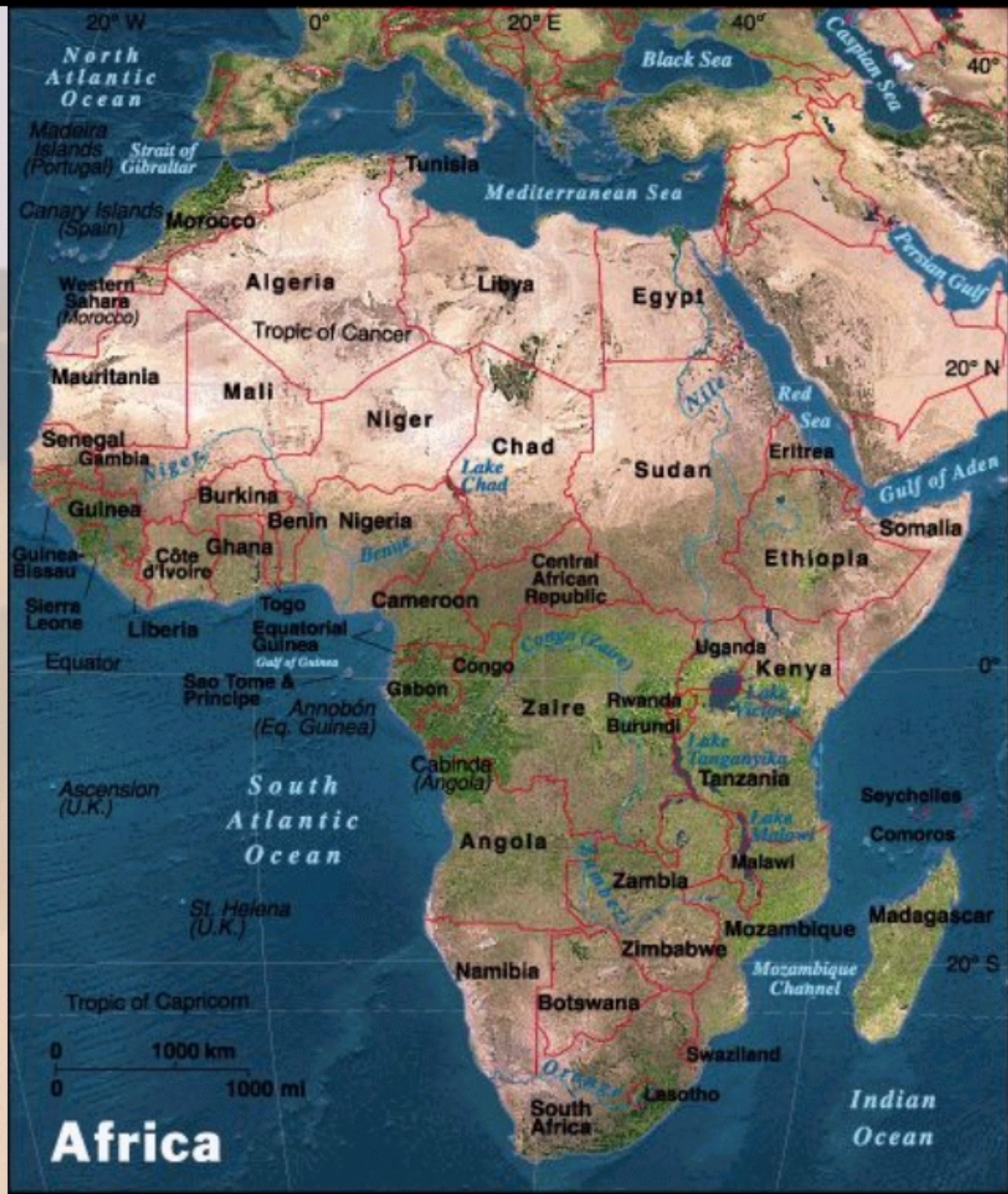
The integration of local people into the management of biodiversity conservation projects is vital to their success, especially in politically unstable regions. Regions of the world with high biodiversity, endemism and high numbers of endangered species are often the focus of international conservation organizations. While the ultimate management objective of these organizations is the conservation of biological diversity these organizations are now considering and incorporating local populations into their management schemes. Local people are key collaborators in helping conservationists fulfill their agendas but also in maintaining their own environment and resource base for their own use.

The emphasis in some conservation projects has been changing from strict preservationist top-down measures that are designed to prevent human impact on an area in order to maintain a strict pristine environment for certain species. The newly designed conservation projects are attempting to incorporate participatory planning and co-management into their projects or at least trying to incorporate some activities into their plan that take local peoples needs and traditional resource use strategies into account. These conservation and development projects are now widespread. Without the full collaboration and co-management with local peoples the chances for true conservation and development are greatly reduced. Despite the changing planning strategies, however, on the ground, true collaboration and successes in terms of conservation and development are not often seen.

In regions where there is political instability the need for local people involvement is even more crucial. In the case of Niger civil unrest led to the temporary suspension of the conservation and development project in a protected area. It was the locals who had been involved in the project management who had the initiative to restart the project. The locals are the ones who remain in the area with ultimate control of an area to fulfill their own conservation objectives with what they have and with what they have learned with project staff. This case study demonstrates a positive, if abrupt, transition from "outside project" to "local people" initiated activities in and around a protected area.

Most conservation and development management plans are funded by outside sources and are of relatively short duration. The underlying premise is that the conservation of biological diversity can be better achieved if local people are integrated into the project. They will feel responsibility for the project and their resources and will manage them better. So the strategy is to train local people to take over the management of the project in preparation for the end of the outsiders' presence and financial support. This transition is the most difficult step of them all and should be the focus of the management plan from the very beginning. This is especially true in cases where there is great political instability since the management transfer could come suddenly and unexpectedly.

Countries in Africa have varying percentages of their national land area under protected status (Figure 1) and (Figure 2). Although the best known ones are the large game reserves in East Africa there are many others throughout the continent. One of the largest areas is found in the West African country of Niger.



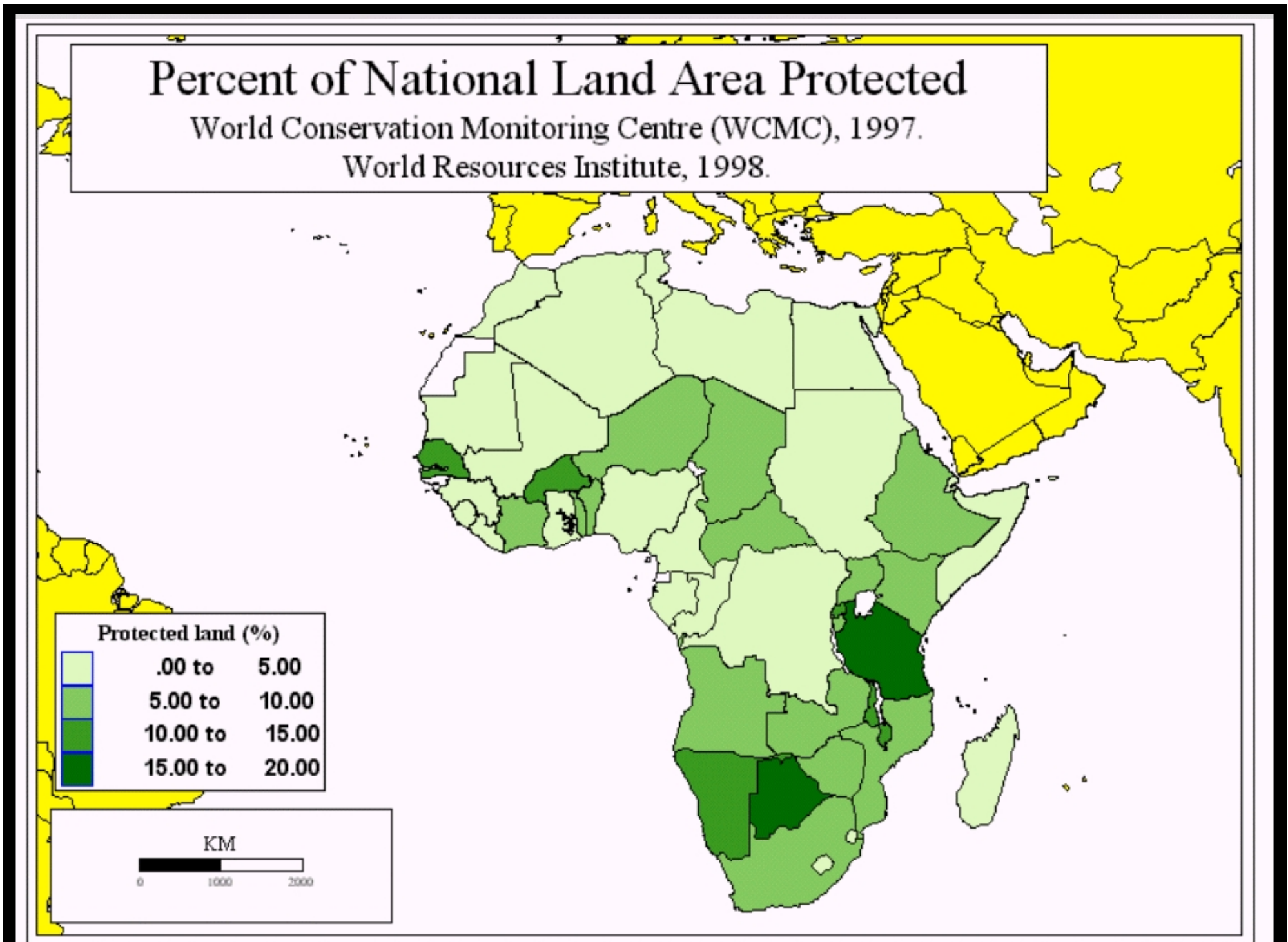


Figure 2. Source: WRI Database, 1998.

Niger (Figure 3) is a country in the Sahelian region of West Africa. It covers 1,267,000 square kilometers. In 1997 its population was 9,389,000. (Britannica, 1998) Niger's population has been increasing since 1950 and is expected to keep increasing. (Figure 4) Its population density therefore is also increasing. (Figure 5) In 1997 it had an average population density of 7.4 persons/sq. km (Britannica, 1998). Niger is still a predominantly rural country with 83% of the population in rural areas in 1995 and only 12% in urban areas. (Britannica, 1998)





Figure 3. http://www.sas.upenn.edu/African_Studies/CIA_Maps/Niger_19876.gif

Population of Niger 1950-2050

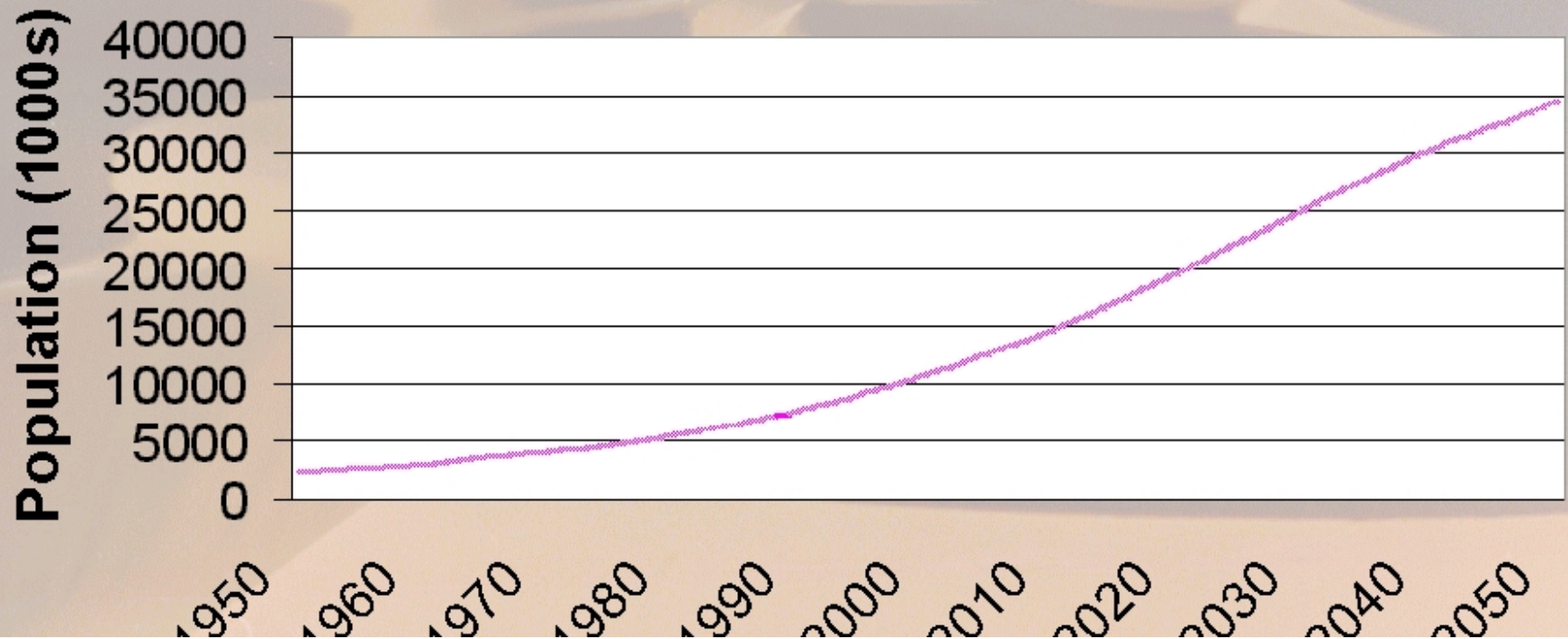
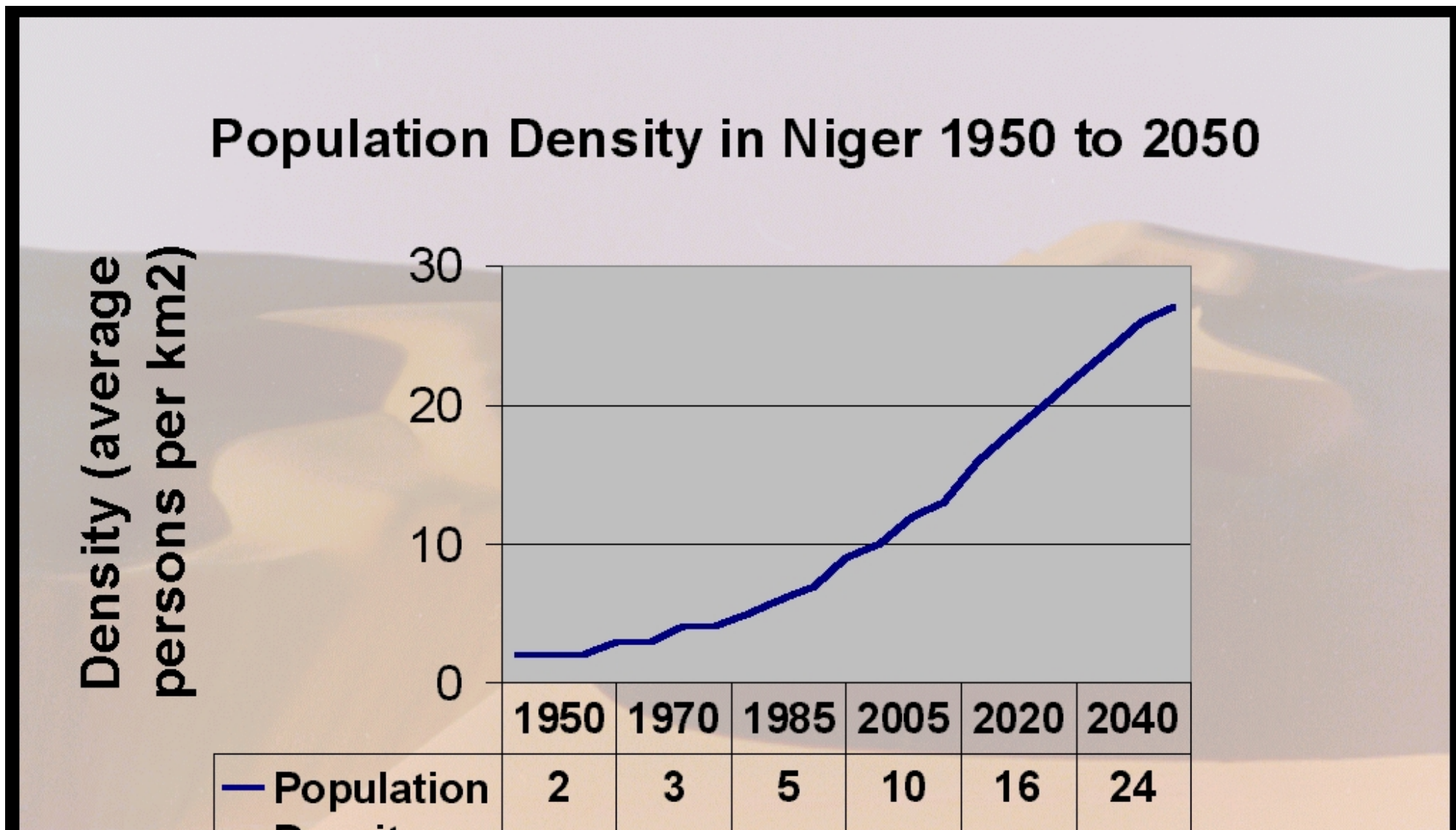




Figure 4. Source: WRI Database, 1998.



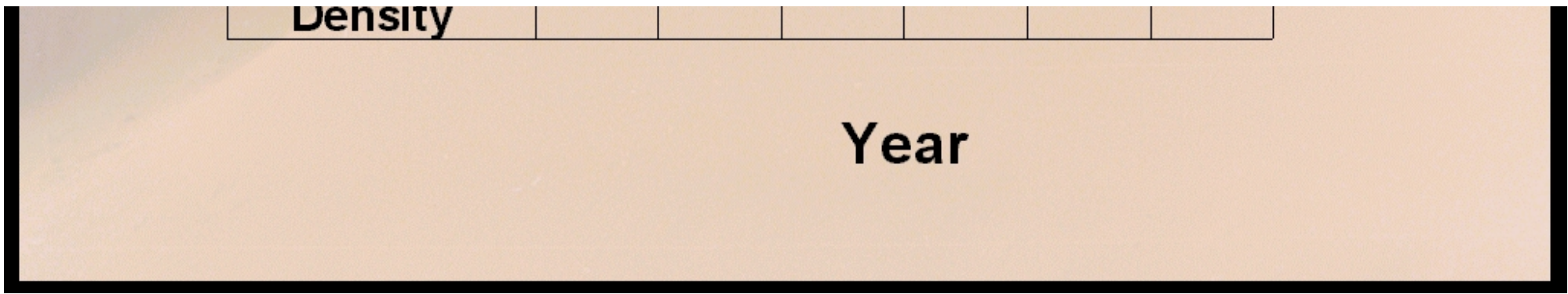


Figure 5. Source: WRI Database, 1998.

The human indicators for 1996 for Niger show a birthrate of 54.5/1000, death rate of 24.6/1000, total fertility rate of 7.4, and an infant mortality rate 117.6/1000 live births. In 1996 the life expectancy at birth was 41.1 for males and 40.2 for females. And in 1995 20.9% of males and 6.6% of females over the age of 15 were literate. (Britannica, 1998)

Niger contains six protected areas. The total area under protected status is 96,967.4 km². Niger has protected 7.7% of its area. (IUCN, 1991, p206; WRI Database 1998-Percent of National Land Area Protected) <http://www.wcmc.org.uk/cgi-bin/pa_paisquery.p>

The two largest areas are the Air and Tenere National Nature Reserve and the Addax Sanctuary Strict Nature Reserve. (Figure 6). They are located on the edge of the Sahel and Saharan zones. "In other unmanaged parts of the Sahel the land can no longer sustain the peoples' modest needs; pastures are overgrazed; soils are eroded; wildlife has disappeared." Thus perhaps protected areas have the potential for innovative management and habitat rehabilitation. (Newby and Wilson, 1993, p185)

The decision to establish a multiple-use Nature reserve rather than a national park from which the human population might be expelled, was made precisely to enable the people to continue living there and using the area's natural resources. (Newby and Grettenberger, 1986, p249)

The Air Tenere National Nature Reserve and Strict Addax Sanctuary

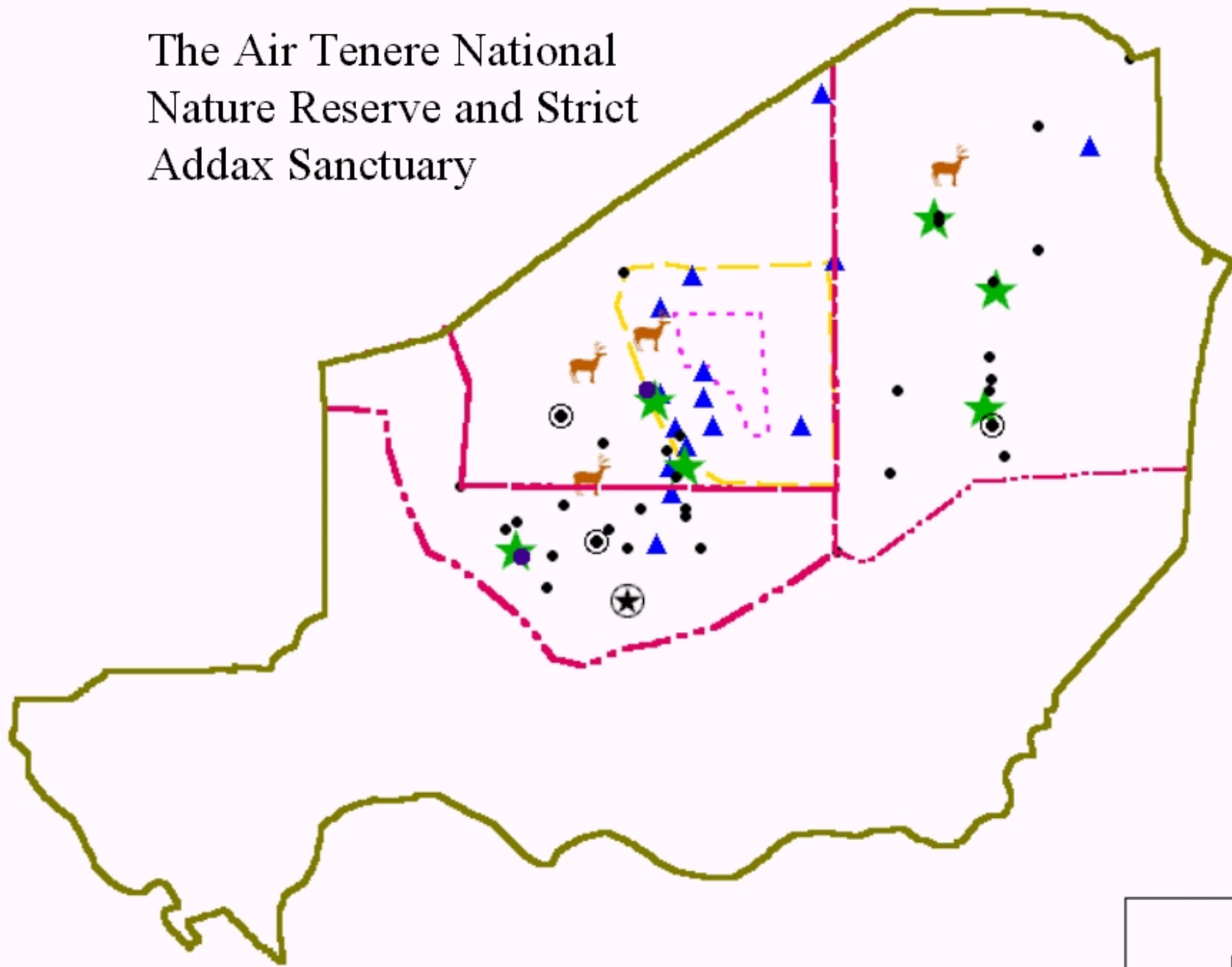


Figure 6. Source of data, Say, 1989.

The fact that the Air Tenere region in northern Niger was designated as a National Nature Reserve and not a National Park is very significant. Protected areas often restrict resource use by local populations. The different levels of access to resources are evident in the descriptions of IUCN's protected area classification categories.

<<http://www.wcmc.org.uk/protected_areas/data/sample/iucn_cat.html>> A National Park is a more preservationist designation and is set up to "exclude exploitation or occupation". A National Park is Category II whereas a National Nature Reserve is in Category IV according to the IUCN system. (WCMC 1992 Protected Areas) A Category IV area is a habitat/species management area which is

managed mainly for conservation through management intervention. [It is defined as an] area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species. (WCMC Protected Areas)

The example of the Tuareg people and their relationship with the Air Tenere National Nature Reserve in Niger is an example of collaboration with local peoples to incorporate their needs in to the management plan and to reduce the possibility for conflict. This case study has many lessons to teach us about population-environment dynamics and about people and protected areas. However, it is important to remember that this is one example of many and that the results here may only be partially applicable elsewhere since, in this area "local people are few in number and are not a serious threat to local plants and animals."(Wells and Brandon, 1992, p75). Newby and Grettenberger say, however, that there are "inherent differences between the conservation-oriented legislation and the land-use practices that are currently employed" and that these differences can lead to conflict. (Newby and Grettenberger, 1986, p249) Newby and Grettenberger say that:

Careful thought and discussion with the reserve's inhabitants is a prerequisite to sound and realistic management, and should avoid on one hand the over-zealous suppression of sustainable practices, on the other, the wholesale abuse of natural resources. (Newby and Grettenberger, 1986, p249)

The Air Tenere Reserve itself covers 77,360 square kilometers (WCMC, 1992 Protected Areas) in northern Niger. Within that larger reserve is a Strict Nature Reserve called the Addax Sanctuary, which covers 12,805 square kilometers. This reserve is classified in the IUCN management Category I (IUCN, 1991, p206) which is defined as an "area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring."(WCMC, Protected Areas). It is one of the strictest preservation categories possible.

The National Nature Reserve as a whole

was established as a multi-use area in 1988 by legislation that banned hunting but specifically allowed the resident population to remain and protected their customary resource-use rights, including fuelwood collection, harvesting of fruits and certain plants, and livestock grazing (Wells and Brandon, p73)

The Addax Sanctuary within the larger reserve has many more restrictions.

The activities prohibited include: hunting; forest exploitation; agriculture; pastoralism; mining or prospecting; any activity modifying the surface of the land or vegetation; any activity tending to harm or modify the fauna or flora; penetration, circulation or camping or residence; flying at low-altitude. (IUCN, 1991, p205)

These restrictions are to protect some of West Africa's remaining populations of the endangered Addax (*Addax nasomaculatus*) (Figure 7), Dama Gazelle (*Gazella Dama*) and ostrich (*Struthio camelus*) (Figure 8) The Air also has the shy desert fox the fennec. (Newby and Wilson, 1993, p180-81) (Figure 9) WWF also cites other species in the area: Cheetah (*Acinonyx jubatus*), Nubian bustard (*Neotis nuba*), Slender horned gazelle (*Gazella leptoceros*), wild olive (*Olea lappesinei*), and wild sorghum (*Sorghum spp.*). (WWF-Niger) Wild millets (*Pennisetum spp.*) are another of the more than 50 plant species, which occur in the Reserve. These wild plants which are able to endure the harsh surroundings of the Sahel and Sahara could be used to genetically invigorate their domesticated relatives. (Newby and Wilson, 1993, p182)





Figure 7. Say, 1989.



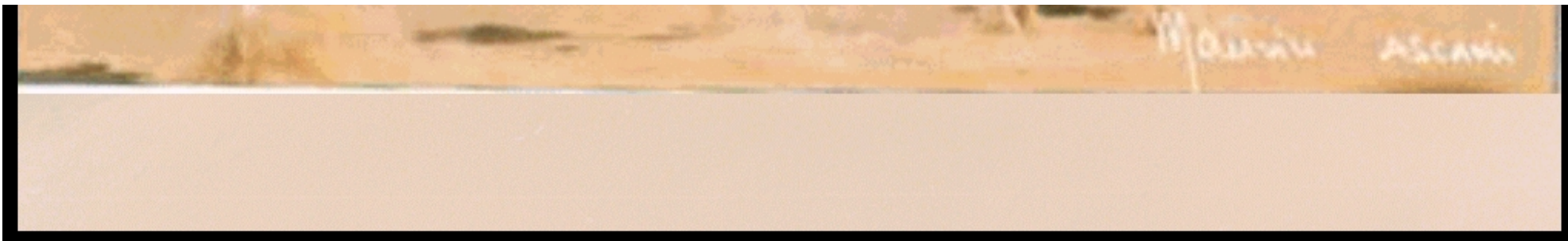


Figure 8. Say, 1989.





Figure 9. Say, 1989.

These reserves were gazetted in 1988 (IUCN, 1991, p201) and were declared a World Heritage site in 1991 by UNESCO in recognition of their natural and cultural resources. (WWF-Niger)

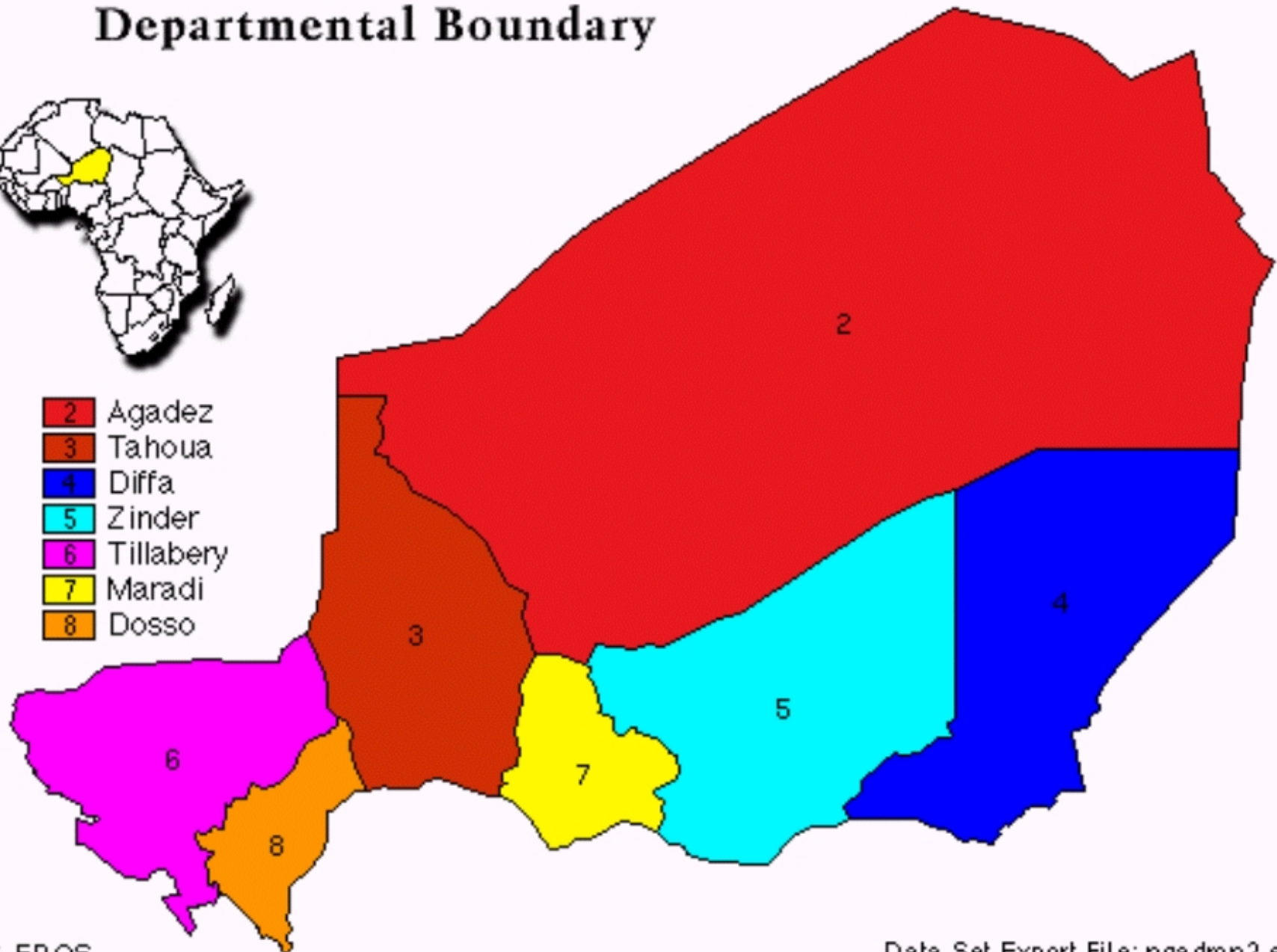
These reserves are located in the Department of Agadez in the Arrondissement of Arlit. The Department of Agadez makes up most of the northern region of the country. (Figure 10) It has a very low population density compared with the other regions of Niger. (Figure 11) In 1988 its population density was only 0.3 people/sq. km while the density of the whole country was 5.7. (Ministere de Developpement Social, 1988) The population of the Department has been relatively stable from 176,900 in 1984 to 189,000 in 1990. (Figure 12) The population of the city of Agadez (Figure 13), however, has been increasing from 10,000 in 1971 to around 50,000 in 1991. (Figure 14) The reserves are located between 17° 12' North and 20° 30' North and 08° 06' East and 10° 57' East. (Messa, Internet) "The reserves encompass a variety of arid and hyperarid habitats, ranging from the regs (tracts of stony desert) (Figure 15) and ergs (areas of shifting sand dunes) (Figure 16) of the Tenere to the more clement mountain and valley habitats of the Air Massif." (Newby and Grettenberger, 1986, pp249-50) (Figure 17) There is also a range of elevations within the reserve area beginning at around 500m in the Tenere and rising to 1,998m at the summit of Mt. Tamgak. (Newby and Grettenberger, 1986, pp250). (Figures 17 and 18) The Air region is "both topographically and biologically more diverse than the lowland, desert and sub-desert habitats surrounding it." (Newby, 1992, p19) (Figure 19) The climate in this region is extreme. Annual temperatures range between 0-50 degrees centigrade and annual rainfall is between 0-75mm. In addition rainfall is spatially and temporally highly erratic and unpredictable. (Newby, 1990, p54)

Niger

Departmental Boundary



- 2 Agadez
- 3 Tahoua
- 4 Diffa
- 5 Zinder
- 6 Tillabery
- 7 Maradi
- 8 Dosso



USGS, EROS

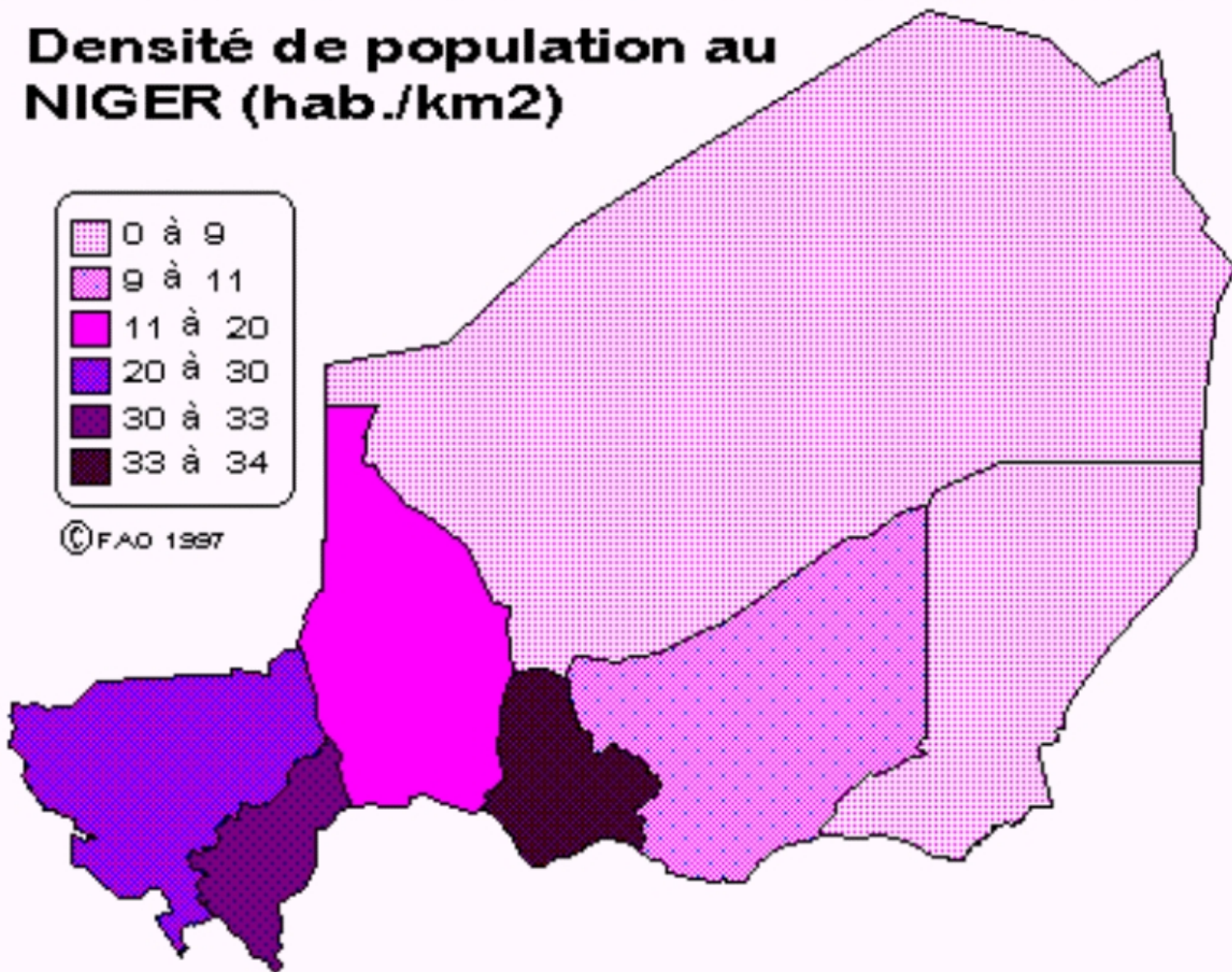
Data Set Export File: nga.dmn2.e00

Population Density

Densité de population au NIGER (hab./km²)



© FAO 1997



Population of the Department of Agadez, Republic of Niger 1984-1990

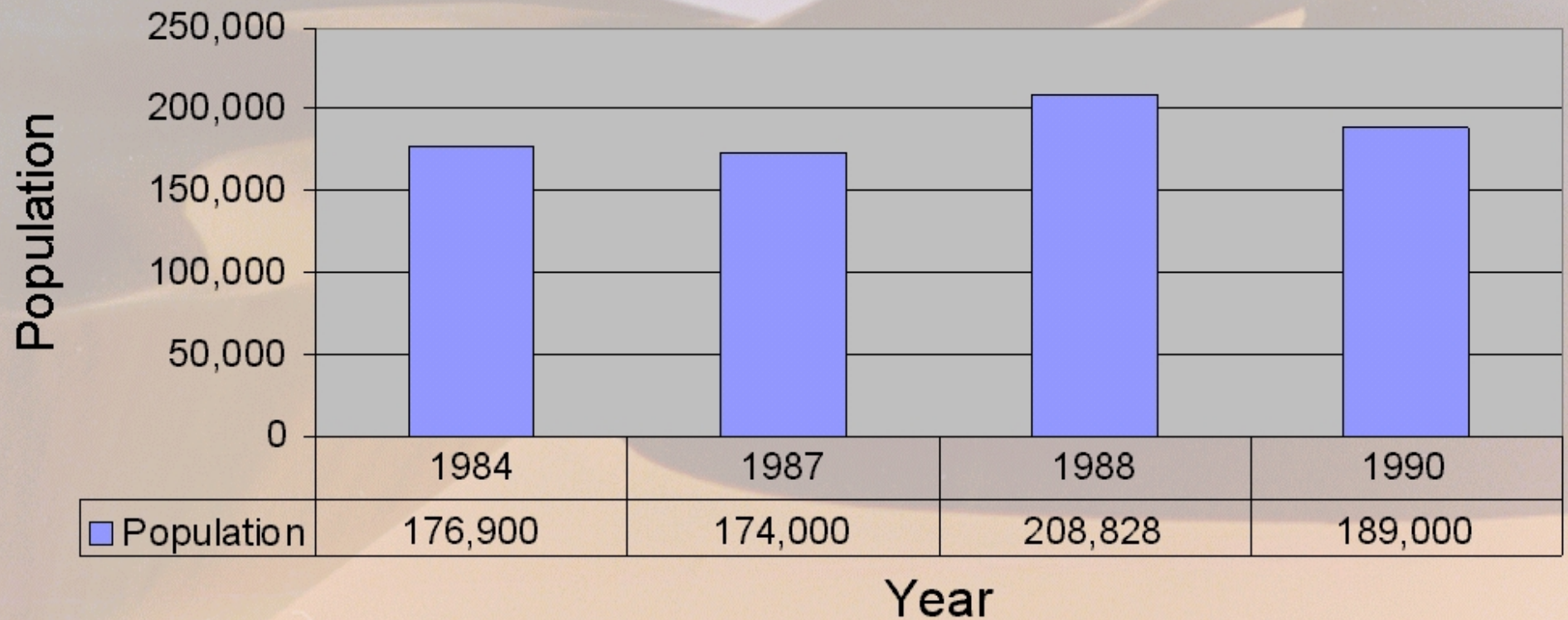


Figure 12. Britannica 1987, 1988, 1997, 1998, Ministere de Developpement, 1988

Mosque in Agadez



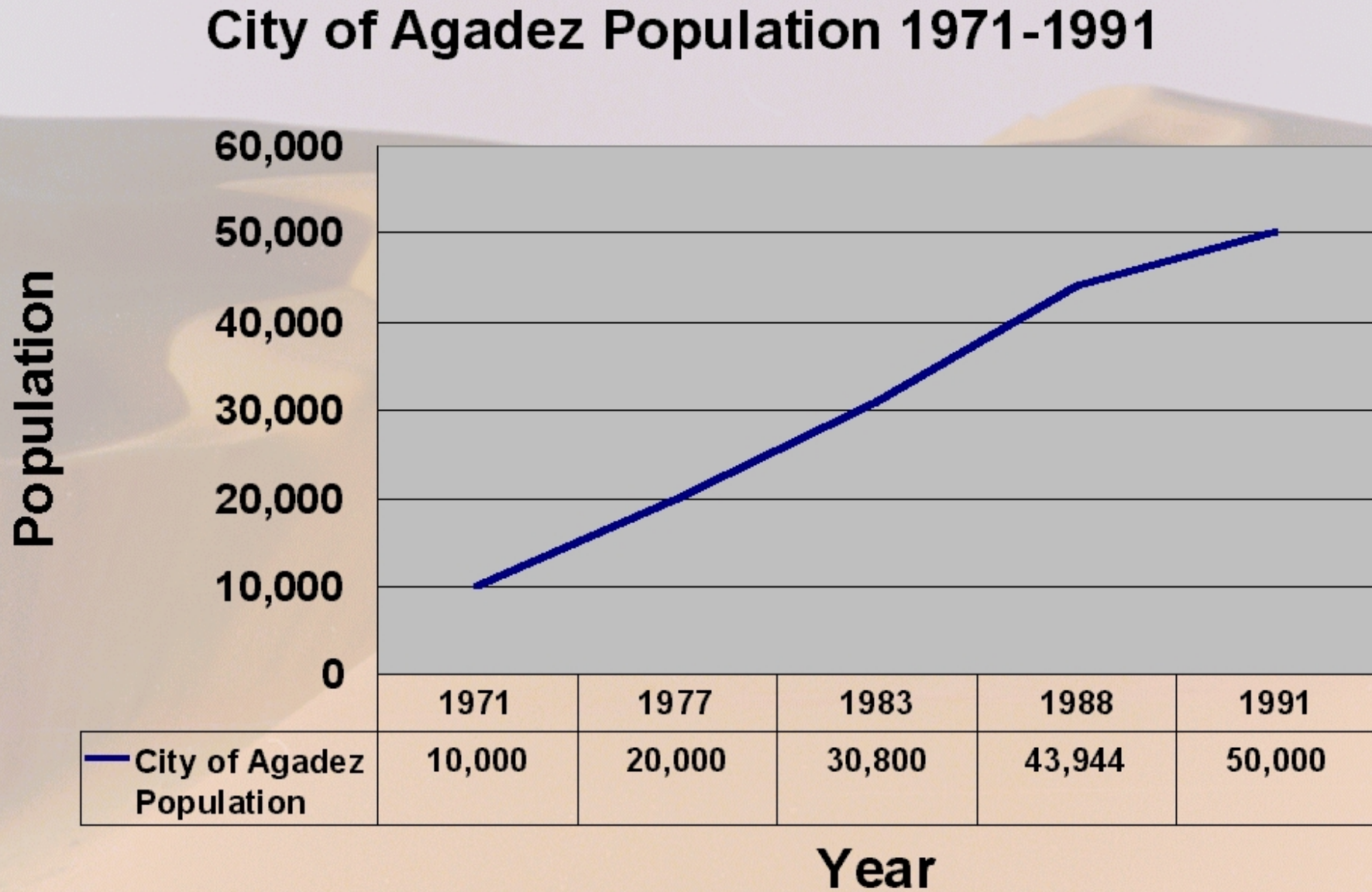
Figure 13. <http://www.unesco.org/delegates/niger/agadez/.htm>

Figure 14. Atlas of Africa, 1993, Atlas du Niger, 1980, Atlas Jeune Afrique, 1994, Britannica, 1990, 1992, 1996, 1998



Figure 15. Newby and Grettenberger, 1986, pp249-50



Figure 16. Newby and Grettenberger, 1986, pp249-50



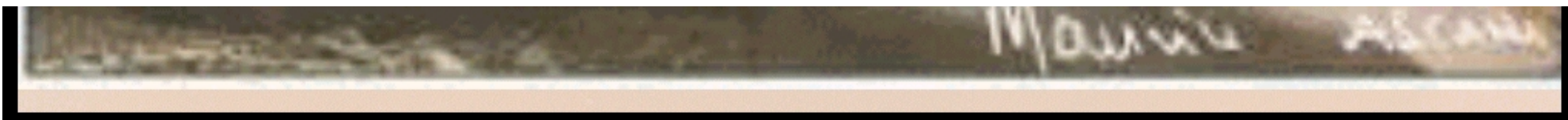


Figure 17. Say, 1989.



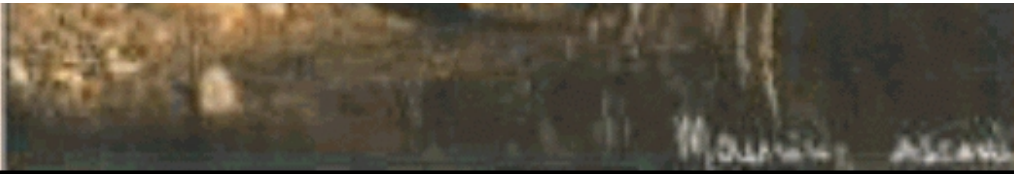


Figure 18.

Topographic map

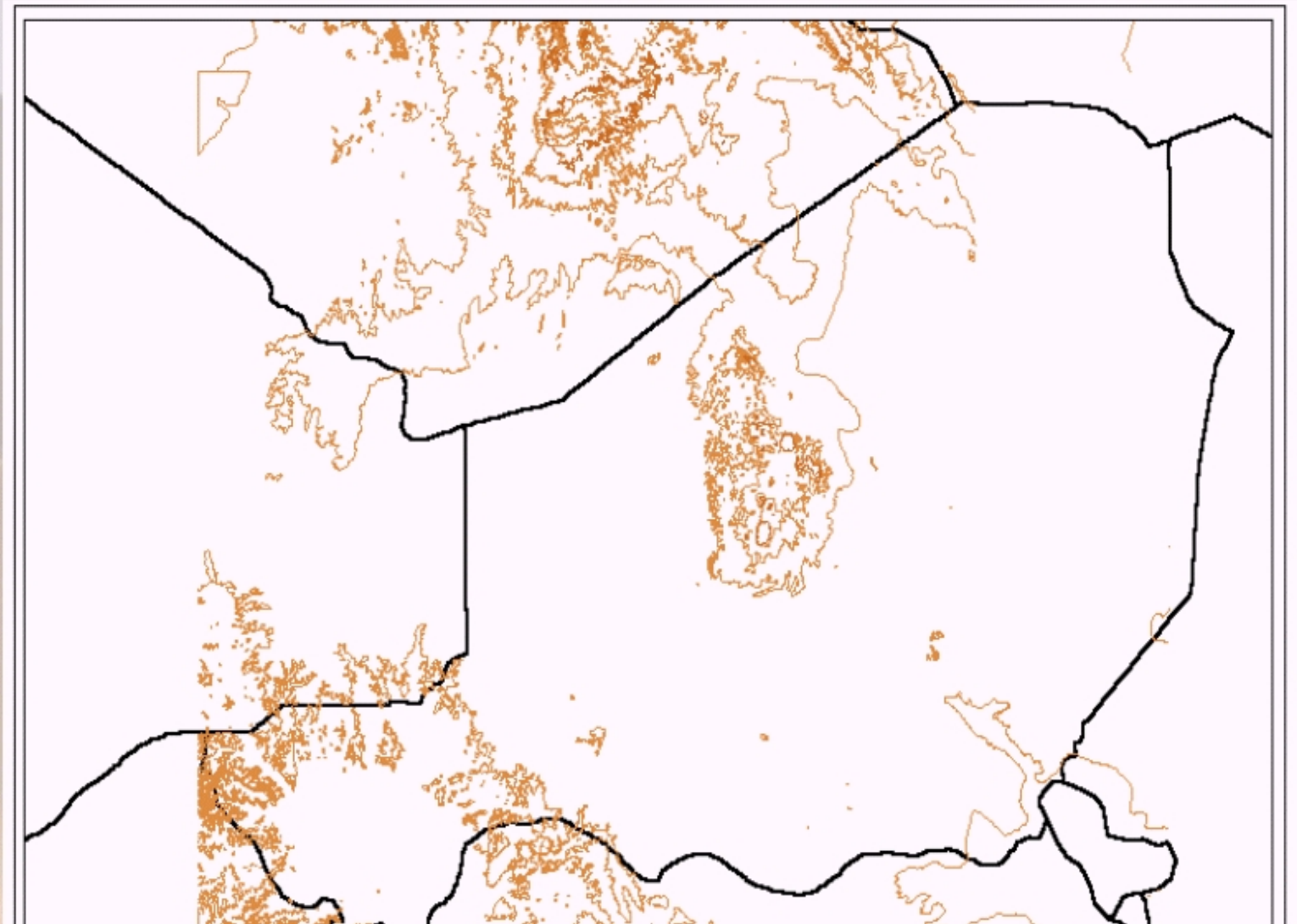




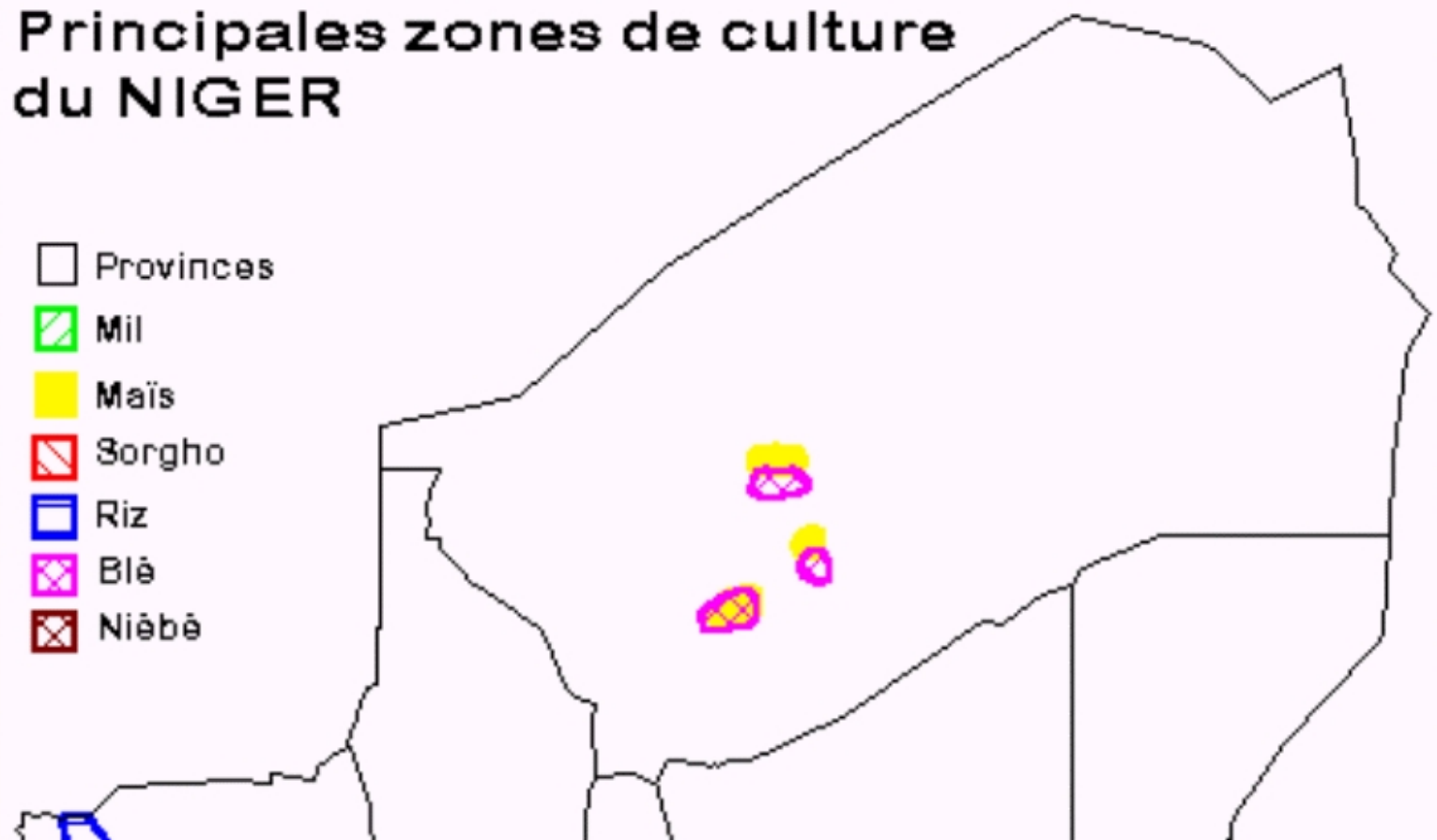
Figure 19. Digital Chart of the World-Topography

This erratic rainfall does not allow agriculture as is practiced in the southern regions but there is an area within the microclimates of the Air where there are some wheat and rice is cultivated. (Figure 20) In this northern region, however, most people are pastoralists. (Figures 21 and 22).

Agricultural Zones

Principales zones de culture du NIGER

- Provinces
- ▨ Mil
- Maïs
- ▨ Sorgho
- ▨ Riz
- ▨ Blé
- ▨ Nièbè



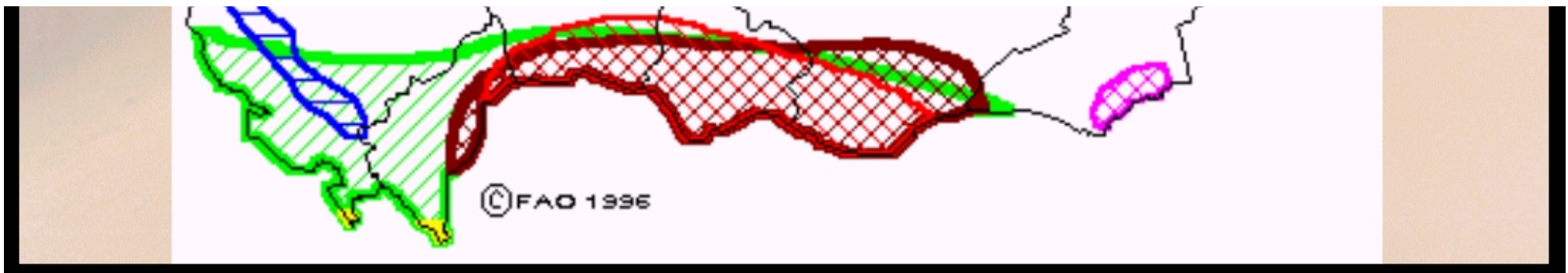


Figure 20. <http://www.fao.org/WAICENT/faoinfo/economic/giews/french/basedocs/ner/nercul1f.stm>





Figure 21.





Figure 22

The people living in and around the reserve are Tuaregs. The Tuareg people are Zenaga Berbers from the north who came to the Air in about the seventh century. There are many now living in the center and western areas of the northern part of Niger. (Atlas of Africa, 1973, p136) "They are a fiercely independent and proud people who have roamed the arid land of Niger and the other West and North African countries for centuries". (Newby and Wilson, 1993, p179)

The Tuaregs (Figures 23, 24, and 25) are an ethnic minority of the population of Niger and have varied from 3 to 10% of the population from 1977-1988. (Figure 26) The Tuareg population is estimated to be 5000 in the Northern Air (Newby, 1992, p22) and 7000 in the region (New York Times, 1988). There are about 4500 Tuaregs (Newby, 1990, p54; Wells and Brandon, 1992, p73) living in the reserve area of 77,360km². However, the majority of this population is concentrated in the villages of Iferouane (Figure 27) and Tin Telloust (Newby, 1990, p54) In 1988, 1,500 lived in Iferouane (New York Times, 1988). In 1977, however, the population of the area was 2,500-3,000 with 1,200 sedentary in and around Iferouane with other small sedentary populations by the gardens at Tin Telloust and Zomo. The rest of the population is pastoralist in and around the Air Massif. (Newby and Grettenberger, 1986, pp 251-2)

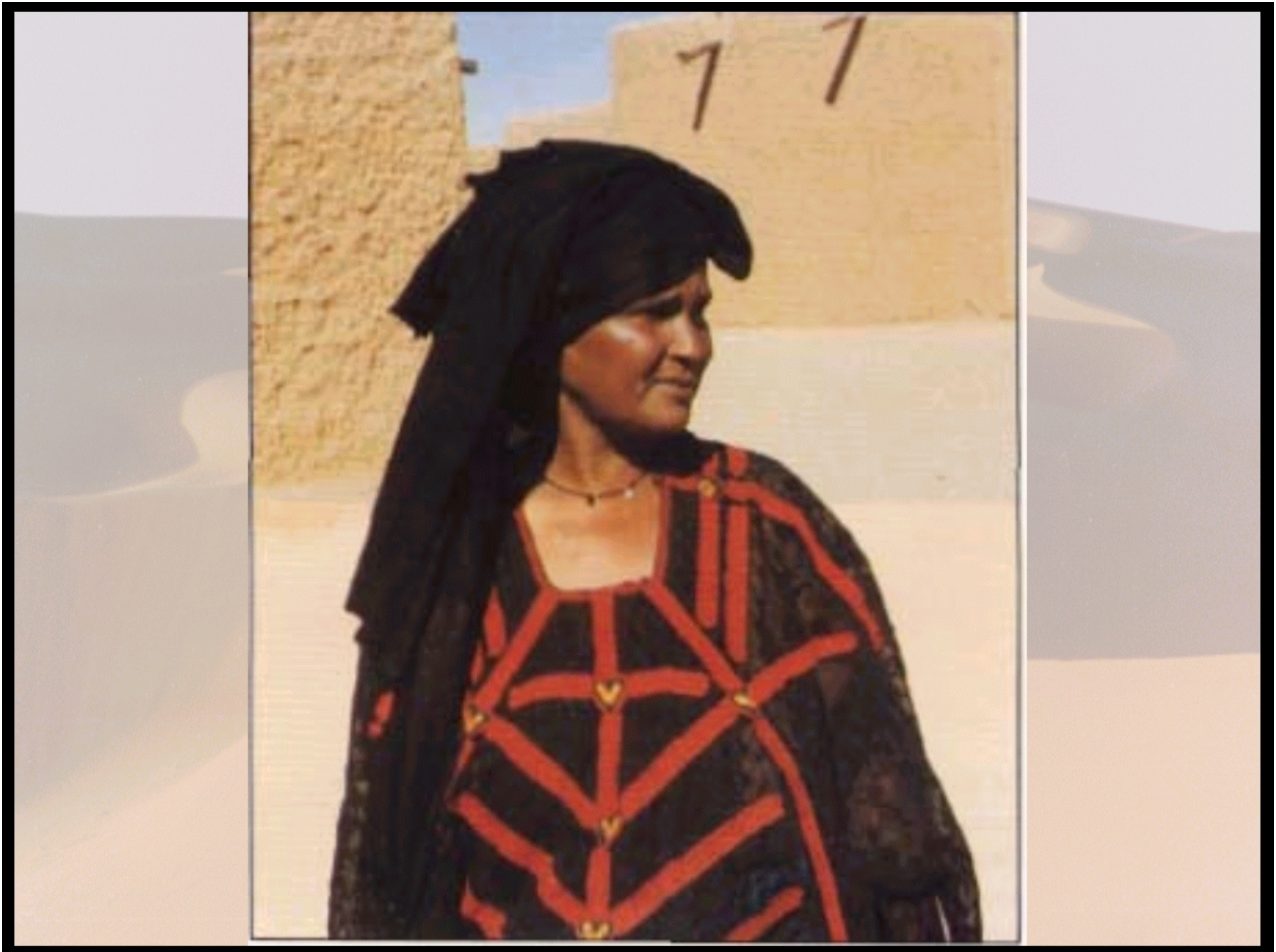


Figure 23.



Figure 24.



Figure 25.

Tuareg Population as a percentage of the Total Population of Niger 1977-1988

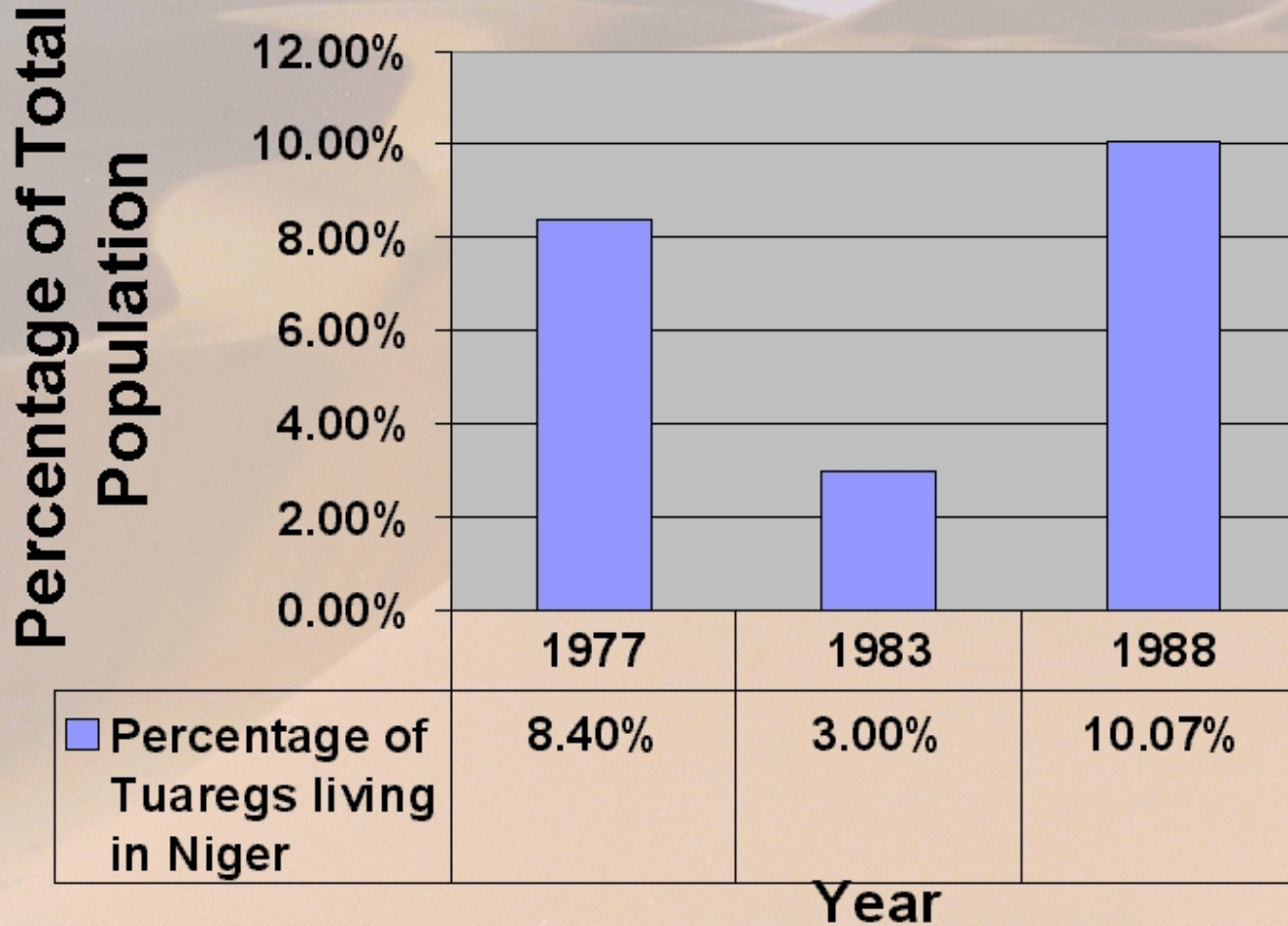


Figure 26. Britannica Book of the Year Volumes 1989,1991, 1992, 1996, 1998

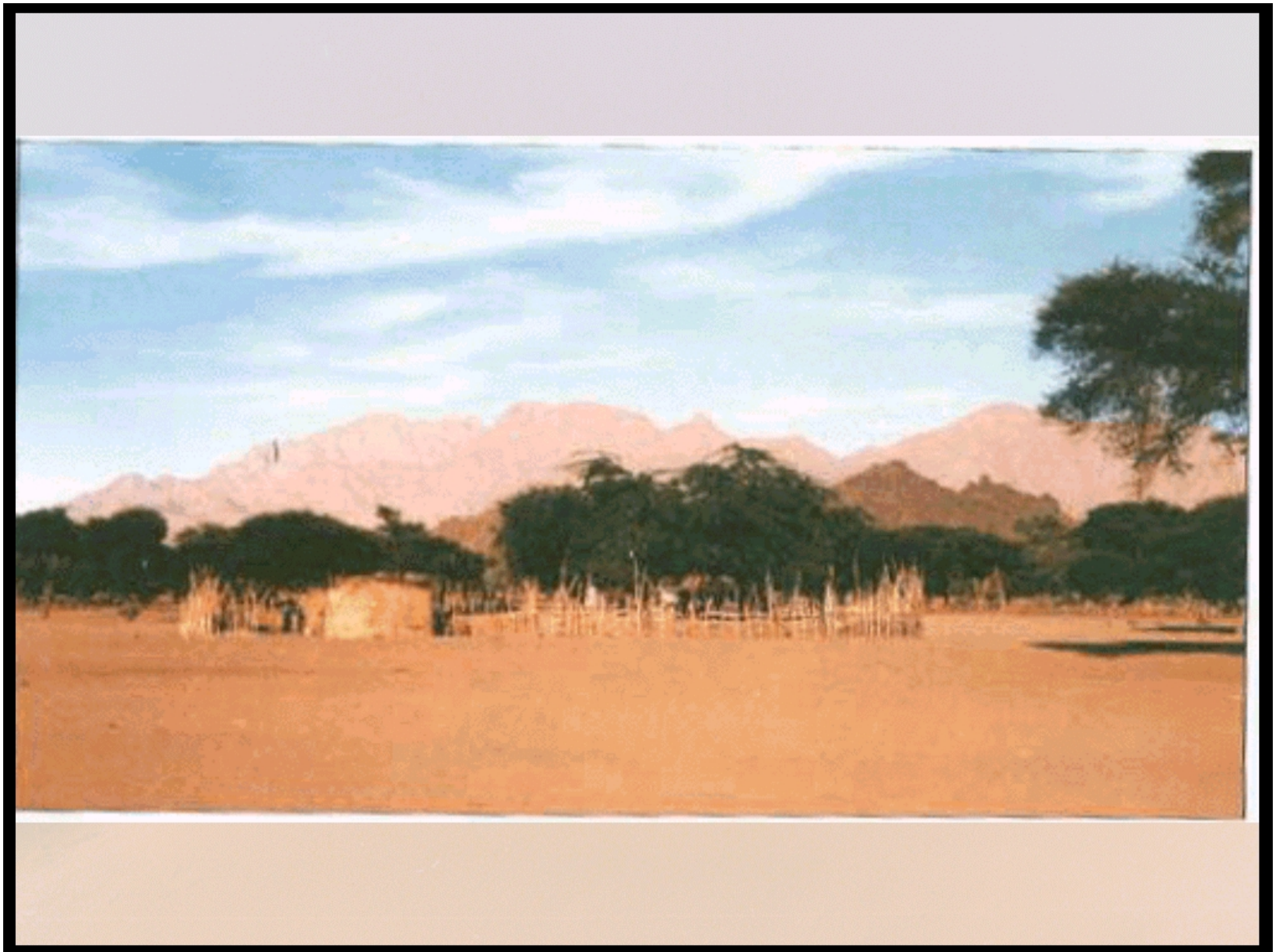


Figure 27. Say, 1989.

The main livelihood of the Tuaregs is herding camels, goats, and sheep and farming small irrigated plots of wheat, maize, onions, tomatoes, and spices. Many Tuaregs are still involved in the caravan trade "between the Air, the salt and date-producing oases of Bilma and Fachi, and the sub-Saharan grain-producing regions of Niger and Northern Nigeria." (Newby and Grettenberger, 1986, p251) (Figures 28 and 29) However, this caravan trade is not so prevalent now due to lack of camels, drought, and competition from motorized transport. (Newby, 1990, p54)

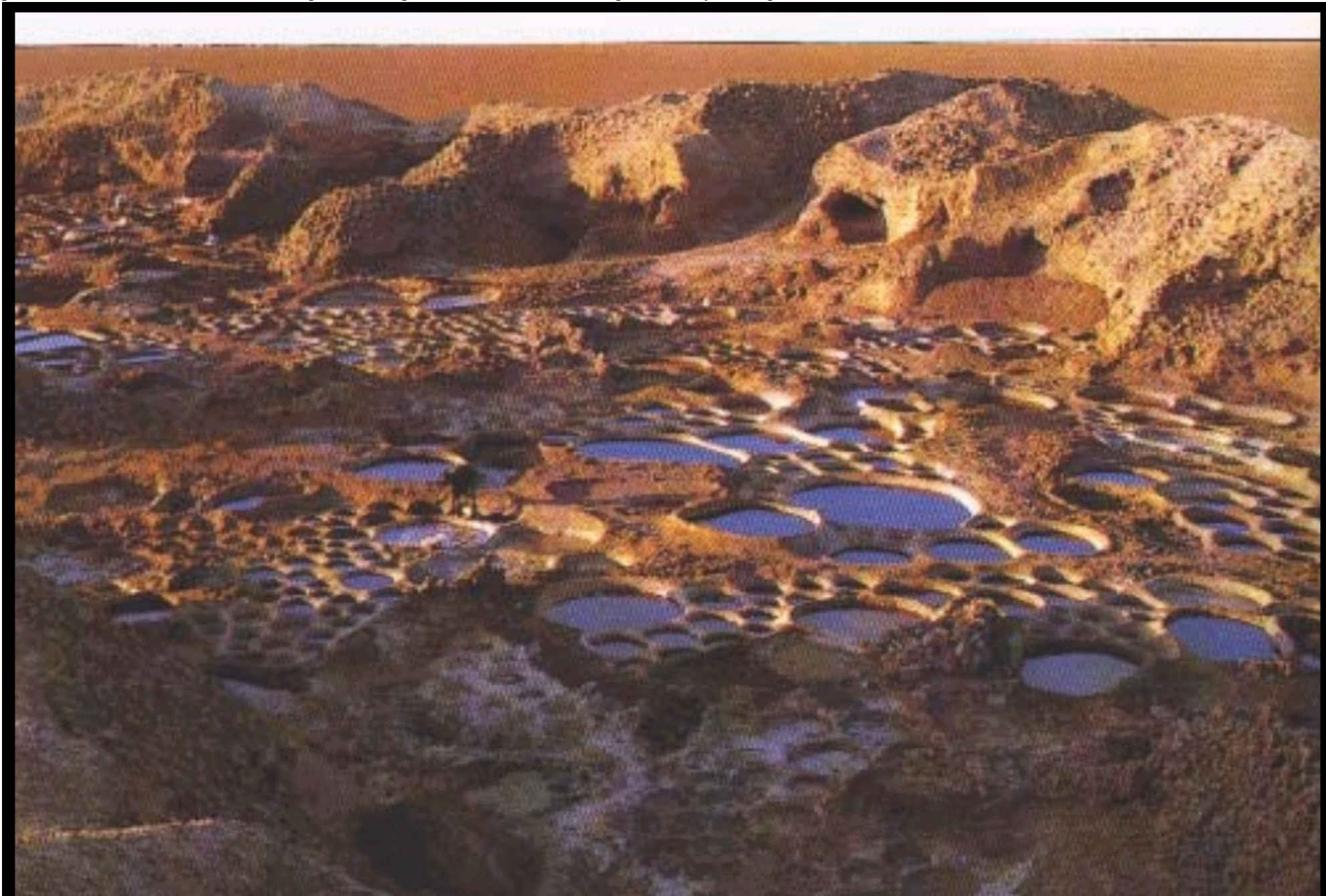




Figure 28. Say, 1989.

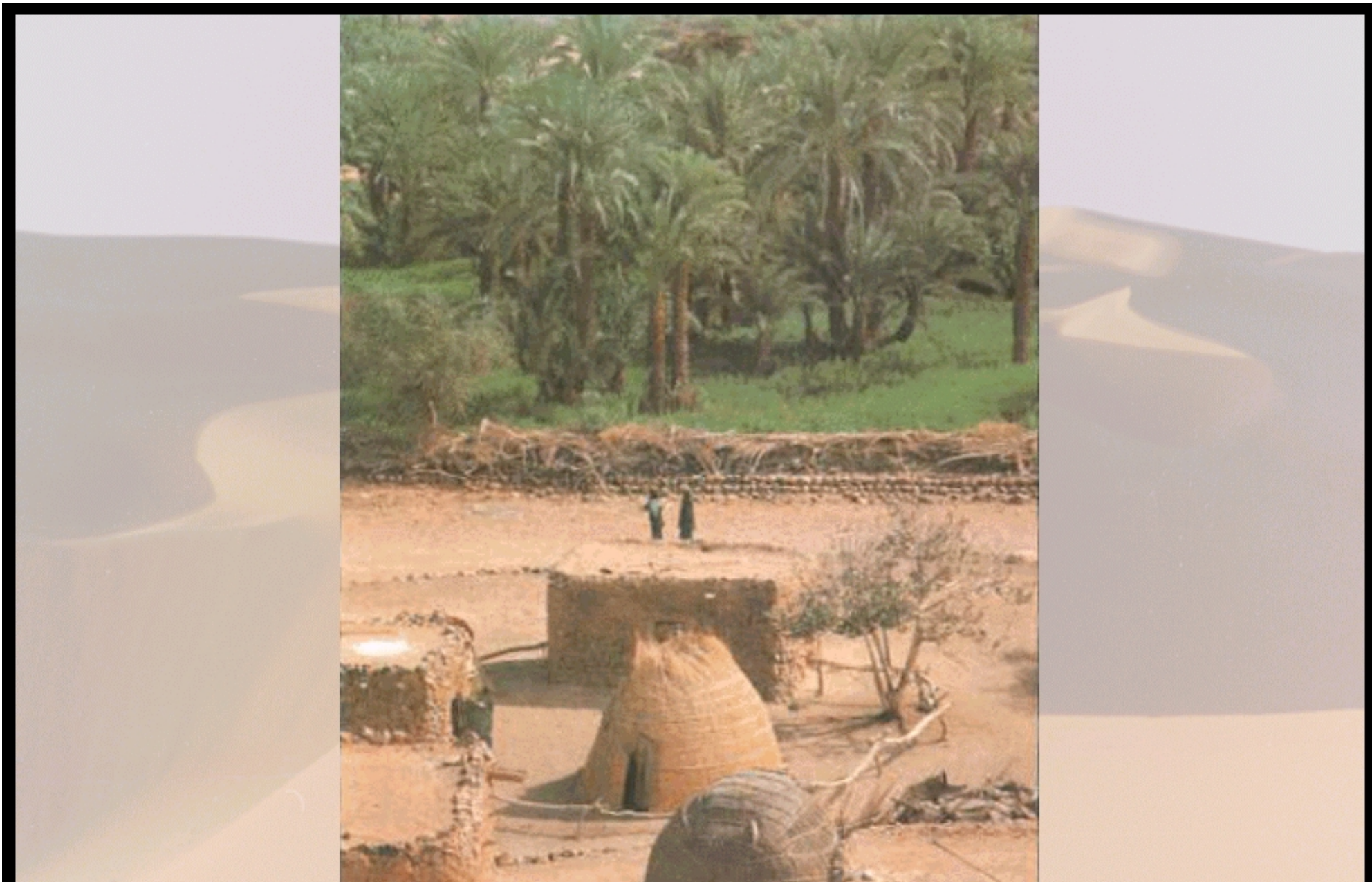




Figure 29. Say, 1989.

Newby says that there is a "rude but effective balance between the Air's relatively small human population and its natural resources". This is partly due to the isolation, sparsity of resources and extreme climate. It is during periods of drought, however, that the "demand on limited supplies of water and vegetation increases and if prolonged leads to crop failure, widespread overgrazing, loss of livestock, mass exodus of the human population and not infrequently, death from disease or starvation."(Newby, 1992, p22)

One underlying goal of the management plan for the Reserve area was to maintain to the extent possible the traditional forms of land use and to not have to remove or hamper the resident people (Tuaregs) who rely on the reserve. (Newby, 1984)

The establishment of a large protected area in the Air . . . provide[s] an excellent opportunity for the rational management of natural resources. The fact that the human population of the area is recognized as being a fundamental component of the ecosystem involved instead of being expelled to simplify matters, will add validity and relevancy to the work. (Newby, 1986, p252)

The strict limitations on this desert reserve and wildlife sanctuary area, however, have not significantly affected the local population since the area was very rarely used by them. (Newby and Wilson, 1993, p182) "In fact, many people living outside the reserve have asked that its boundaries be extended to encompass their own land" in order to keep it from being plundered for firewood needed for the nearby towns.(Newby, 1992, p24)

Although people in the area used to hunt for food, wildlife is too rare and difficult to hunt today.

In fact, the general attitude to wildlife is one of benevolence, the Tuareg often stressing its cultural and aesthetic value. As might be expected of a people almost wholly reliant on natural resources for its existence perception of environmental health is acute and wildlife is seen as both an indicator and a product of environmental well being. (Newby and Wilson, 1993, p183)

Exploitation of uranium from the Air Mountains and Arlit began in 1970. (Atlas of Africa, 1973, p139) This brought a well maintained paved road connecting the northern reaches with the south and increased the population of the north, even if only in one town of Arlit, in the middle of the desert. Arlit is the capital of the arrondissement of Arlit in which the Reserves are located. This mining center, however, is not located close to the Reserve and did not increase the population density around the Reserve but instead drew people away to work in the mines. At the same time, however, the effects of the prolonged drought actually caused many people to leave the area for neighboring Algeria and Libya. So, if anything, there had been emigration from the site of the Reserves in the 1970s. (Newby and Grettenberger, 1986, p251) There were, however, other factors, which did put more human pressure on the Reserves.

Rainfall is totally unpredictable in time, space and quantity, and precipitation usually varies by more than 30% from one year to the next. Unfortunately, the expansion of rain-fed or irrigated agriculture is restricting migration patterns, often resulting

in close contact between man and wildlife and invariably, increased hunting. (Newby, 1984, p132)

The effects of this have been seen on the scimitar-horned oryx, which was pushed off of its grazing ground once water was made available for domestic livestock. This closer proximity of man and wildlife led to an increase in poaching. (Newby, 1984, p132).

Threats to the management of the Air and Tenere National Nature Reserve come from: poaching by the military; insensitive tourist disturbance of wildlife (particularly the motorized pursuit of animals to obtain photographs, which can result in their deaths from exhaustion or heat stress) and littering; overgrazing and exploitation of firewood (near centers of population); illegal commercial wood collecting; and failure of reserve authorities to obtain complete political recognition by other governmental departments. (IUCN, 1991, p202)

Hunting has been banned throughout Niger but is still widely practiced. Traditional hunting without modern weapons or motorized vehicles most likely does not significantly impact the numbers of wildlife. (IUCN, 1991, p203) Thus the threat posed to wildlife today "is not from the Tuareg but from drought, desertification, harassment by tourists and hunting by armed forces."(Newby and Wilson, 1993, p183)

There were five main factors, which spurred the creation of the protected area:

- the disappearance of the aridland fauna;
- the increase in habitat destruction
- the destruction of rich archaeological sites
- the desire to conserve a part of Niger's natural heritage for aesthetic, cultural, educational and scientific reasons
- the desire to broaden the country's tourist infrastructure (Newby, 1984, p134)

In addition, however, there were certain factors, which led to the selection of the specific site as the reserve. It is essential to examine these along with the successes and failures of the reserve to be able to evaluate these criteria.

The ten criteria are:

- wealth of fauna
- great floral variety
- wealth of geographic , topographic and geological features
- outstanding cultural, historical and pre-historical value
- highly important tourist potential
- possibilities of managing and protecting the zone efficiently
- low population density
- presence of a road network making it accessible
- presence of an existing administrative infrastructure
- overall outstanding beauty among Niger's and the Sahara's aridlands (Newby, 1984, p134)

In response to these conditions, especially to the endemic species in the region, a management plan was established. Since 1979 WWF <http://www.panda.org/resources/inthefield/lop/lop_ne.htm> and IUCN have been working with the

government of Niger on the

development of a conservation and natural resource management programme in the Air and Tenere desert regions, based upon the premise that its exceptional natural characteristics could only be preserved over the long term through active involvement of its residents (WWF-Niger)

The fact that "active involvement" of the residents was a premise from the beginning was significant. "The ultimate aim of the project was to . . . transfer as much responsibility to the reserve's management, law enforcement and surveillance from the largely 'alien' government staff to the land users themselves." (Newby and Wilson, 1993, p185) However, it is important to remember that this is a lot easier to put on paper than to actually carry out.

WWF states the objectives of the projects as "1) To promote the conservation of flora and fauna, sustainable land use, and development 2) To improve the livelihood of the local people 3) To train people in natural resource management" (WWF-Niger) WWF then divides the activities of the project into the categories of infrastructure development, conservation and rehabilitation of natural resources and rural development. Infrastructure development includes recruitment of personnel, construction of staff housing, maintenance of vehicles, training for local masons in adobe constructions, staff training in conservation and natural resource management, and strengthening the central wildlife services. Conservation and rehabilitation of natural resources includes improvement of conservation of flora and fauna and historic/cultural sites, boundary demarcation, conservation awareness among local people, tourism control, collection of data on natural resources, a monitoring program for changes in natural resources and ecological processes, protection of important plants (genetically, economically, aesthetically), advice and assistance to local authorities on afforestation schemes, and analysis of habitat use by livestock. Rural development activities include

assistance to gardeners through the introduction of improved agroforestry techniques; popularization of adobe houses which avoid use of wood; training people on how to construct and use improved wood-burning stoves; establishing nurseries to produce plants for reforestation, dune stabilization, management of water catchment areas, and human use; training people in the use of draft animals, biogas, wind power, animal husbandry, and terracing; first aid training. (WWF-Niger)

Wells and Brandon in their study and evaluation of ICDPs (Integrated Conservation and Development Projects) from around the world also evaluated the reserve.

Since the reserve was established, publicity surrounding the project, legal prohibitions against hunting, and enforcement activities of project staff have largely eliminated poaching. Wildlife populations appear to be gradually increasing. There have been no recent droughts, and so grazing regulations are thus far untested. Efforts to restore pastures have had limited success so far. Most of the villagers have benefited-directly or indirectly—from the dams. Many have also benefited from other project activities. This project is unusual in that local people are few in number and are not a serious threat to local plants and animals. While the people's relationship with the project has generally been for employment, with limited participation in decision making, the project appears to have made a promising start toward achieving its goals. (Wells and Brandon, 1992, p74)

Management of protected areas is not immune from political struggles. The real test of the effectiveness of the groundwork that has been laid is how it can fare during times of unrest. The civil war that broke out in 1991 between the Tuaregs and the government caused a marked transition in the management of the reserve.

The civil war was a result of years of tension between the Tuareg rebel group and the government of Niger. "In recent years they [the Tuaregs] have tried to shake off years of domination under colonial rule and have increased their demands

for recognition in a more equitable sharing of resources". (Newby and Wilson, 1993, p179) The Air became a "strategic stronghold for dissident Tuareg"(Newby and Wilson, 1993, p179) In 1992 the Director of the Air Tenere Conservation and Development Project was kidnapped and taken hostage by rebel forces" and presumably killed. (Slavin, 1996, p51) A month after this rebels attacked Ifrouane where the reserve's project headquarters was located. They took project vehicles, radios, tools, tires and a hostage. IUCN and WWF decided that project activities should be suspended temporarily. (Newby and Wilson, 1993, p179) One can speculate that the attacks were focused at the project Director and goods in order to make a statement that the Tuaregs didn't want outside interference in their region in the Air. By taking goods they gained materials for their rebel activities and by kidnapping the Director they drew international attention to their cause. However, once the conflict left the protected area zone some Tuaregs who had helped in the planning and creation of the reserve and its other conservation-related activities began to restart the project. This transition to local initiated projects showed that the management scheme that had been put in place was a sound one.

According to Newby and Wilson, there have been two key factors in the success of the project. First, there was a network of voluntary representatives of the Tuareg involved in the Reserve management. Local support grew from the obvious amelioration of rangelands within the reserve due to the project's interventions but also from the "Tuaregs traditional love and respect for wildlife and their concern that it was fast disappearing". Secondly, the appropriate technology components of the rural development activities were well accepted by the Tuaregs. (Newby and Wilson, 1993, p184)

Most local people hope that the project will continue. In order to do so the Tuaregs chose five representatives from among themselves to negotiate with IUCN, WWF, and the Nigerien government for moral and technical support. They also formed a Provisional Committee to supervise watershed management, tree planting and well maintenance activities. (Newby and Wilson, 1993, p185)

Thus the whole management of the reserve went through a major transition when the project director was killed. IUCN and WWF pulled out. But instead of transitioning to yet another failed project, left to fade away in the absence of outside management the project transitioned to be managed by local control.

Whereas there was the potential for a positive transition to the rural development and conservation activities by the local people with local supplies and knowledge in the absence of outside support, ecotourism went through a negative transition.

One of the reasons that the Air Tenere region was chosen for the site of the Reserve was its high tourist potential. (Newby 1984, p134) Before the civil unrest in the area several thousand tourists visited the Reserve each year. The tourism benefited the local economy but also posed a threat to the wildlife (tourists chasing wildlife in desert vehicles). Thus stronger regulations were needed. Even so, local people needed to receive more of an economic benefit from the tourists. Thus, an information center was built along with a craft shop and local guides were trained to take tourists on treks. The civil unrest in the area caused the termination of weekly flights from Marseille, France to Agadez, which brought the majority of the tourists. Those who came from the south have been greatly reduced due to the danger of entering the area. Although there was a peace accord signed in October of 1994 that provided for an eventual limited autonomy (Britannica, 1998) for the Tuaregs, the northern region remains unsafe for unescorted travel.

There is still rebel activity in the area and the U.S. State Department travel advisory states:

that travel in the northern . . . areas of Niger is dangerous and should only be undertaken by air or protected convoy. Despite the peace agreement between the Government of Niger and the Tuareg rebel groups, there is a continuing threat of sporadic armed conflict and violent banditry. (US State Department, 1998)

Thus there is not much demand for the tourism infrastructure that was established in Agadez and surrounding the Reserve. The transition from relative political stability to political unrest has had a direct impact on the transition of tourism from fairly abundant to negligible.

Therefore, the example of the Tuaregs and the Air Tenere Reserve serves as an example of a politically unstable region where the integration of the local people into the management of their biodiversity conservation in the form of conservation and rural development activities is vital to the success of the project. In this example there was a transition from the implementation of the IUCN/WWF project under relatively stable political conditions through the murder of the Director and the temporary suspension of the project to the point where local people were taking the initiative to restart the project. This was possible because of the local peoples' participation in the management before the project pulled out. Their previous involvement and the focus on appropriate conservation and rural development activities was key to their ability and desire to continue the project. Ecotourism activities, which rely on outside clients, were hurt whereas, activities using local appropriate technology and local materials were restarted by the locals.

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CHAPTER 11
Majority Rule, Minority Rights?:
Challenges to Vietnam's Northern Minority Groups
by
Michael S. Tiefel



(Source: Schliesinger, *Hill Tribes of Vietnam*)

Introduction

Vietnam's national minorities comprise approximately thirteen percent of the country's total population. This segment of the population includes 54 different ethnic minority groups, including the Tay, Thai, Khmer, Hmong, Muong, Hoa and numerous smaller groups. For many years, these hilltribes lived in relative obscurity; however, the situation changed during the Vietnamese war against the French (1946-1954). During this conflict, Vietnamese nationalists constructed base camps in the central highlands and northern mountains and tried to recruit minorities in their war efforts against the French. Again, during the Vietnam War (1965-1973), the highlands were exposed to outside pressures when they were extensively bombed and sprayed with chemical defoliants. National minorities were threatened once more in 1979, when the Chinese invaded Vietnam's northern frontier.

Besides threats to their physical well-being as a result of warfare, northern ethnic minorities face economic, educational and demographic challenges. After the Vietnam War, Vietnamese officials urged many national minorities to cease their practice of shifting cultivation (swidden farming) and relocate to fixed communities; this policy proved to be unenforceable. The free-market reforms (*doi moi*) begun in 1986 changed the nature of Vietnamese farming. Old cooperative farms were divided among individuals and families, which created problems for subsistence farmers, who could no longer receive government subsidized fertilizer in order to promote crop production. Minority groups were also disadvantaged by the lack of educational opportunities within their villages. According to a recent article in the *Far Eastern Economic Review*, many teachers will typically stay for a few months and then leave out of frustration; they are frustrated because the children are constantly needed to help tend

the fields. Ethnic minorities continue to feel tensions from lowland farmers, who began moving into the highlands after 1975 to reduce population pressures in the Red River and Mekong deltas. Finally, and perhaps most importantly, ethnic minorities now face governmental demands for their land. The discovery of precious natural resources (timber, coal, iron ore, phosphate, bauxite, tin, gold, silver and precious stones) in the mountains have resulted in new demands for these raw materials. (Hiebert 26-30)

Vietnamese national minorities face numerous problems. Unfortunately there is insufficient time to deal with the gamut of issues threatening these groups, such as health care, infrastructure development, and economic development. Therefore, this paper will focus on three problems faced by Vietnamese national minorities: population pressures, agricultural development and access to education. In particular, I will focus on national minorities in the northern mountains of Vietnam. As a background, the first section of the paper will discuss the physical situation of Vietnam and trace the development of ethnic groups in Vietnam. The second section of the paper will focus on the major obstacle to sustainable development in Vietnam: population growth. Vietnam is the twelfth most populous country in the world. By current population estimates, Vietnam will run out of suitable living space in approximately fifteen years. I will study how present population rates impact on national minorities. The third section will emphasize why a carefully conceived agricultural policy, which the Vietnamese need for economic growth, has not been adopted by minorities groups. The fourth section will appraise the education transition in Vietnam and its impact on ethnic minorities. In the fifth section, I will consider policy recommendations to solve the problem of Vietnamese minorities and population/environmental dynamics. Past governmental proposals to alleviate the problems faced by Vietnamese national minorities have been largely unsuccessful. Despite the Vietnamese national government's denials of discrimination against minority groups, many national minorities feel policies do not hold among provincial, district and village governments. Therefore, I will conclude this paper with several policy recommendations.

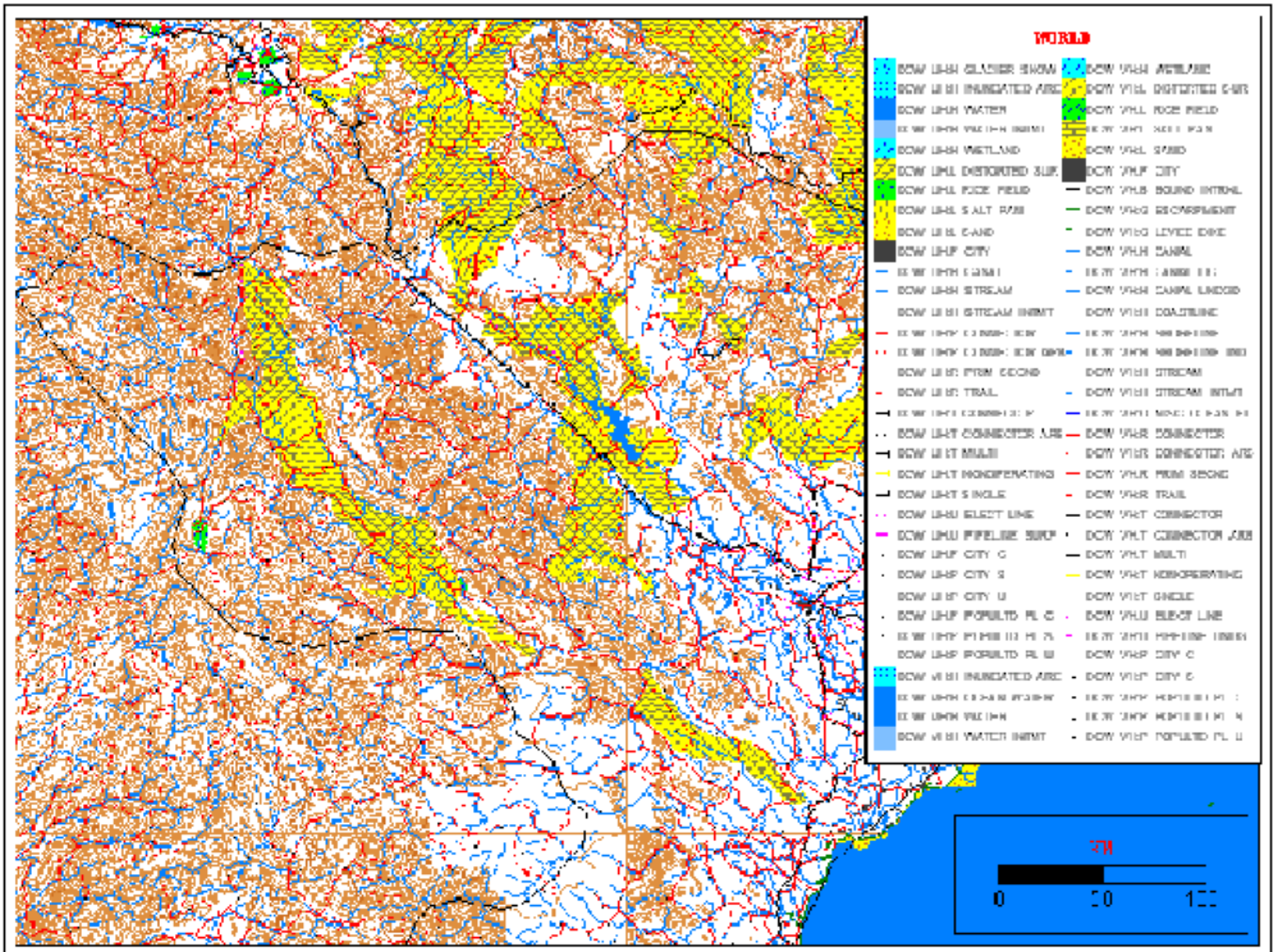
Vietnam's Physical Environment

Vietnam is situated in the far southeastern extremity of the Asian continent. It is bordered by the People's Republic of China to the north, Laos to the west, Cambodia to the southwest and the South China Sea to the east. The country occupies 331,688 square kilometers. From the north to the south is about 1,650 kilometers, and the country possesses 3,260 kilometers of coastline. Vietnam has a tropical climate, but this is tempered by the latitudinal differences between the lowlands and the mountains. The physical environment of Vietnam is one of contrasts. It possesses tropical lowlands, hills and forested highlands. The northern third of the country (mien Bac) is comprised of the northern mountains and the lush Red River Delta. The GSI map below clearly illustrates the contrasts between the mountainous areas and the Red River valley in the northern third of the country. Most of the ethnic groups studied in this paper live in the mountains of north Vietnam, which creates barriers to other areas of Vietnam and limitations on development. Mountains run down the central spine of the country (mien Trung). And the south (mien Nam) contains the rich, alluvial lands of the Mekong River Delta. Many Vietnamese use the imagery of two rice baskets held by a pole to describe their country, since agricultural production is concentrated in the Mekong and Red River valleys. (Library of Congress)



The Red River delta is smaller in area than the Mekong River delta in the south; it only comprises 3,000 square kilometers. However, this area is much more densely developed than the south. Floods constantly threaten lands under cultivation because the northwestern highlands rise sharply beyond the Red River, and water can quickly flow down these slopes during the rainy season. Over the centuries a system of dikes and canals has kept the river in check as well as provided irrigation for rice production. The Central Highlands cover about 51,800 square kilometers of mountain peaks and a narrow strip of lowlands along the coast of the South China Sea. The lowlands in this central region are also intensively farmed; and many inhabitants of this region depend on the sea for their dietary needs. The Mekong River and its delta dominate the South Vietnamese countryside. The Mekong delta has an area of 40,000 square kilometers, and continues to expand every year. Vietnamese officials estimate that the river deposits sixty to eighty meters of sediment into the ocean each year. The richness of the soil surrounding the Mekong River makes it one of the most important rice-production areas of the world. (Library of Congress)

GSI Topographical Map of Northern Vietnam



The most recent United Nations Human Development Reports ranks Vietnam as 122nd out of 174 countries in terms of development. The Vietnamese have a life expectancy at birth of 66.4 years, which is about 6 years off the average for countries considered high on the human development index and 1 year off the average of median human development. Vietnam has a 93.7 percent literacy rate, which exceeds the 83.25 percent average for countries with medium human development and 2 percentage points lower than countries in the high human development range. Conversely, Vietnam lags behind the real GDP per capita and adjusted real GDP per capita for countries with medium human development. The United Nations Human Development Index suggests that Vietnam has been successful in areas of social development, but lacks economic development. Such factors become exaggerated when the differences between ethnic Vietnamese and national minority groups are considered. (United Nations Development Program)

Ethnic Groups of Vietnam

Throughout its history Vietnam has been a crossroads for migration from the north to the south and from the west to the east. Anthropologist Joachim Schliesinger divides the Vietnamese into two groupings: the people of the lowlands and deltas and the people of the mountain regions. The ethnic Vietnamese (Kinh), Cham, Khmer and Hoa (Chinese) comprise the vast majority of the lowlands population. The various minority groups can be found in the

northern mountain and central plateau regions of Vietnam. (Schliesinger 23) According to legend, Vietnam has always been a multiethnic country. In one creation myth, Lac Long Vuong (Lac Dragon Lord), the founder of Vietnam, married princess Au Co and had 100 children with her. Originally, the Dragon Lord, the son of Kinh Duong Vuong (Canals and Sea Lord), arose from the ocean to chase away invaders from the north as well as teach the people in the Red River delta how to cultivate rice and wear clothes. Lac Long Vuong fell in love with a daughter (perhaps a sister depending on the story) of one of the invading generals whom he soon drove away. The Dragon Lord and Au Co had a good relationship, but Au Co became homesick. She told her husband that she missed the mountain climate and wanted to move back to the north. Lac Long Vuong did not want to leave the sea, so he told her that she could leave. Sadly, the two parted ways; Au Co took 50 children with her, and the Dragon Lord kept the other 50 children. According to the story, the descendants of the Dragon Lord became the ethnic Vietnamese and the descendants of Au Co became the national minorities of Vietnam. (Ngo Vinh Long 139-40)

This creation myth suggests that all Vietnamese ethnic groups originated in the same place; however, anthropologists have discovered that the various ethnic groups arrived in waves over the past two millennia. Research has revealed the existence of Malay-Polynesian language groups in areas of central and southern Vietnam since the first millennium BC; these were the ancestors of the kingdom of Champa in southern Vietnam. Several ethnic groups split from the Chams in the seventeenth century and settled in the central highlands. The second wave of migration into Vietnam occurred during the first millennium AD. These were members of the Tay-Thai language family, originally from China. These peoples, which included the Nung, San Chay and Bo Y, moved to Vietnam for various reasons. Some came because of wars and epidemics, while others wanted to escape the harsh Chinese feudal courts. The first Hmong families arrived in Vietnam during this second period of migration and continued to move into Vietnam throughout the mid-nineteenth century. The third wave of migration into Vietnam occurred between the seventeenth and nineteenth centuries and consisted of members of the Tibeto-Burman language group. (Schliesinger 25-26)

Vietnamese ethnic minorities live in four regions of Vietnam: the northwest, the northeast, the northern Red River delta region and the central highlands. This paper will focus on the hill tribes in the northwestern area (please see the map). The Thao-Lao language group is dominant in this area. Typically, hill tribes who speak Tay-Thai dialects occupy the highland valleys, while the Mon-Khmer speaking groups live at higher altitudes. Numerous ethnic groups, including the Muong, Tho, Chut and others, settled in the upper delta area of the Red River. The Muong are prominent in the upper delta region and their history can be traced back to the prehistoric Hoa Binh culture of Vietnam. The descendants of the Malay-Polynesian and Mon-Khmer language families settled in the central highlands of Vietnam. Despite linguistic similarities, all 54 ethnic groups should be seen as separate entities. Each minority has its own stories and traditions, customs and worldview. However, there are also shared characteristics among these ethnic minorities.

Northern Provinces of Vietnam



The first similarity is that all of these minorities depend on subsistence farming. The agricultural methods used depend on the topography. For example, high altitude farmers require slash-and-burn or swidden farming, while farmers in the foothills rely on rice cultivation. (Schliesinger 23, 42) When ethnic minority farmers use swidden farming, they use one of two methods: pioneer swiddening and cyclical swiddening. In the former method, farmers burn away virgin forests and cultivate the soil for as long as twenty years, depending on the fertility of the soil. Once an area has been exhausted the farmers migrate to another area of virgin forest and begin the process again. In the latter method, farmers allow lands to remain fallow for a certain number of years before using them again. Ethnic groups using the cyclical method are more likely to have permanent settlements because they can rotate between plots of land in a concentrated area. (Schliesinger 42-44)

The second similarity is the importance of the village for these people (the following photograph is an example of a Black Hmong house). The village represents the center of spiritual, economic and political life for minority groups. The location of the village is selected by a careful examination of physical and spiritual signs. Many ethnic minorities believe that evil spirits can only approach from one direction; therefore, they make sure that doorways are situated away from the path of these spirits. Villages must also be situated near sources of clean water and close to fields, because the people do not have the means to haul water and crops over long stretches of rugged terrain. Finally, many villages have a communal house. The communal house operates like a city hall and community center. It is a place for the members of the village to meet and decide important matters, the location of

social gatherings and the symbolic welcome center for the village. The physical organization of the village suggests that Vietnamese ethnic minorities depend on communal living for their survival.



Black Hmong house, Hoa Binh, Lai Chau district

(Source: Schliesinger, *Hill Tribes of Vietnam*)

A third similarity is that ethnic minorities owe their primary allegiance to their village because they usually have no contact with higher political entities. A traditional village consists of a village council selected from the male members of the community. Household heads in the village support the village council. Together these two groups perpetuate the customs and rituals of the village as well as consider important political decisions. The village council is also responsible for distributing justice fairly. Even when disagreements develop between villages, the Vietnamese national government rarely intervenes. The councils and headmen of the two villages settle such problems. (Schliesinger 32-33)

A great variety of ethnicities exist in the northern mountains of Vietnam. According to national minorities researcher A. Terry Rambo, this area is home to 31 of the 54 recognized minority groups in Vietnam. The Kinh (Vietnamese) make up the majority of the inhabitants with 2.5 million people. The Tay follow with 1 million people, then comes the Thai (600,000), Nung (600,000), Hmong (530,000), Muong (460,000) and Dzao (440,000). In this region there is also much overlap between ethnic groups. Most towns and villages have more than 10 ethnic groups present, and only 3 percent of all villages are monocultural. Typically, it is only at the hamlet level (a subdivision of the village) that one observes a separation of ethnic groups. (Rambo 6, 9)

Demographic Transition

Population growth will be one of the major challenges to a sustainable environment in Vietnam over the next fifteen years. Currently, Vietnamese growth rates average approximately 2 percent per year and will not decline significantly until early in the next century. In the northern mountain region, population growth presents an even greater problem for ethnic minorities. Ethnic minorities have not followed family planning programs as carefully as the ethnic Vietnamese of the lowlands have. This means that the minority population will double by the year 2015 if nothing is done to counteract this population growth. (Rambo 26)

Figure 1

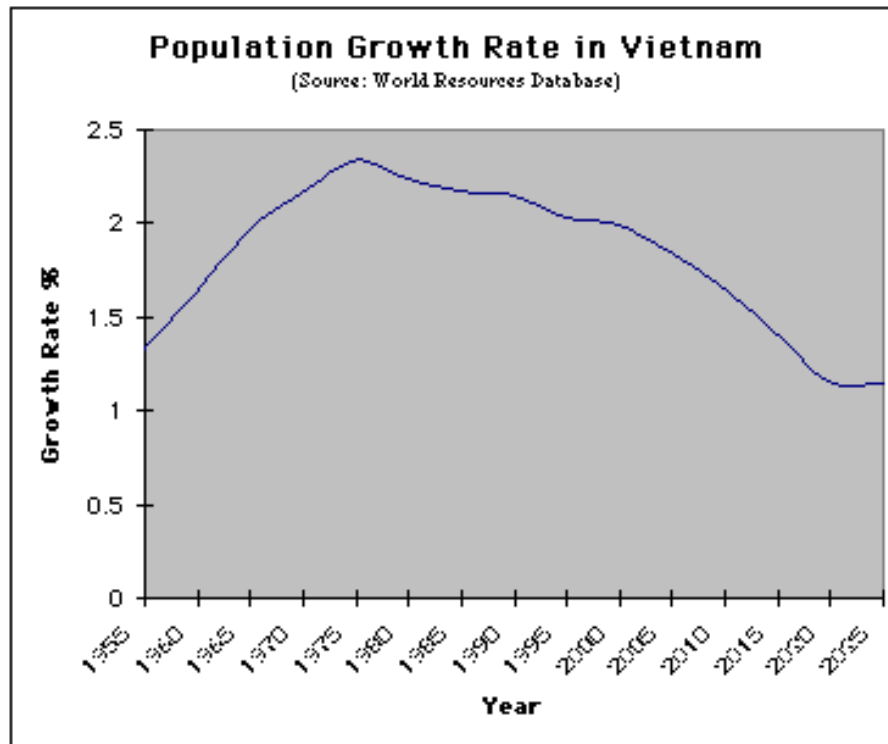


Figure 1 depicts Vietnam's growth rate from 1955 to 2025. As represented by the chart, Vietnam's population increased at a rate above 1.5 percent from 1960 through 1975. The growth rate declined slightly after 1975 and is expected to continue to decline until the year 2020 when it will begin to level. A quick reading of the chart would suggest that Vietnam began its demographic transition approximately 20 years ago; however, such a reading would prove to be inaccurate. If the estimates provided by the World Resources Database prove correct, then Vietnam will not begin to experience a demographic transition until the beginning of the twenty-first century. The slight drop after 1975 can most likely be attributed to the consequences of thirty years of warfare in the country. The Vietnamese fought an eight year conflict against the French military between 1946 and 1954. That war ended after Vietnamese nationalists defeated the French at Dien Bien Phu. Two years later the United States took over from the French and began to support the state of South Vietnam under the Ngo Dinh Diem regime; conflict between the North and South quickly followed. During the Vietnam War, the Vietnamese suffered far greater casualties than during the war against the French. The reason for this stems from the nature of the war; it was essentially a civil war with superpower support. Vietnamese people witnessed a sharp decline in the population as North and South Vietnamese killed each other, and as the American military supported an attrition policy. The result was that by 1975, the Vietnamese had lost a generation through direct (as soldiers) or indirect (civilian casualties) causes related to the war. Since the 1980s, the Vietnamese government has encouraged an annual growth rate of 2 percent and hopes to achieve a growth rate of lower than 2 percent by the turn of the century.

TABLE 1

Population Growth Rate of Vietnam (Source: World Resources Database)

Year	Growth Rate
1955	1.33
1965	1.97
1975	2.34
1985	2.18
1995	2.03
2005	1.85
2015	1.41
2025	1.15

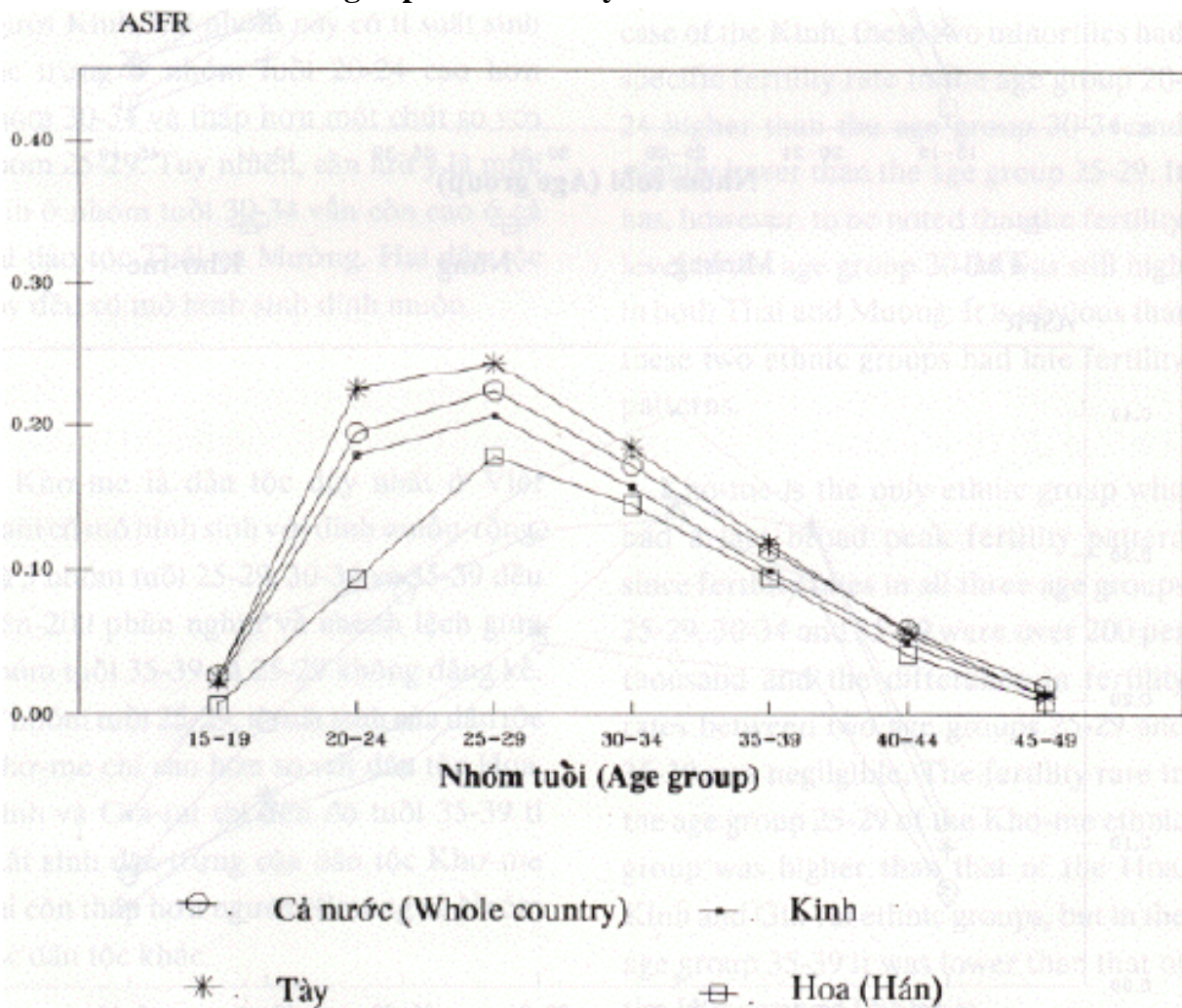
The data presented in Table 1 indicates that Vietnam will successfully control population growth over the long-run as long as current population growth estimates hold constant. Two main factors will most likely contribute to this demographic transition. First, the Vietnamese people are generally well educated. Vietnam boasts one of the highest literacy rates in the world. With adult literacy averaging 94 percent, government efforts to educate the public about family planning practices will be successful. Second, the promise of a higher standard of living due to free market reforms will encourage the Vietnamese people to begin families at a later age and have fewer children. Such estimates must be tempered by a consideration of ethnic minorities. The minorities in the northern mountain region of Vietnam likely will not undergo a demographic transition for another generation. According to A. Terry Rambo, this region has lagged behind the rest of Vietnam in the implementation of a serious family planning program with the result that the minority population is skewed towards the younger age cohorts. Despite the use of birth control, population will continue to grow at a disparate pace than that of the population as a whole. (Rambo 26)

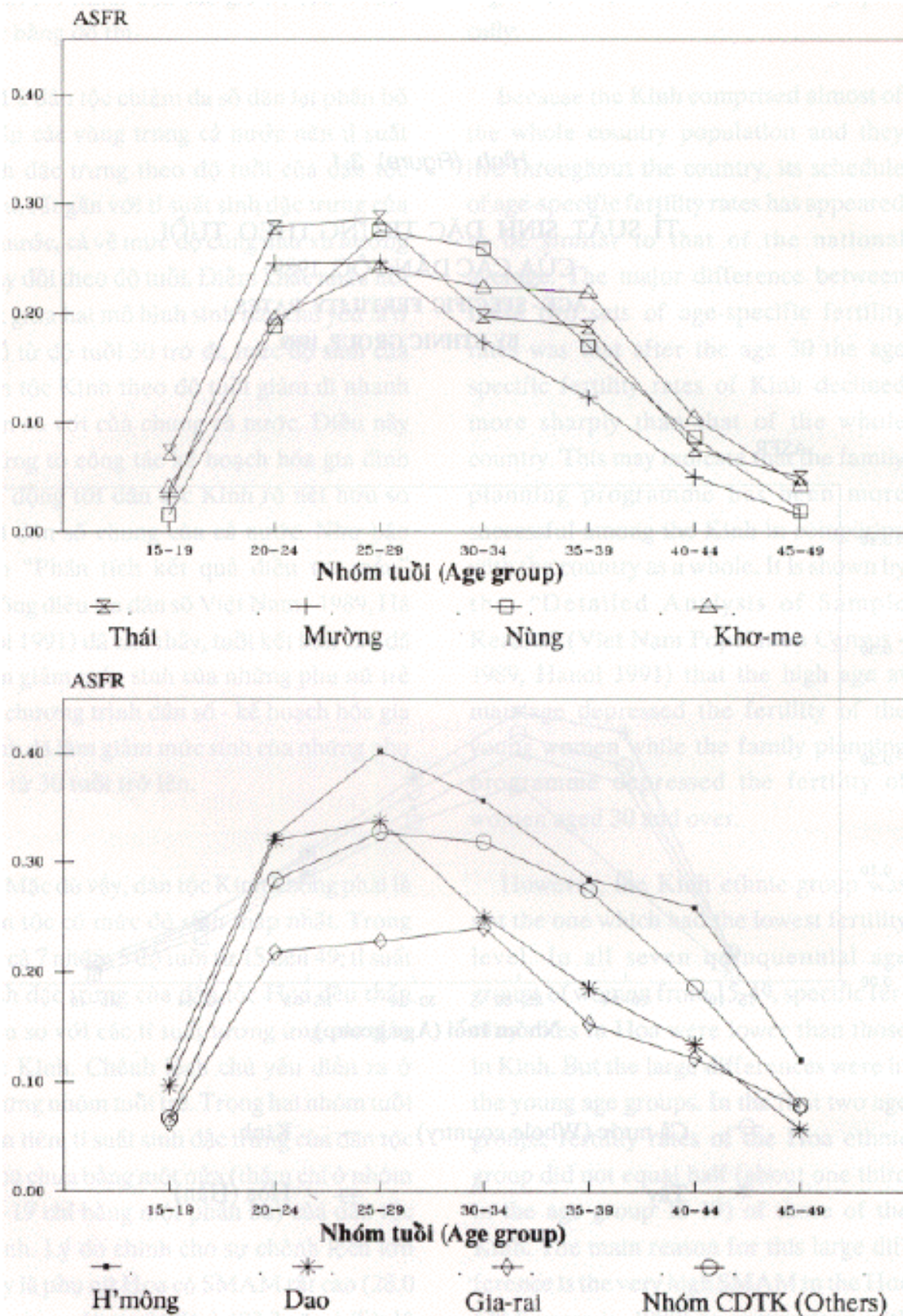
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Studies conducted on fertility and mortality rates in Vietnam confirm A. Terry Rambo's conclusion about ethnic minorities. Figures 2a and 2b represent age specific fertility rates (ASFR) by ethnic group in 1989. The first noticeable feature is that the Kinh (ethnic Vietnamese) fertility rates closely parallels the age specific fertility rates for the entire country. This point can be attributed to the fact that the Kinh comprise the majority of the population of Vietnam, therefore this segment of the population will influence fertility rates. The Kinh fertility rates are a bit lower than the rates for the whole country, and evidence suggests two reasons for depressed fertility rates. First, the average age of first marriage of Kinh women is 23.3 years, which is older than almost all other ethnic groups in Vietnam. Second, the Kinh have successfully utilized the country's family planning program. The only group with

a lower fertility rate than the Kinh is the Hoa (ethnic Chinese). The Hoa have achieved lower fertility levels for the same reasons as the Kinh. In fact, Hoa women do not marry on average until they are 28 years old. Conversely, fertility rates for other ethnic minority groups, especially the Thai, Muong and Hmong are typically higher than the national average and remain high for a longer duration. The mean age of first marriage for Thai women is 20.4 years, 21.9 years for Muong, 21.8 years for Nung and only 18.4 years for Hmong women. The fertility pattern also remains high for these women well into their thirties. The evidence suggests that minority women are married earlier than ethnic Vietnamese on average and have more children during their lifetimes. The data also reflects the idea that ethnic minority women are not using family planning programs as a means for controlling population growth. This evidence supports the viewpoint that ethnic minority groups will not undergo a population transition for at least another generation. (*Estimating the Fertility and Mortality of Provinces and Ethnic Groups: Vietnam 79-84*)

Figure 2a
Age Specific Fertility Rates in Vietnam



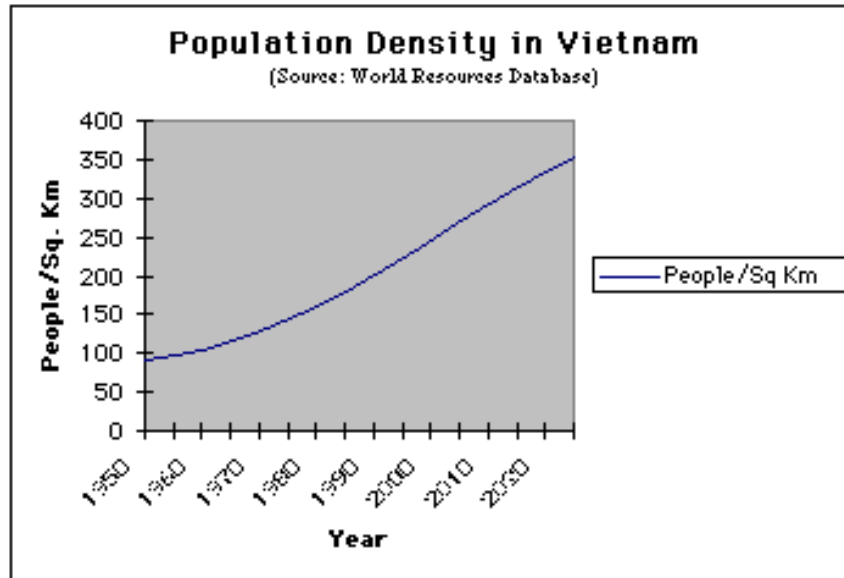


(Source: *Estimating The Fertility & Mortality of Provinces & Ethnic Groups: Vietnam*)

The population density of Vietnam presents a greater challenge to the government and the people. Demographers estimate that Vietnam's population will exceed 82 million people by the year 2000. Vietnam currently ranks as the twelfth most populous country in the world and only second to Indonesia in Southeast Asia. The question remains: how does the country accommodate such a large population in a land area of only 330,000 square kilometers?

(Hainsworth 159-60) Figure 3 depicts changes in Vietnam's population density. The chart illustrates that Vietnam's overall population density will double over the next thirty years. According to the World Resources Database, the average population density of Vietnam is 223 people per km². Yet, this general figure does not account for local variation in population density. Within Vietnam, population density varies from 50 people per km² in the mountains to 300-500 people per km² in the Red River and Mekong deltas. In fact, the population in some urban areas reaches a density of 1,000 people per km². (Hainsworth 160).

Figure 3



The Vietnamese national government has attempted to deal with overcrowding in the lowlands by relocating the Kinh population to suitable sites in the northern mountains and central highlands. In the government's opinion, such moves are quite logical. The Red River delta is home to 21.4 percent of the population, while the Mekong delta comprises 22.4 percent of the population. The government sees the highlands as an open frontier since that area comprises 89,000 square kilometers of land (27 percent of Vietnam's territory), and only has a population of six million people (Rambo 5). The problem with this relocation policy is that it does not take into account intervening factors, such as the sustainability of upland vis-à-vis lowland environments. In reality, the northern mountains are more overpopulated than the deltas despite the large gap in the ratio of persons per square kilometer between the highlands and the lowlands. Differences in agricultural productivity between the deltas and the highlands account for the overcrowding in the highlands. A. Terry Rambo comments that it seems counterintuitive to see the mountain regions as more overpopulated than the delta regions; however, we must consider the importance of environmental sustainability when considering population density in the various regions of Vietnam. (Rambo 27)

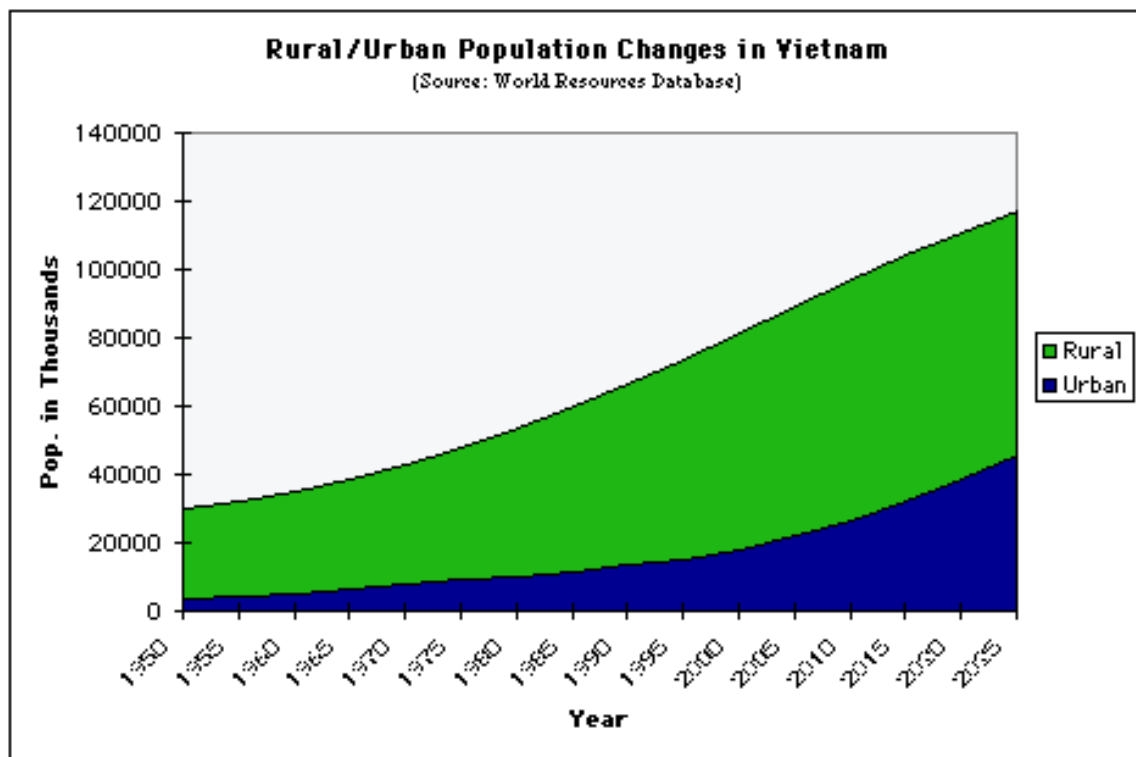
Table 2
Population Density in Vietnam (Source: World Resources Database)

Year	People/ km2
1955	97
1965	116
1975	145
1985	181

1995	223
2005	270
2015	314
2025	353

The trend towards out-migration of minorities from the northern mountain region of Vietnam provides further support to the theory that the mountain environment cannot carry a large population. Conflict has forced some minorities to the south, including the Nung and the Black Thai, who supported the French during their colonial war. Minorities also moved southward in 1979 when the Chinese and Vietnamese militaries engaged in border skirmishes in northern Vietnam. Recently, many minorities have moved southward in order to find land. This trend increased in the early 1990s, so that by 1993, approximately 200,000 ethnic minorities had left the northern mountains in search of better land. (Rambo 26) Vietnamese governmental efforts to relocate ethnic Vietnamese to the northern region will continue to have little effect on population density pressure. It will be a matter of time before the government recognizes that population density puts serious constraints on the carrying capacity of the region.

Figure 4



The Vietnamese population will continue to be overwhelmingly rural for the next twenty-five years, but an increase in population will place serious constraints on land and the environment. According to Figure 4, the Vietnamese population was 80 percent rural in 1995. By World Resources estimates, the rural population will continue to comprise 75 to 80 percent of the total population for the next ten years. The rural population will start to decline as a percentage of the total population over the first quarter of the twenty-first century. In 2010, the rural sector will likely be 72 percent of the populace, and over the next 15 years will decline to 61 percent of the population. Conversely, the urban population of Vietnam will increase as a percentage of the total population over the same time period. Although Vietnam will continue to have an agriculturally based economy, this trend in the population indicates that push-pull factors will contribute to the movement to cities. As indicated above, one of the major push factors for ethnic minorities is the search for new land. The policy to move people to less populated regions will not work because the mountain regions cannot support a larger population. Ethnic minorities have also

been pushed out of their territory by numerous factors: war, population increases, and the need for arable land. As some minorities move into the lowland areas, they will encounter more competition for living space. Concurrently, Vietnamese efforts to reform their economy will draw more people to the cities, including ethnic minorities, who can find work with new industries. It appears, therefore, that the rural-urban composition of Vietnam will not solve the population density problem; however, it may encourage the government to develop cities instead of the unsustainable northern mountains region of the country.

It appears that the rise in population density will have a serious negative impact on ethnic minorities in the northern mountains of Vietnam. Since Vietnam has not undergone a demographic transition, population pressures will continue to exist for the foreseeable future. The government's response to increasing population density has been to relocate ethnic Vietnamese to less populated sections of the country; however, transmigration has placed greater stress on the ethnic populations of these areas because the mountain environment cannot sustain a larger population.

Vietnamese Agricultural Development and National Minorities

Sustainable agriculture will be another challenge to Vietnam in the next century. In 1986, the Vietnamese government began a transformation of the nation's economy from a centralized economy to a market-oriented system. This new approach, called *doi moi* or renovation, produces both positives and negatives for Vietnam in terms of development. On the positive side, the government hopes a market-oriented Vietnamese economy will entice new investors and businesses into the country. They think these new enterprises will encourage employment as well as boost the standard of living in Vietnam. In 1995, the real GDP of Vietnam was US\$1,236 compared to US\$26,977 for the United States (United Nations Development Program); this figure can be expected to grow as more industry develops in the country. On the negative side, the government is worried that *doi moi* will undermine the Communist ideology and the sustainability of socialism as an economic theory.

Vietnam's political elite rationalizes this new economic policy by suggesting that economic growth will help the Communist Party because it will earn the party the support of the common people (Kerkvliet 9). In reality, most people do not care about the Communist Party; and some voices of dissent have begun to gain strength throughout the country. Dissenters argue that the government should do away with its attachment to socialism, since the country is well on its way to a capitalist system. Dissenters also question the utility of a Communist Party. They recognize the gap between the political leadership's outlook and that of the general population and argue that the country should make a choice: abandon the communist system completely or reassert socialism at the expense of the economy and the people. (Kerkvliet 12) The party leadership is unlikely to reassert its power over the economy because it also benefits from the many opportunities presented by a free market economy.



(Source: Schliesinger, *Hill Tribes of Vietnam*)

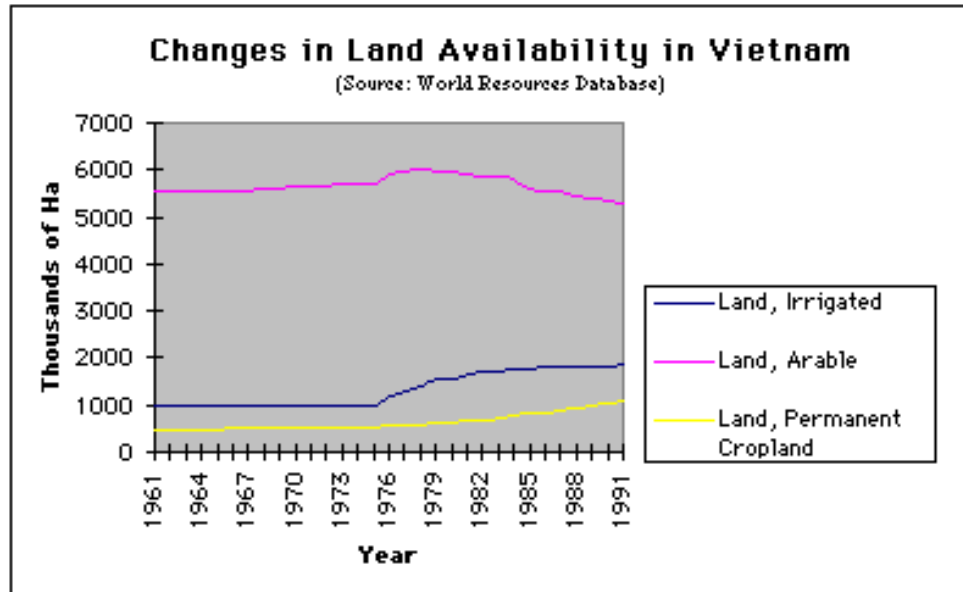
Under the *doi moi* policy, the environment has been exploited as another form of capital. It will be important for the Vietnamese people to realize that the environment has both renewable and non-renewable resources. The government must take the lead in reminding people that the environment serves three important functions, some of which are not renewable. First, the environment is a consumer good (air, water, land). Second, it is a factor in production (raw materials, energy, etc.). And third, it serves as a "waste sink" for used materials. The government needs to organize policies that will keep these factors in proper balance. If it fails to construct viable environmental policies, then the overuse of non-renewable natural resources will result in uninhabitable conditions. (Huynh and Stengel 261)

Economic reforms in Vietnam also have changed the nature of agricultural production. The government began to release communal lands to families and individuals in 1986 and gave farmers more freedom over co-operative policies. The government also loosened its control over the agricultural market; before 1986, farmers could not sell their excess produce on the open market and were charged an agricultural tax as high as 40 percent of the yield. Since *doi moi* reforms were instituted, farm taxes have dropped to 10 percent, and farmers are allowed to sell goods on the open market. One result of these changes has been that Vietnam became a rice exporting country in 1989. (Le Thanh Nghiep 148-149) *Doi moi* reforms seem to be a success in terms of the profitability of agriculture; however, increased population pressures and limited land resources have constrained agricultural production. In fact, if the current population trend continues, Vietnam will double its population in thirty years. The result will be the loss of arable land in order to build villages and expand cities (Natural Resources Management 39).

The data in Figure 5 and Table 3 visually represent the agricultural dilemma faced by Vietnam. Arable land has remained constant at approximately 5,550,000 hectares over the last thirty years and is not expected to increase in the next century. Meanwhile, the amount of permanent cropland increased more sharply after 1986 due to economic changes and is expected to rise as long as population density does not infringe on arable land. Only 20-30 percent of Vietnam's land is arable, yet the majority of the population earns their living from agriculture. When one considers that the population density in Vietnam will reach almost 400 people (see Figure 3) per square

kilometer by the year 2025, the result will be the loss of arable land in order to house the population. Therefore, the effects of population increases on land in production could have tremendous costs to both the economy and the people who depend on agriculture for their income. (Natural Resources Management 39)

Figure 5



The challenges to sustainable agricultural production are more acute in the northern mountain region. It is true that ethnic minorities have also benefited from the relaxation of the government's agricultural policy. For example, minorities in Vinh Phu province increased crop yields over the past eight years. However, not everyone has benefited from free market reforms. The gap between the rich and the poor in Vinh Phu province widened over the same period of time. (Rambo 15) This example highlights the benefits and drawbacks to economic reform, but in general, ethnic minorities have been more sensitive to agricultural underdevelopment because they must contend with physical constraints, environmental constraints and population constraints not seen in other parts of the country.

Table 3

Land Usage in Vietnam (Source: World Resources Database)

Year	Irrigated Land	Arable Land	Permanent Cropland
1961	1,000,000 ha	5,550,000 ha	470,000 ha
1965	980,000 ha	5,550,000 ha	490,000 ha
1971	980,000 ha	5,630,000 ha	520,000 ha
1975	1,000,000 ha	5,700,000 ha	540,000 ha
1981	1,650,000 ha	5,910,000 ha	670,000 ha
1985	1,770,000 ha	5,616,000 ha	805,000 ha
1991	1,850,000 ha	5,280,000 ha	1,100,000 ha

There are three important physical constraints to farmers in the northern mountains: uneven terrain, uncertain rainfall patterns and poor soil. The terrain in the northern mountains is mostly inhospitable for sustained farming. Most of the region is above 200 meters with steep slopes. In fact, more than 50 percent of the northern mountains have grades of 20 degrees or more. This physical environment creates problems for farmers because they are

unable to create productive paddy fields. Rainfall is also a problem because the annual total comes in sporadic downpours instead of small amounts spread out over time. Such a rainfall pattern has the tendency to wash away crops. Furthermore, the soil in the northern mountains is frequently of poor quality and vulnerable to erosion. Many minority people in the region (48% of women and 23% of men) suffer from goiter as a result of low quality soil. (Rambo 19-20)

Deforestation and mining contribute to the problem of agricultural sustainability in the northern mountains. During the 1970s, the Vietnamese regarded the northern forests as a source of wealth or "green gold" as one report claimed. Twenty years later the destruction of these forests has had a devastating effect on the environment. Deforestation has left 13.4 million hectares of territory degraded, hence the term "barren hills." In 1991 only 27 percent of the northern forests remained. The logging industry is partially responsible for the loss of forests; it destroys approximately 150,000 hectares per year. Interestingly, swidden practice farmers are mainly responsible for denuding Vietnam's northern mountains. There are almost 125,000 hectares of land under swidden cultivation each year. (Natural Resources Management 42) Deforestation has three effects on northern agriculture. First, wood used for building, cooking and heating is difficult to find. For example, Black Thai residing in the Dien Bien Phu area are forced to travel 50 kilometers in order to find suitable logs for house construction (Rambo 22). Second, deforestation has eroded topsoil from many areas in northern Vietnam, which places greater constraints on the physical environment mentioned above. Third, deforestation has caused more floods and droughts in the region (Natural Resource Management 42). Mining practices contribute to environmental degradation in the same way as deforestation. The northern mountains are rich in natural resources. For example, coal has been discovered in large quantities in the Red River basin; however, extraction methods are very inefficient. Residual pollutants enter the water system and eventually end up in paddy fields. The mines also take away land used in the production of agricultural products. (Natural Resources Development 45)



(Source: Schliesinger, *Hill Tribes of Vietnam*)

Finally, population density changes negatively impact agricultural development in the northern mountains. For centuries, upland farmers used traditional farming methods, primarily swidden farming as shown in the following picture. Swidden farming was acceptable when the population density was low and the country did not worry

about the consequences of deforestation. Now it appears that swidden farming is not a viable option for minority farmers. The reason is that changes in population density have forced these farmers to reduce the fallow cycle of their fields. In the past, farmers could cultivate a field for one year and allow it to remain fallow for the next twenty years. Farmers of today are forced to cultivate a tract of land for three or four years and only let it remain fallow for four years. The long-term effects of this are twofold: farmers will invest more time and energy in the process, but face reduced yields due to soil depletion. (Rambo 27)

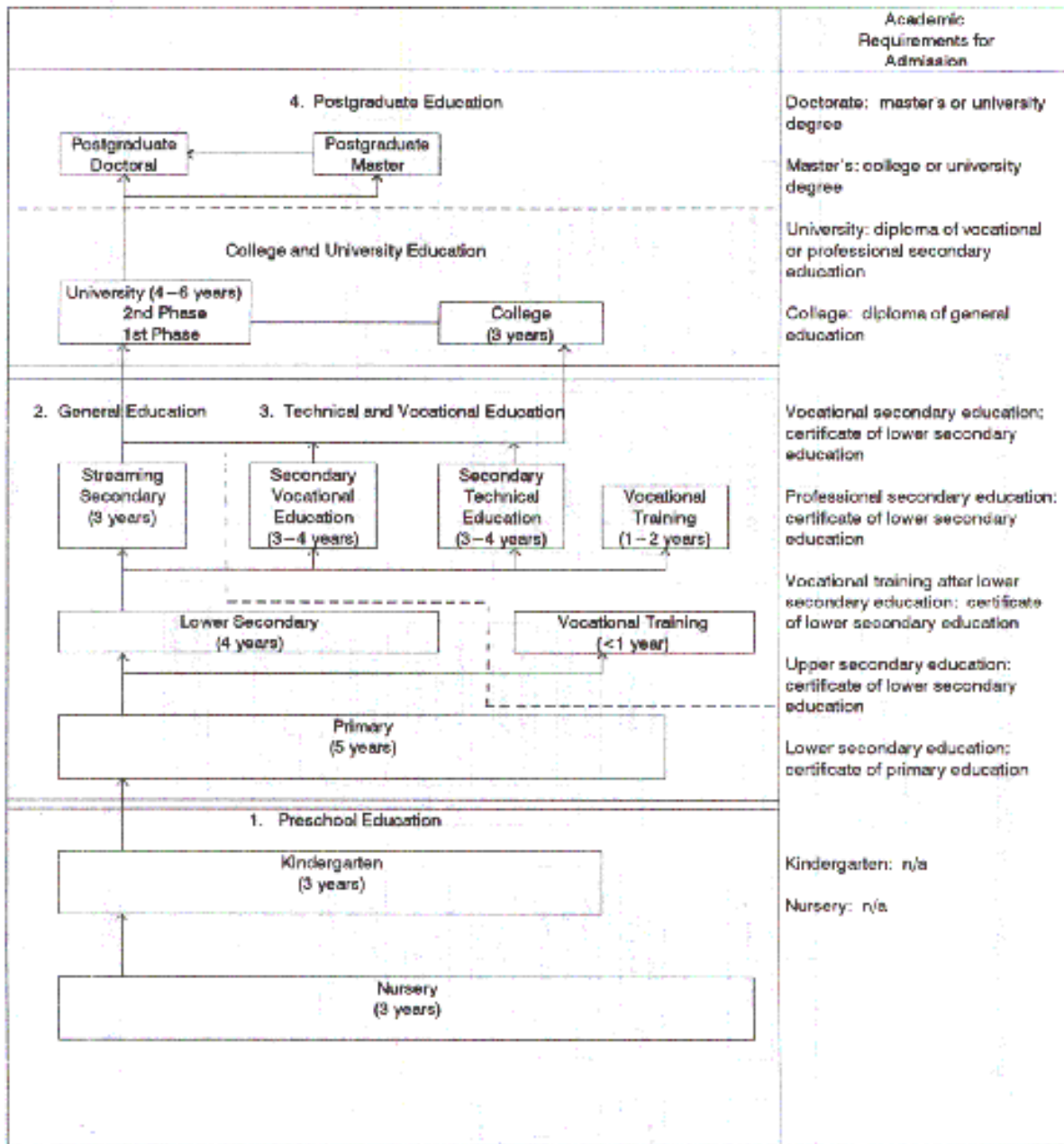
The *doi moi* policy has positively and negatively transformed the Vietnamese economy. The Vietnamese people are willing to take chances in order to modernize their country, but this drives towards modernization may result in the overuse of natural resources, including forests, minerals and water. In the area of agricultural production, the positive side has been increased agricultural production due to privatization of collective farms. The negative side has been environmental degradation caused by demands for forest products and the development of Vietnam's mining industry. When traditional farming methods and population density are factored into this equation, threats to Vietnam's northern environment become more severe. Ethnic minority farmers already face difficult conditions because of the physical constraints: the steep terrain, unequal precipitation patterns and soil erosion. The challenges posed by mining and deforestation will only compound their problems. Therefore, new policies need to be established to protect ethnic minority farmers and the environment, while encouraging free market reforms.

Educational Transition

During French colonial rule (1883-1945), the majority of Vietnamese children did not have access to education. A small number of qualified children entered a governmental education program. These students received a western style education with a French dominated curriculum and taught in the French language. Wealthy parents also had the option of sending their children to non-governmental village schools, where students received a traditional education. (*Education in Vietnam* 1)

After the French left Vietnam in 1954, the educational system underwent several transformations in the north and the south. In general, the south introduced a 12 year system, while the north utilized a 10 year system. After the country was reunified in 1975, the Vietnamese government worked on the development of a common education system for the entire country. It is only since 1989 that a common 12 year system has been used throughout the country, which employs a three tier program. Figure 6 visually shows the Vietnamese educational system. As the chart illustrates, Vietnamese children are expected to begin school at age 6 and finish primary school by age 11. Students advance to lower secondary school, where they should finish by the time they are 15 years old. Upper secondary education requires an additional 3 years to complete. If a child started school on time, then the student will complete this stage of education by age 18. (*Education in Vietnam* 2-3)

Figure 6



In an effort to improve education, the Ministry of Education and Training (MOET) implemented several changes to the educational system in 1981. The curriculum was redesigned, standardized textbooks implemented and other educational materials introduced into the classroom. MOET hoped that students would at least complete primary education. In fact, the Vietnamese national government made primary education compulsory in 1991. Interested students could continue with lower and upper secondary education, while other children could qualify for a year or more of vocational training. (Education in Vietnam 3-4) Unfortunately, the success of educational reform is tempered by two factors: the social and economic changes of *doi moi* and inequality between rural and urban education.

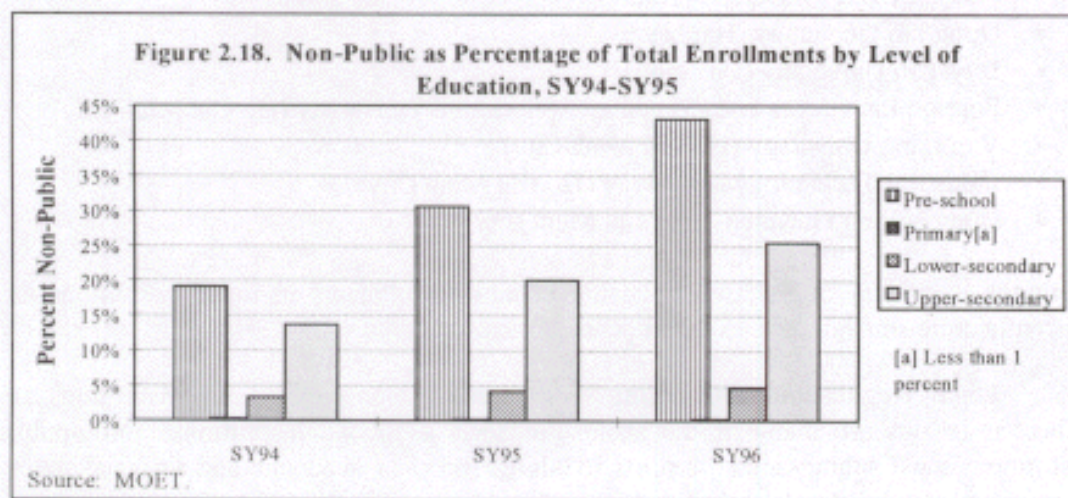
The economic reforms begun in 1986 reinvigorated the Vietnamese economy. However, the Vietnamese government was forced to cut back on social services (health care, agricultural subsidies and education). Before 1989, the national government paid for the first twelve years of school (primary through upper secondary), but the reduction in state subsidies to education has meant that families now must pay for their children's education after primary school. Additionally, children are charged nominal rates for textbooks. The result is that many parents

must either find some way to pay for tuition or ignore the educational needs of their children. The second option becomes untenable as changes in the economy increase the demand for educated adults. (Education in Vietnam 4)

Vietnamese education has also been hampered in the last ten years by a reduction in tax revenues collected by the government. It seems that as *g* progresses, many individuals are unwilling to comply with tax laws. As a consequence of tax evasion, the government is unable to fund social service programs, improve schools, raise teacher salaries and provide scholarships for students. At present, many teachers barely make enough money to cover their cost of living expenses. Many teachers must take second jobs in order to support themselves. Like their teachers, students also have felt the impact of *doi moi*. In the Vietnamese countryside, agricultural privatization has encouraged parents to keep at least one child home from school to help tend the paddy field. Parents justify their action because greater productivity translates into larger profits for the family. In urban areas, teenagers, especially from poorer families, decide job opportunities outweigh school. Many drop out of school, lured by the desire for consumer goods. (Pettus 36)

Recently, efforts have been made by the Vietnamese national government and private individuals to reform the system. MOET plans to better train teachers in vocational education; teachers now receive more training and many are encouraged to visit other countries in Southeast Asia to learn computer science skills and English. Efforts outside the government have also emerged, including after school classes and non-public schools. In order to make viable incomes, teachers have introduced hoc them or extra study classes after school. Although student attendance is not mandatory, parents willingly pay for their children to attend these classes because it is here where students receive the most important information. Other individuals have formed "people-founded" schools, which are similar to U.S. charter schools. Only students with high academic marks are admitted into these schools and tuition is higher than at state run schools (\$5US per month at the non-public school compared to 80 cents at a state school). Despite the higher tuition rate, parents send their children to these schools because the schools employ well trained staff and use innovative learning methods. (Pettus 37)

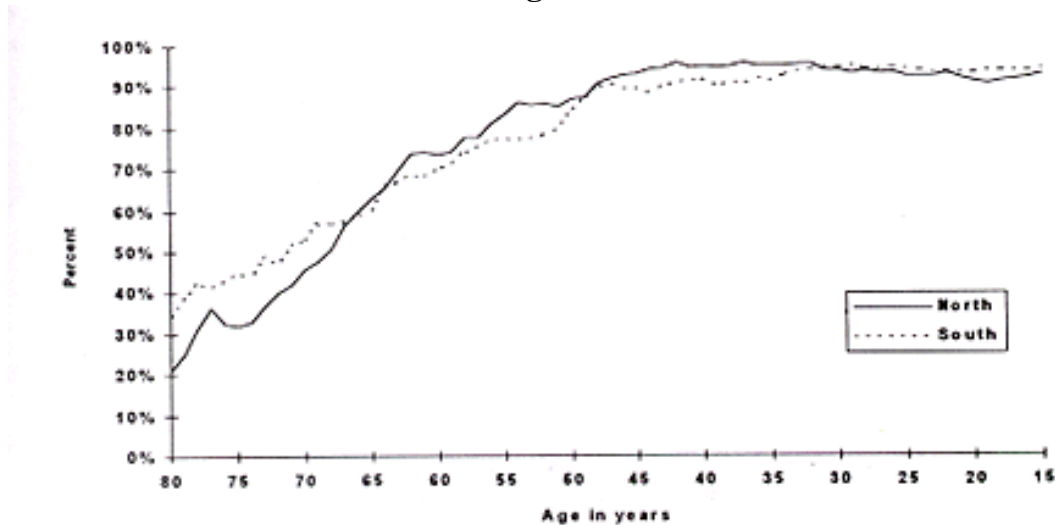
Figure 7



Non-public schools offer parents an alternative to public schooling; yet, as the Figure 7 shows, non-public schools only have significant enrollment numbers at the preschool and upper secondary levels. Conversely, less than 1 percent of children attend non-public schools at the primary level, while only 5 percent of children attend these schools at the lower secondary level. The trend is encouraging. More students enroll in non-public schools each year. This trend may force MOET to adopt the techniques and procedures used in non-public schools; however, change appears slow.

A demographic survey conducted by the General Statistical Office in Vietnam suggests that Vietnam has achieved an educational transition. As the following graph (Figure 8) suggests, the percentage of people with some education is level at 85 percent of the population and skewed towards the younger age cohorts. The percentage of people who actually finish primary education is also beginning to level at 80 percent as presented in Figure 9. These figures suggest improvement in the number of Vietnamese who receive an education; however, the evidence shows that after primary school the results are more disappointing. Only one fourth of those students who complete primary school graduate from secondary school. (Education in Vietnam 12)

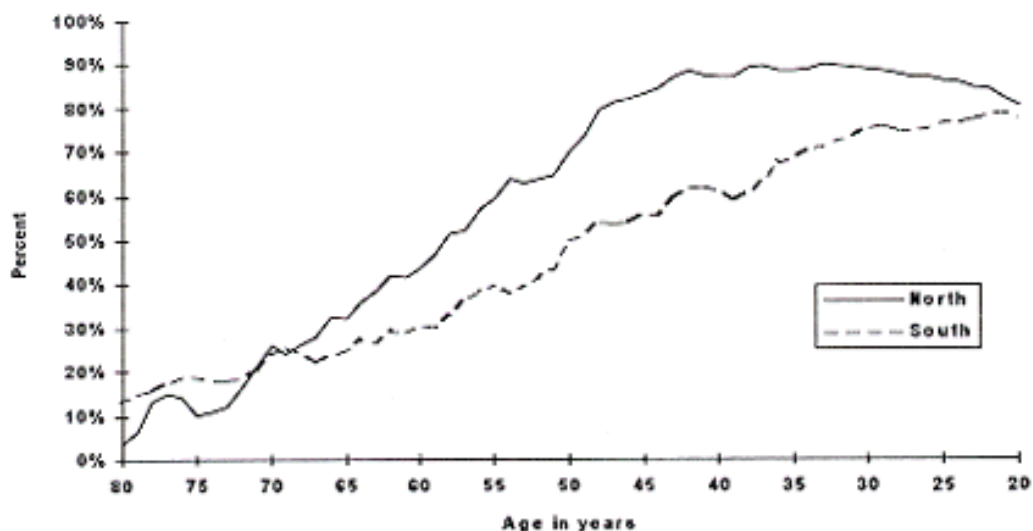
Figure 8



Note: Percentages shown are based on three year moving averages.

Source: 1994 VNICDS household member data.

Figure 9



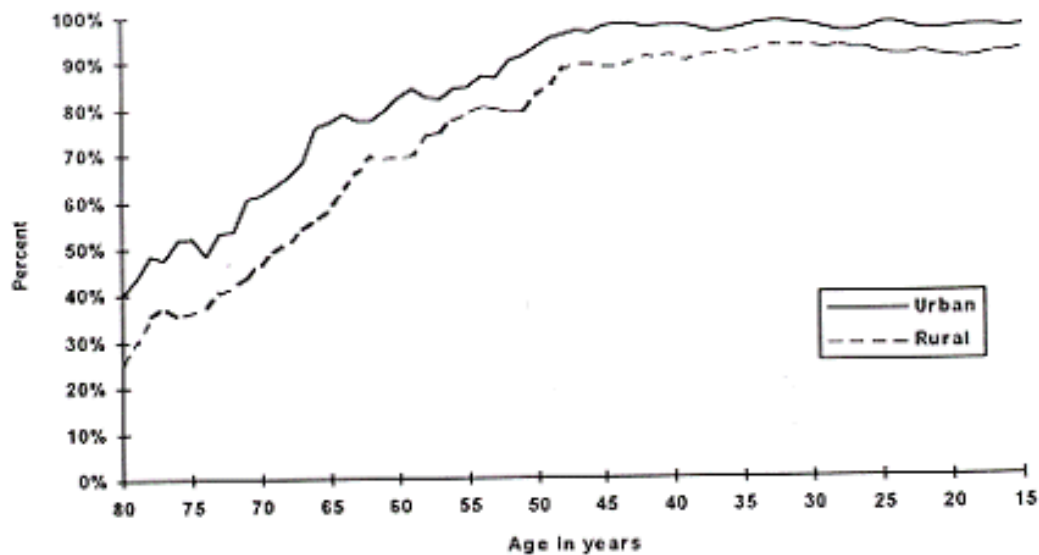
Note: Percentages shown are based on three year moving averages.

Source: 1994 VNICDS household member data.

Research also shows a continuing gap in the levels of education between urban and rural residents. In both urban and rural areas the oldest age cohorts had less education overall. Only 40 percent of urban residents over 80 years

had any education and 25 percent of rural residents over 80 years. As the following figure (Figure 10) illustrates, the percentage of people with any education has gradually improved over the last fifty years and has leveled off around 90 percent. Unfortunately, improvements in the delivery of education have not narrowed the gap between urban and rural residents. In the youngest age cohort (20-24), 80.8 percent of the population living in the cities finished primary school, but only 77.5 percent of the rural students finished primary school. These appear to be quite high levels by developing country standards, although the survey data shows that urban students have better opportunities to attend school. A rural/urban educational gap continues through secondary school. The percentage of urban residents receiving any secondary education was 84.3 percent among the youngest age cohort, while only 68 percent in the countryside. Thirty-five percent of urban residents in the youngest age cohort complete a secondary education, but only 13.2 percent of the rural residents complete a secondary education degree. These figures (as presented in Table 4) suggest that Vietnamese education has improved in relative terms; however, the national government must still make improvements in order to provide all students - urban and rural - educational opportunities.

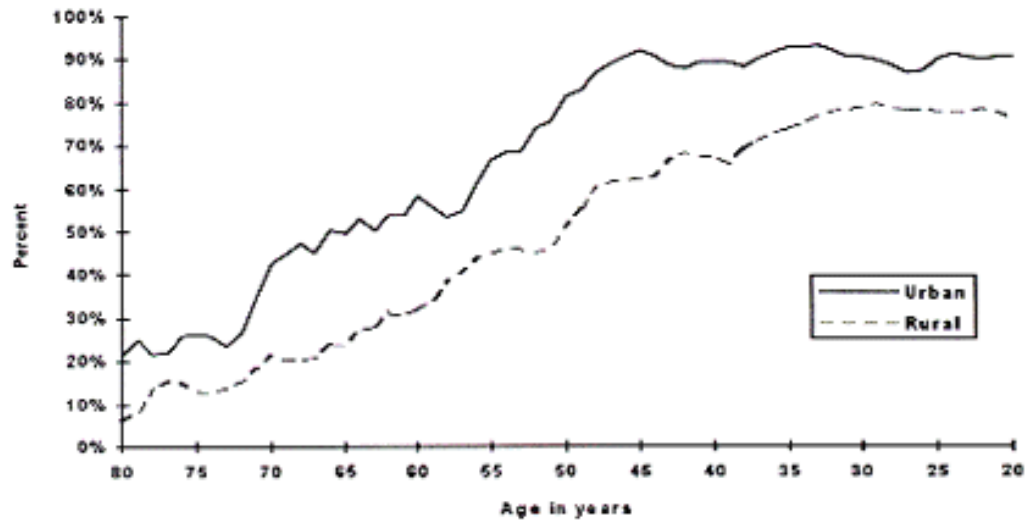
Figure 10



Note: Percentages shown are based on three year moving averages.

Source: 1994 VNICDS household member data.

Figure 11



*Note: Percentages shown are based on three year moving averages.
Source: 1994 VNICDS household member data.*

Vietnamese ethnic minorities encounter the greatest challenges to receiving educational opportunities. The lack of infrastructure, the failure to attract and retain teachers and the variety of languages and customs among minority groups prevent systematic education initiatives from being effective in minority dominated regions. One indicator of the educational deficiencies of ethnic minorities is the level of illiteracy in several northern provinces (please refer to the map of Northern Vietnam). For example, in Lai Châu province along the Lao and Chinese borders, the illiteracy rate is 51.1 percent. In Hà Tuyên province along the Chinese border, 33 percent of the residents are illiterate. And in Sơn La province, the illiteracy rate approaches 40 percent of the population. These examples are significant because the national illiteracy rate is approximately 15 percent. General illiteracy rates do not provide an indicator of differences in the illiteracy rates among minority groups. Therefore, a recent study on Vietnamese fertility rates examined illiteracy rates among minority women. The women were examined because they are the main target for family planning programs and social policy. According to the report, Kinh women have the lowest illiteracy rate of any ethnic group, only 15.6 percent. Conversely, Hmong women had the highest rate of illiteracy at 97.4 percent. Many ethnic minorities from the northern mountains of Vietnam had an illiteracy rate of 68 percent. These figures suggest that ethnic minorities, especially minority women, do not have any education despite the national average. (Estimating the Fertility & Mortality of Provinces & Ethnic Groups: Vietnam 75-76)

Table 4

Percentage attaining selected educational levels, by residence and current age

Current Age	% with any schooling		% finished primary		% with any secondary		% finished upper secondary	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
15-19	97.5	91.9	89.6	72.6	80.6	60.3	17.3	4.0
20-24	97.5	91.5	90.8	77.5	84.3	68.0	35.3	13.2
25-29	97.5	93.9	88.9	79.0	80.2	68.7	32.6	14.2
30-34	98.4	93.4	91.6	77.7	83.9	66.7	34.6	10.4
35-39	97.3	91.8	90.1	71.7	84.0	57.8	40.7	9.5
40-44	98.3	91.1	89.8	66.5	77.0	51.4	37.4	9.2
45-49	96.6	89.1	89.2	60.9	78.2	46.3	33.4	7.3
50-59	86.8	77.8	66.2	43.5	51.9	27.0	20.8	3.9
60-69	75.2	61.4	50.7	26.3	36.6	14.3	12.4	1.9
70-79	55.1	40.1	28.5	15.2	18.3	7.0	3.2	0.8
80+	38.8	21.6	21.4	6.2	10.9	3.1	1.1	0.5
Total	92.8	84.7	82.1	63.3	72.7	51.4	28.5	8.0

Source: 1994 VNICDS household member data

The Vietnamese national government has recognized the limited opportunities available to ethnic minorities and has attempted to rectify this situation by building a limited number of primary and secondary boarding schools in large provincial towns for ethnic minority children. Unfortunately for many minority children, this effort has been at the expense of building schools in more remote areas, where they are needed. Like most students in Vietnam, ethnic minority students are also required to purchase their own textbooks. This policy has the tendency to repel minority students because their parents cannot afford the books. The government has addressed this problem by providing textbooks for some students at the boarding schools; however, this policy ignores the needs of the majority of ethnic minority students. As will be discussed in the following section, the Vietnamese government needs to be more proactive in its efforts to educate minority students. If nothing is done, these students will make up a permanent underclass in Vietnam and a drain on societal resources. (Asian Development Bank 69-70)

Policy Considerations

The previous three sections suggest that ethnic minorities in northern Vietnam face three challenges: (1) how to deal with population pressures, (2) how to create a healthy agricultural environment and (3) how to educate ethnic minority children. Present government policy in Vietnam has not helped ethnic minorities find solutions to these problems. In fact, the government prioritizes economic development above the environmental protection of Vietnam (Beresford 82). During the next decade, some scholars think the Vietnamese government will begin to deal with environmental issues as soon as environmental concerns affect the market. Yet, these scholars think that long-term reforms must begin at the grassroots level because such people will have more at stake in terms of reform. (Beresford 82) Vietnam's northern ethnic minorities will need to step-up and take responsibility for reform in their region if they hope to live comfortably in the next century. They can achieve long-term goals by pursuing four policy initiatives: (1) the development of multi-cultural understanding programs throughout Vietnam, (2)

better education for minorities, (3) the foundation of a national minority advisory commission, and (4) support of the Vietnam Bank of Agriculture.

1. Multi-cultural Understanding

Article 5 of the 1992 Constitution of Vietnam declares equality of all nationalities living in Vietnam. According to the Constitution:

The State carries out a policy of equality, solidarity and mutual assistance among all nationalities and forbids all acts of national discrimination and division. Every nationality has the right to use its own language and system of writing, to preserve its national identity, and to promote its fine customs, habits, tradition and culture. The State carries out a policy of comprehensive development and gradually raises the material and spiritual living conditions of the national minorities.

This article suggests that national minorities have equality with ethnic Vietnamese, but in practice this is rarely the case. The lack of cultural understanding partially explains why national minorities are not given equality. Ethnic Vietnamese (Kinh) tend to see ethnic minorities as barbarians because they are superstitious, resistant to change, and in some cases nomadic (as discussed in the introduction of this paper). Ethnic Vietnamese claim minorities are stupid and lack proper social skills. Such pervasive attitudes result in government policies ill-informed and ill-equipped to deal with ethnic minority problems.

The Vietnamese government must lead the movement towards multi-cultural understanding throughout the country. In other words, it should practice what its Constitution preaches. It will be a difficult task to educate lowland ethnic Vietnamese about the value of other ethnic groups and change their attitudes. However, this policy might be successful if the government institutes a multi-cultural curriculum in primary and secondary schools. Clearly, this is not a policy the government can force on the people. The government cannot mandate that ethnic Vietnamese respect ethnic minorities; it requires long-term persistence and support. In some ways the Vietnamese situation is analogous to the race question in the United States. The government can pass laws that encourage racial equality, but the people must be willing to accept equality and change the system gradually. If ethnic understanding is not given more priority, then national minorities will be left behind as Vietnam moves towards a market system and industrialization (Ngo Vinh Long 152).

2. Education

Better education of national minorities will be important if Vietnam hopes to fully develop. As mentioned in the previous section, although Vietnam's literacy rate ranks as one of the highest in the developing world, the illiteracy rate of ethnic minorities living in the northern highlands exceeds 50 percent. Before becoming an independent nation, the Vietnamese government actively encouraged the education of minorities. The Indochinese Communist Party called for unity of all nationalities (*dan toc*) in 1930. In order to achieve unity, the Party adopted an anti-illiteracy campaign which produced amazing results. By 1946, 80 teachers had been trained in minority languages and sent to rural locations throughout the country. The government also promoted a multi-cultural education at the time. In the 1950s, the Vietnamese government established the Tay Bac (Northwest) Autonomous Region and Viet Bac (North Viet) Autonomous Region to encourage ethnic minority participation in government. Many ethnic minorities were promoted to state and party positions, and ethnic minorities were encouraged to participate in party affairs. (Ngo Vinh Long 142)

The result of these early efforts was the development of teacher's schools in every northern district to train teachers of primary education and teacher's colleges in every province to train secondary school teachers. Unfortunately, warfare with the United States, China and Cambodia nullified the gains made by ethnic minorities in the 1950s and early 1960s. In the 1980s, the Vietnamese government, faced with economic hardship, lower educational subsidies to ethnic minority groups. Today, northern highland villages have high attrition rates among teachers. Teachers (usually Kinh) will stay at a village for a few months and then leave because they find mountain villages too foreign. It takes months to find a replacement teacher, so the children remain uneducated (Hiebert 26). Despite the situation, there are encouraging signs for educational policy. The Vietnamese government began to raise the percentage of the national budget devoted to education in 1991. According to 1995 figures, 10 percent of national budget is spent on education. (Ngo Vinh Long 144-147) This is not a large percentage, but it is an improvement over five years earlier.

Education is crucial for minorities for three important reasons. First, an educated ethnic minority population might better understand important issues, such as the national government's family planning program. Second, education would help create effective communication between the state and these minorities regarding rural development policy. Third, education would enable ethnic minorities to interact with other groups in the new market system. The result of renewed educational efforts would be reduced birth rates, better use of environmentally sound farming practices, and utilization of developmental policies such as reforestation. The real challenge will be to find ethnic Vietnamese and ethnic minorities who are willing to teach in these mountain villages for an extended period of time. The government needs to encourage ethnic minorities to receive teachers training and return to their home villages afterwards. Such teachers speak the language of the village and understand the customs and culture. They could communicate the importance of education to the community. The implementation of a cultural understanding program discussed previously might also encourage more ethnic Vietnamese to work with minority groups, and perhaps the government could offer incentives (larger salary and health benefits) to those interested in working with ethnic minorities.

3. Special Commission on National Minorities

A. Terry Rambo observed that "[a]ssociated with the socialist penchant for central planning is a strong tendency to ignore or devalue local knowledge" (30). He continued by noting that policymakers, who are usually from the lowlands, design policies for the northern mountains that do not fit the circumstances. These policymakers base their policies on stereotypes and their own worldviews. There is also a tendency to classify ethnic minorities too broadly or too narrowly for any useful purpose. Classifications are too broad because differences within ethnic groups are not considered and too narrow because they do not serve any useful purpose for analyzing development at the regional level. (Rambo 6-7, 30)

The solution to this problem is the development of a special commission on national minorities that would serve as a governmental advisory group. The commission would be comprised of representatives from each of the 54 ethnic minority groups in Vietnam. It would serve as a forum for minority concerns and offer the central government concrete policy recommendations to best serve the interests of minority groups. The commission would also be responsible for providing feedback about government initiated programs. This would mean constant supervision of programs to determine which policies most benefit minority groups and which policies fail to live up to their purpose. Minority commission members would be in the best position to get truthful feedback since they speak the same language, understand the customs and are familiar with their constituents. The ultimate goal is the creation of trust between the national government and minority groups with special commission members acting as intermediaries in this process.

The special commission would coordinate closely with the State Nationalities Commission in the implementation and oversight of government policy. Clearly, the council would need to prove it can credibly deal with ethnic minority issues in a constructive manner. Credibility can be achieved by monopolizing information (i.e., the creation of experts), avoiding in-fighting, and offering balanced recommendations to the government. The long-term effect of the commission would be the efficient design and implementation of programs for ethnic minorities.

4. Vietnam Bank of Agriculture

Credit became very important for Vietnamese peasants following the decentralization of agriculture in the mid-1980s. Peasant farmers rely on credit in order to buy farm implements, seed, trees, and fertilizers. The Vietnamese government created the Vietnam Bank of Agriculture in response to demands for credit. The bank has the objective of providing short to medium term loans for individual farmers, private sector businesses and public institutions. The bank is well represented in the countryside with branches in 405 districts and 210 subdistricts. Collection of loans is also impressive with a 98 percent collection rate. Unfortunately, demands for loans exceeds the amount of money the bank has available. Only 10 percent of potential borrowers receive loans, and the average size of a loan is only US\$62. (Le and Sikor 41-42)

The government needs to redouble its efforts to attract public and private investment in this bank. More investments would enable the bank to offer more loans to rural farmers, including ethnic minorities. Ethnic minorities could receive loans for agricultural improvement and hopefully replace the need for swidden farming. Such loans would also promote long-term settlement patterns because farmers could maintain paddy fields through fertilizers and new farming techniques for extended periods of time and limit environmental damage such as deforestation, soil erosion and crop failure.

In conclusion, one of the dangers of *doi moi* is a fixation on short-term gains without consideration for long-term sustainability. This attitude can have devastating consequences for Vietnam as a country and for national minorities in particular. The Vietnamese government must recognize that population growth and unsustainable agricultural practices will leave northern mountain minorities in a vulnerable position. If steps are not taken to educate these people about the dangers of high fertility rates and environmentally unsound agricultural practices, then these ethnic minorities will eventually become a burden on the state as their resources disappear. Eventually, minority problems will affect Vietnam as a whole because population density, environmental hazards and increased welfare demands will have repercussions for the entire country. The Vietnamese government bears some responsibility for ensuring a healthy future for the country; however, ethnic minorities also need to realize that they must actively participate in finding a solution. They cannot expect to benefit from inaction; they need to design grassroots movements to help ethnic communities deal with changes in the environment, education and population. Only through efforts on both sides will Vietnam adapt to its changing environment.

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CHAPTER 12

Stuck in Transition: An Analysis of Change in Uganda

by
Christina Welter

Introduction: *My Ugandan Experience*

The following paper was inspired by my journey to Kampala, Uganda during the Summer of 1998. While I only visited Uganda for about a month, my experience was overwhelming and left me with lingering thoughts and questions about the transitions occurring in Uganda. During my stay, I worked on a HIV/AIDS Perinatal study that explores the use of pharmaceuticals to prevent vertical transmission of the virus. My primary role on this project was to revitalize a mother-loan program that in some ways, models the premise set up by the Grameen bank: the HIV/AIDS program loans study mothers money to help them start. Called Income Generating Activities (IGAs), these programs hope to help women to eventually become self-sufficient. To work on my project, I was fortunate enough to have transportation around the city of Kampala to visit other more well-established IGA organizations. Throughout my month stay, I was excited that organizations were finally trying to help developing nations learn how to improve their situations through skill and trade development rather than just donating money that would, as they say in Uganda, be a "hand-to-mouth" donation.

When I returned home to the U.S., however, I had other thoughts of what these programs really meant. What did it mean to give small amounts of money to women for them to start their own business? What did their families and husbands think? What does it mean to be self-sufficient in a country like Uganda that has an exponential debt? Will Uganda ever progress to an industrialized nation? What does progress mean, anyway? I began to realize that these small IGAs were only part of the picture. This paper is my attempt to understand Uganda's situation now, where it may go and how it will get there. This paper is my effort to explore these questions of why Uganda--while on the surface seems to be improving--may really be stuck in transition.

Stuck in Transition: *What does it mean?*

Uganda has experienced much change in the past several decades. Idi Amin's dictatorship ruined the countries' economy in the 1970s, but since Museveni's takeover in 1986, Uganda's economy improved from a decade of decline and loss to a current level of GDP growth at an estimated 6 percent (UN, 1990). UNICEF (1998) reports that the infant mortality rate (under 1 year of age), while it is still substantial, has fallen from 133/1000 in 1960 to 88/1000 in 1996. The population growth rate has slightly declined; Uganda now has access to the internet. Much change has and continues to occur in Uganda. However, despite the immense change that has occurred throughout the country, Uganda has much more work to do. It seems that

"Just over a decade ago Uganda was a country synonymous with corruption, tyranny and economic disaster. Today, it is one of sub-Saharan Africa's few success stories.....[however, as] remarkable as the transformation has been, the challenges facing the country remain enormous" (Oxfam International, 1996).

Uganda needs to improve the overall standard of living for all its citizens: sixty-percent of the country lives in poverty (Oxfam International, 1996).

The reports of improvement in Uganda are in many cases, indeed true. As I sorted through the data however, it seemed that the country faced challenges immense in size and complexity. Compounded with my experience this past summer, I began to question whether Uganda ever would progress to the status of the U.S. or other developed nations. I wondered how much Uganda could improve at all. In examining Uganda's economic, epidemiological, demographic, and educational systems, interfaced with Uganda's local and global political and cultural climate, Uganda's future seems limited. It could make changes to improve certain aspects of these sectors, but ultimately, something else inhibited Uganda from lunging forward in transition.

Uganda is stuck in transition. While some improvements have been made, internal and external circumstances may inhibit Uganda from escaping poverty and ever reaching an industrialized state. The point of this paper is to address how power dynamics prevent transitions from occurring. I am using the case of Uganda to demonstrate that in fact, local and

global power dynamics restrict growth. This holistic approach is indeed broad and difficult to describe. First, Uganda's people are at a state of constant cultural warfare. Before and after colonialization, clans fought for land and power. As this struggle continues today, it may prevent the unity that is necessary to improve the overall status of Uganda. Thirdly, global super powers exploitation and aid relief may keep Uganda from ever reaching a debt free state. Using ideas from World Systems Theory, I will argue that global inequality between countries prevents Uganda from ever reaching the status of an industrialized nation. Finally, Uganda is a post-colonial country and bears all the privileges and disadvantages thereof. While improvements have been made, the distribution of the wealth is unequal. The ex-patriot community (the upper class) benefits the most from these improvements.

This paper is structured in three parts. First, to gain an understanding of where Uganda stands today, I will begin by providing an overview of transition patterns in Uganda in economic, epidemiological, demographic, and education sectors. I will briefly describe the current situation and future projections, highlighting problems within each sector. Secondly, this paper will discuss the local and global powers that may inhibit Uganda from improving the status of living for all its people. In essence, it is these powers and inequalities that I see as hindering Uganda's future development. Finally, I have made an attempt to provide several policy changes that could be used as a catalyst for change in Uganda.

I. Uganda's Situation

Located in Sub-Saharan Africa, Uganda is a country in transition. Many sectors of the country have undergone some sort of transformation in the past decade. I have selected several of these sectors to highlight, reviewing the past, current and future condition of each. The purpose in mind is to measure the rate of progress, and in some cases to identify subtle problems with the data and projections.

Economic Transition

Since British Colonial Rule, Uganda has experienced many problems. The country came to symbolize all the disaster associated with developing countries (Hansen and Twaddle, 1988). After independence from Britain in the 1960s, Africans overall experienced an increase in income as they switched to service and market economy (Hanson and Twaddle, 1991). However, it was long until sub-Saharan Africa experienced considerable economic deterioration (Chikula, 1997). For Uganda, the brief period of progress did not last as export prices declined and civil war began. While the rise and fall of the Ugandan economy could be attributed to many things, the most significant contribution is likely that of a person the most infamous for his extreme violations of human rights, Idi Amin. Amin destroyed the Uganda economy in several ways. He took charge of Uganda by physical, political and social force in 1971. Amin's most significant contribution to Uganda's economic plight occurred when Amin destroyed the long-standing relationship with the Indian community (which had existed since 1500 AD). In 1972, he ordered the expulsion of Uganda's more than 70,000 Asians. Indians were perceived to have controlled much of agriculture and commercial business activity in Uganda. Upon their forced departure, the economy quickly fell. This order resulted in capital shortages, low inventories, incompetence, and restrictive import policies. Ugandans faced shortages of basic commodities such as sugar, soap, bread, milk and salt. Expulsion of Asians also crippled Uganda's administrative infrastructure.

Besides forcing the main economic contributors in Uganda to leave, Amin's dictatorship caused constant battles which disabled Uganda's citizens; they could not focus their energy on agricultural production. By his first year in office, Amin security forces had killed approximately 10,000 Ugandan people (Ofcansky, 1996). Death and economic despair caused a demoralization of the country and a likely lack of desire and opportunity to contribute effort toward the economy. These factors combined snowballed into an overall impoverishment of the country. Amin was thrown out of his own dictatorship in 1979.

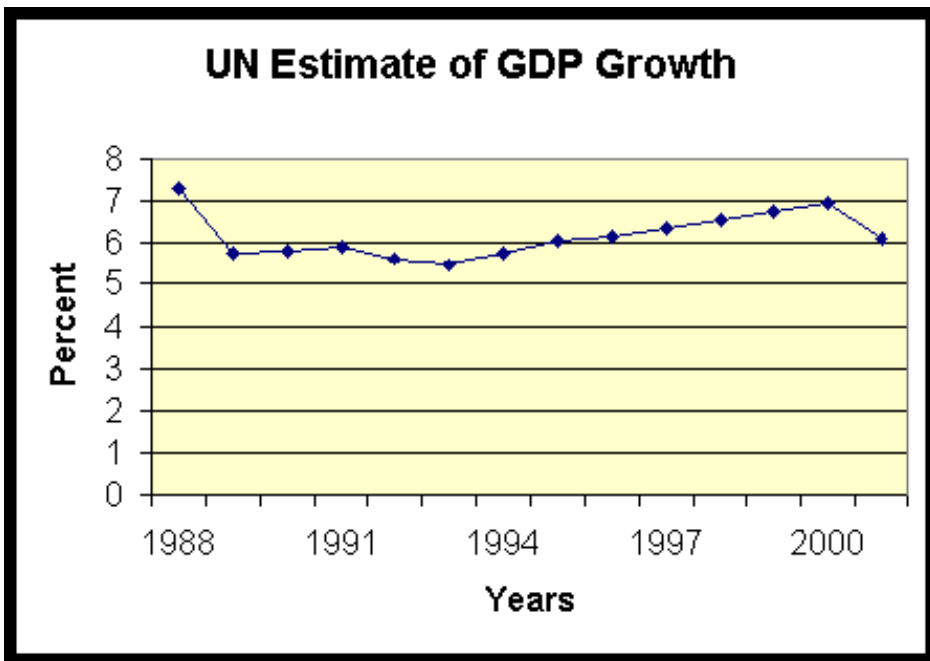
Post-Amin governments failed too, causing famine, political violence, and accelerating infractions. One author states about this post-Amin and high inflation period that "human rights violations were by now so widespread that many local people were saying there had been fewer under Amin" (Hansen and Twaddle, 1988). Finally, in 1986 Museveni's guerrillas (the National Resistance Movement) successfully stormed into Kampala and installed the government that still rules today. Today, Uganda is a country that 'enjoys' a moderate level of peace relative to past disruption of the 70's and 80's civil war, with only a moderate level of guerrilla war-fare in the North and Far West.

Improvements

Idi Amin and the post-Amin years left Museveni with one of the poorest countries of the world. The economy had sunk 42% below its level in 1970 while the government expenditure, exports and investment had all fallen to below 10 percent of the GDP. While Museveni began ruling Uganda by force, he was officially elected as the president of the country in 1996 by the first popular election since independence in 1962 (CIA Internet Publications, 1997). Researchers and Ugandans retain hope that Museveni can help to revive and develop Uganda.

After economic despair that lasted over 20 years, improvements have been made. UNICEF (1998) reports that from the time period of 1965-1980, Uganda had a -2.5 percent GNP growth rate while from the 1985-1995 time period, its growth rate improved to +2.7 percent. Table II shows the UN estimate of GDP growth that suggests Uganda will maintain about a 6% growth rate throughout the decade.

Table I.

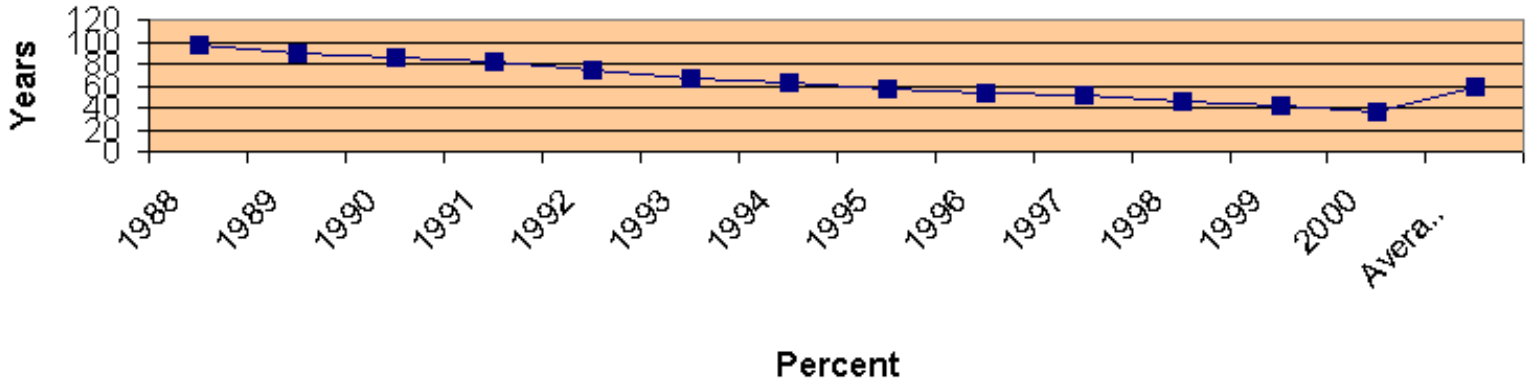


Agriculture is the most important sector of the economy, employing over 80 percent of the work force (The World Bank, 1997). Agriculture comprises 55% of the GDP with industry at 12% and services at 33%. Agriculture products include coffee, tea, cotton, tobacco, cassava, potatoes, corn, millet, pulses, beef, goat meat, milk and poultry.

Uganda’s major export is coffee (Uganda UN Document, 1990; The World Bank Group, 1997). While the volume of coffee exports increased by 25 percent between 1986 and 1989, the international coffee prices fell, reducing the value of the exports from \$US 397 million in 1986 to \$US 100 million during the fiscal year 1989/90. As represented in the table below the UN Estimate of Coffee as percent of total exports is not projected to increase, but instead fall throughout the decade.

Table II.

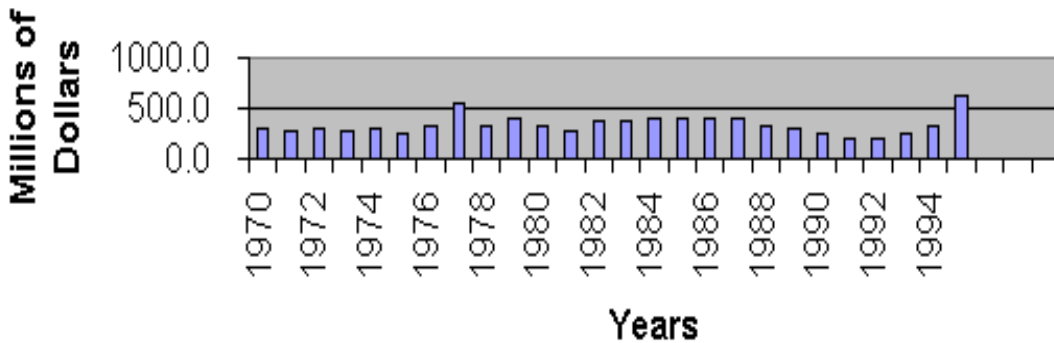
UN Estimate of Coffee as % total exports



The World Bank (1997) suggests that this decline is due to Uganda coffee growers who have responded to economic reforms by 1) regaining the positions of the largest coffee grower in the continent; 2) revitalizing the tea industry; 3) the emergence of a small horticulture industry; and 4) growing maize exports to Kenya. Other exports include gold, cotton, coffee, tea, corn and fish. Overall, the UN also estimates that Uganda’s export growth rate will increase in the next decade.

Table III.

Exports Ugandan Goods in Millions of US Dollars



Problems

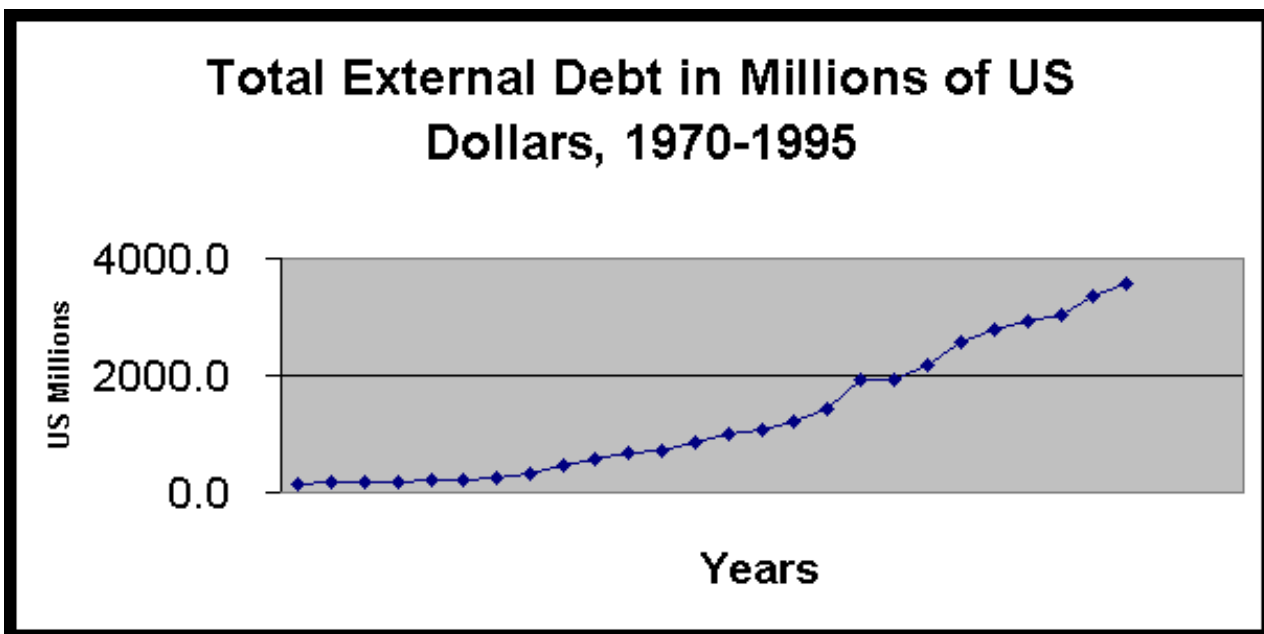
While economic projections look promising, there are at least two main problems. Museveni has done much to improve the state of Uganda, while its debt to other countries is immense; it will take years for Uganda to be economically independent. Oxfam International (1996) suggests that debt service payments for 1996 will amount to \$184 million, or more than one third of the government’s revenue. Overall, as the most recent available figure, in 1995 Uganda’s total external debt is about \$3.4 billion (CIA internet source, 1997).

Uganda is currently supported by many external organizations, including the World Bank, UNICEF, United Nations Children’s Fund and the Paris Club. These supporters have continued to attempt to reduce debt and have implemented strategies for insuring that debt relief funds get to those who most need it. For example, the World Bank’s program would require that its money meet target budget spending on primary health, basic education, and

other priority areas (Oxfam International, 1996). This program, called the International Monetary Fund (IMF), would attempt to increase the amount of debt relief provided in Uganda by 23%. This program would pressure the Ugandan government to "live within its means by balancing its budget, controlling wasteful expenditures and presumably generating enough foreign exchange to repay its 'development' loan debts" (Obbo, 1991). The World Bank Group's private sector lending arm called the International Finance Corporations (IFC) would help to rehabilitate existing assets, infrastructure, agribusiness and tourism. In addition, another World Bank Group called the Multilateral Investment Guarantee Agency would help to guarantee investment in the mining, manufacturing, telecommunications and agribusiness sectors. Attention would also be given to address issues of clean water, primary school, latrines, basic health care, and vaccination. While these World Bank programs sound promising, criticisms exist.

One criticism of the IMF program suggests that when it was first proposed (late 80's, early 90's), Uganda could not wait for its lengthy installation while "just over 60 percent of Uganda's population--between eleven and thirteen million people are poor" (Oxfam International, 1996). In addition, there is no guarantee that this program will be any different from others; the debt relief may only add to the immense amount of the money that Uganda already owes. In fact, World Resource Data (1996-1997) projects the total debt service to sky-rocket by the end of this decade.

Table IV.



Other criticisms of debt relief programs suggest that there is an unfair and unequal distribution of money throughout Uganda (Mugenyi, 1991). Even though the World Bank would attempt to insure the money went toward the appropriate sectors, how could it really know Uganda followed the predetermined restrictions? What sort of punishment would be instituted if Uganda failed to comply? The country's people would only be punished further if a monetary fine was instituted. There is also no set timeline for when the money is to be paid back, or for that matter, when Uganda would have to begin instituting changes. In addition, there is no guarantee that donors will continue to provide funds at current levels so that if Uganda needs another installment of money, who will provide the funds? Researchers suggest that this project discourages domestic and foreign investment (Nabudere, 1988). Instead, the debt relief program seems to encourage a dependency relationship between Uganda and the World Bank. Lastly, Obbo (1991) disagrees with the IMF and other Structural Adjustment Programmes (SAP). The author states that these programs fail to include monetary relief in the informal sectors of Uganda, which are run predominately by women. Her concerns and others will be discussed in the policy portion later in the paper.

Uganda has at least one other significant problem. While Agriculture productions have improved significantly over the past decade, this sector makes up the majority of the GDP (55%), the majority of the workforce (86%), and the majority of the exports (99%) (UOL communications, 1997). The reliance on agriculture creates at least two problems. First, Uganda is currently dependent on its environment, and specifically its land, for production and growth. It has been able to increase

its production because land is still viable and available. The country has not had to deal with national environmental disasters or as of yet, issues of over use. However, according to an internet source (UOL communications), current environmental issues in Uganda include draining of the wetlands for agricultural use, deforestation, overgrazing, soil erosion and poaching. It cannot be long before Uganda overuses and abuses its environment unless change occurs quickly.

Reliance on agricultural may cause not only land overuse, but upon this occurring or if a major disaster does take place, Uganda will lose its primary employment source. Currently, 86% of people rely on agriculture for income. Uganda needs to find ways to diversify its income producing sector. This will not only save the land but it will also save the people from further impoverishment. Policy suggestions for this issue are below.

Measures of Health

Indicators of Uganda's health status are still far from adequate. However, improvements have been made in the past several decades. For example, UNICEF (1998) reports that in 1960, Uganda's Infant Mortality Rate was 133 deaths per 1,000 births. Today the IMR is 88 deaths per 1,000 births. As the following world-wide map of IMR demonstrates, certainly Uganda's IMF is far from the lowest in the World.

[Link to Map 1](#)

Uganda's under-five mortality rankings are again, far from auspicious. Uganda is ranked 30th out of 189 countries for the highest under-five mortality rate. However, from the year 1960 the under-5 mortality rate was 224/1000 to 1980 at 180/1000 deaths and to 1996 at 141/1000, Uganda has made attempts to decrease deaths of 5 year-old children.

Despite improvements, ostensibly Uganda has a lot of work to do in order to improve its standard of health and living. Uganda is still one of the poorest countries in the world, as demonstrated by health indicators. For example, Oxfam International (1996) reports that maternal mortality rates are between 550 and 1,000 death for every 100,000 births. Women living in Kampala are 20 times more likely to die than a woman in Europe or North American; women living in rural areas have a maternal mortality of sixty times that of women in developed countries. Few people live past the age of 50, and in fact the life expectancy is one of the lowest in the world, at 47 for men and 50 for women (Oxfam International, 1996).

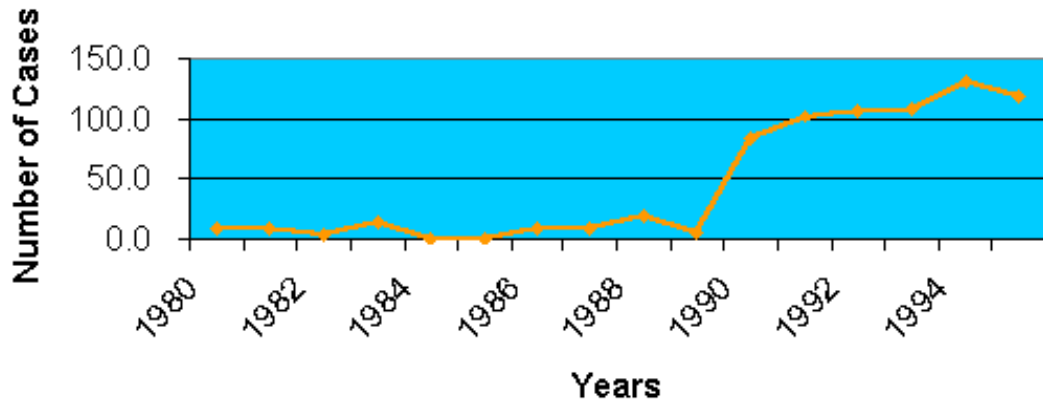
Uganda is also still plagued with many infectious diseases. UNICEF (1998) reports that while 96 percent of 1 year-old children are immunized against Tuberculosis, only 68 percent are immunized again Diphtheria, Polio and Tetanus, 67 percent are immunized against polio, and 66 percent are immunized again measles (although data on immunizations is often unreliable since it is difficult to keep up-to-date records).

Most of the major causes of death in Uganda are preventable. Malaria is the main killer among adults who are admitted to the hospital, also accounting for almost a third of deaths among 2-4 year olds. Measles, diarrhea, respiratory infections, malnutrition and Guinea Worm infestations are all common causes of illness and death. Access to sanitary water and facilities is also poor. UNICEF (1998) reports that in urban areas, 77 percent of the people have access to clean water where as in rural areas, 41 percent have access. In some rural areas, less than one in four people can access to clean water (Oxfam International, 1996).

One of the biggest epidemiological changes in Uganda in past decades has been the AIDS epidemic. AIDS affects many of whom live in Uganda in some way or another. While the prevalence of HIV has decreased to a small degree, from 30 percent of all pregnant women in Kampala to about 20 percent (Guay, 1998), the social and economic effects of the virus are widespread. Overall, about 1.5 million people are infected with HIV in Uganda (CIA internet source, 1997). In addition, AIDS - related disease, like Tuberculosis, are also on the rise. Table V demonstrates the increase of TB cases.

Table V.

Turberculosis Rate in Uganda, 1980-1995



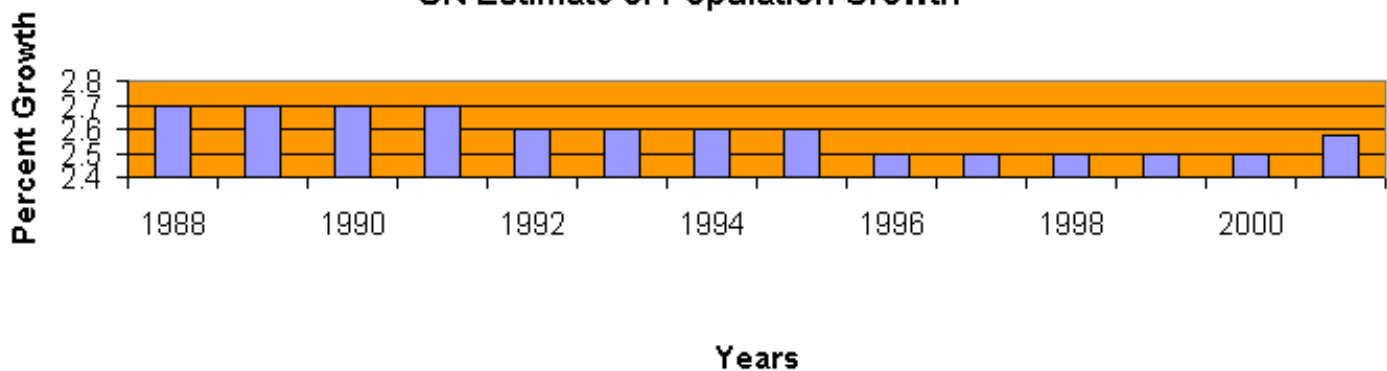
Uganda has undergone some changes in the past several decades to improve the countries' health status. However, it does not have money or resources to address the incredible depth of its problems. In addition, many diseases are linked to health behaviors that without social and cultural change, would be hard to alter.

Demographics

Uganda's total population, based on 1997 estimates, is 20,604,874 (CIA internet source, 1997). There are 45.08 births and 20.98 deaths per 1,000 people. Ninety-eight percent of the population is under the age of 64 while 50 percent are under the age of 14 (CIA internet source, 1997). Uganda's growth rate is light decreasing. Table VI demonstrates the UN estimate of population growth decline.

Table VI.

UN Estimate of Population Growth



UNICEF data also suggests that the population annual growth rate for 1965-1980 was 3.3%, for 1980-1996 it was lowered to 2.7 %.

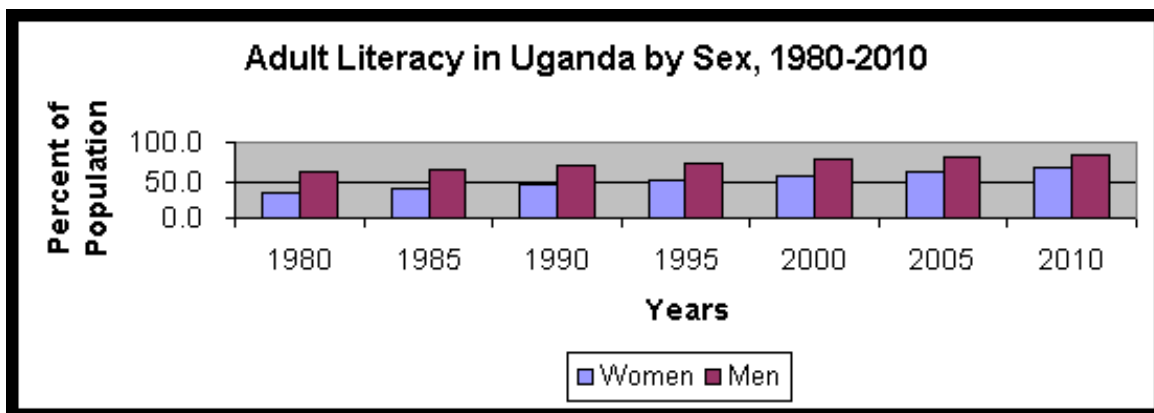
It is difficult to know why the population growth rate has decreased, or how to interpret the possible subsequent effects of such a decline. For example, the fertility rate-- according to UNICEF data-- has in fact slightly increased. From 1960, the fertility rate has increased slightly from 6.9 to 7.1 in 1996. I would like to think that this decrease in overall growth is a positive sign suggesting that in many years, Uganda can better deal with its problem for a group of people smaller than other projections show. However, the growth decrease suggested is small. In addition, the root explanation may include the number of deaths attributable to AIDS. These problems are difficult to interpret and while projections are promising, Uganda must deal with its population problems today.

Education:

During the colonial period, the British instituted a 4-tier model of private education: 7 years of primary education, 4 years of high school, 2 years of higher education, and a tertiary Institution (2-3 years for a diploma). Education is a privilege in Uganda that many citizens cannot afford. The government, while it acknowledges the need to put money into its schools, has too many constraints to fund all children's schooling. By the year 2000, the Ugandan Government plans to achieve universal primary education by the year 2000 for all 6-10 year olds. However, in the mean time, education is funded by outside supporters and parents. In 1992-3 school year, 1/3 of all children between the ages of 6-12 were not enrolled in school (Oxfam International, 1996). In addition, 10 percent of those who do enroll in primary school drop out. Gender disparities also exist in who actually attends school. One study found that of the 257 children who dropped out during 1992-1993, 70 percent were girls (Oxfam International, 1996)

Literacy in Uganda is surprising high for a developing nation. Defined as those persons age 15 and over who can read and write, 61.8 percent of the total population in Uganda are literate. Of these estimates, gender differences exist as well. Table VII demonstrates these differences according to World Resources Data.

Table VII.



While this data looks promising, there are questions about what it means to be literate in Uganda. Meaning, the data represented here does not clearly explain what its definition of literate requires and to what extent individuals must know how to read and what to be declared literate.

Review

Certainly Uganda has made some improvement in its overall standard of living. Overwhelmingly, however, Uganda and its supports have much work to do. It may be that in many years, Uganda can overcome its troubles. However, as I have demonstrated in a few instances above, reform is still needed.

II. Local and Global Power Dynamics: *the political economy of Uganda*

Development theorists and political economists argue that Uganda may need more than monetary relief in order to get past its problems of poverty. Furthermore, Uganda may be unable to progress because of its social, political and cultural climate. It is stuck in the political economy of internal and external conflict. In at least three ways, Uganda must overcome local and global power dynamics in order to break free from poverty and move forward on a path of development.

Internal unrest: political and cultural disruption

Uganda has been and continues to be a country that is politically and culturally unstable. Even before Uganda existed as a country with boundary lines, the pre-colonial era was a time of cultural clan revolts and uprisings. Three major clan groups fought for control over land and power of the area now called Uganda. In 1890, the Buganda-- the clan in which Uganda is named after-- signed a treaty with the British (Ofcansky, 1996). With this treaty, the Bugandan's agreed to "acknowledge British sovereignty over their kingdom by agreeing to collect and pay taxes to the colonial administration. In exchange, the British preserved Buganda's traditional ruling hierarchy." In particular, this agreement between the Bugandans and the British gave the Bugandans a 'special status' which promoted them as the dominating and ruling clan in the eyes of the protectorate. However, this feeling of Bugandan superiority was not met with acceptance of other clan groups. This unrest between cultural groups and clans still exists; resentment over this treaty and other issues has created a political and cultural climate of unrest.

The current post-colonial world is still one of a multi-cultural and multi-lingual society that continually fails to join forces. Instead, cultural groups fight against each other. Hansen and Twaddle (1988) state that pre-colonial Uganda was "an amalgam of a number of people occupying a particular section of the East African interior and following widely differing political practices at the time of the European colonial patrician at the end of the nineteenth century." These differences exist today but besides cultural and power battles, the people who make up Uganda also have major linguistic differences. Today, Uganda consists of 4 major religions and at least 12 different ethnic groups with specific linguistic differences. With English as the official language, Lugandan, Swahili, Bantu languages (many of which have unique linguistics varying by clan and geographical locations), and Nilotic languages are also spoken.

The impact of cultural hatred and conflict, compounded with complex language barriers, provides one significant explanation for Uganda's inability to recover from economic and social crisis. Some researchers are concerned that this ethnic hatred will keep Uganda from improving (e.g. Southall, 1988; Nabudere, 1988). They wonder how Uganda will ever improve if ethnic hatred prevents the ability to tackle the international and super power economic constraints impinging upon Uganda and other African countries. Moreover, if Uganda cannot resolve the major cultural disparities within its own country, it may never be able to resolve its problems with poverty.

The constant conflict also leaves Uganda in a state of unrest that provides an open window for destruction and dictatorship. One author states that "it is clear that Uganda's economic and social development has been seriously affected by the prevalence of dictatorships in the country" (Nabudere, 1988). Idi Amin was one unfortunate example of how rebel groups have taken over and caused much destruction throughout the country. Amin's atrocious acts will plague the country of Uganda for years to come.

The past decade passed with relative stability (as compared to previous decades) with few exceptions, providing some hope for cultural resolution in the future. However, rebel groups in the Western and Northern parts of Uganda are still active in causing unrest. During my month stay, a boarding school in the western area of Uganda was burned. Most of the children inside died while approximately 100 children were abducted for use of the rebel group. In addition, the month before my arrival to Uganda, two bombs had exploded in downtown Kampala. Conflict between cultural groups in Uganda may never cease as most countries of the world live with racism and inequality. But before Uganda can move forward with stability, some tension must be resolved.

World -wide inequality

Uganda's economic and overall situation seems to be improving at slow rate of change. The question remains is whether the change is enough to relieve Uganda's people of an impoverished state. Mealow et al. (1992) suggest that "most economic growth takes place in the already industrialized countries." There are several theories that suggest the interrelationship between countries provides a dynamic that disallows developing or third world nations from ever really reaching an industrialized and poverty-reduced state. Development theorists suggest that there are "deep structural factors might prevent economic progress, and more important that the very international context of modernization might itself be an obstacle" (Chirot and Hall, 1982). In order to understand the status of one country, it is important to understand its relationship to others. For that reason, development theorists have long attempted to explain the disparities between countries around the world (e.g. Wallerstein, 1979; Ward).

To better explain the exploitive relationship between countries, Immanuel Wallerstien developed World Systems

Theory. World Systems Theory provides a basis for suggesting that power dynamics and economic dependency does exist between societies. As such, these exploitive politics keep some of the currently so-called developing countries from further developing.

Wallerstein observed that the world-economy had developed into a hegemonic, capitalist order. Core industrialized nations use military and political power to keep exploitive systems in place, forcing peripheral nation-states (developing countries) to provide raw material and sometimes cheap labor power/peripheral colonies (Ward). The developing, periphery nations work for the core nations in such a way that the workers are paid for their work. This is a seemingly equal relationship in that a fee is provided for a service, but one in which none of the labor goes toward development of the country; instead the labor helps to produce commodities for sale and profit in core nation. A socioeconomic relationship developed such that a dependent development and debt dependency was created between First World and Third World nations. Eventually, with the growth of the informal economy, periphery nations are unable to develop research and electronic resources that currently rule the market economy for a huge profit. More specifically stated, "economic dependency led to great inequalities" (Moghadam, 1995).

World system theory recognizes an international conflict in Marxist terms. It is describe that the relationship between "core nations as upper class with periphery as an exploited working class and the semi-periphery a middle class/ bourgeoisie and proletariat are world-wide classes that do not operate merely within state boundaries" (Ward). Thus, World Systems Theory helps to explain why developing nations will not 'progress' or modernize in a standardized fashion. In addition, it can help explain why developing nations may have their own transition patterns rather than experiencing the path of Western Development.

Political economists agree that this economic relationship exists between Uganda and First World Nations and corporations. For example, Nabudere (1988) states that while the IMF (discussed briefly above) was praised for helping Uganda in its "Recovery Programme" while

"in fact the stabilization measures imposed by the IMF contributed to the increased exploitation not only of the peasant and worker but also of the middle class which was increasingly wiped out. The harshness of these neocolonial policies was indeed the expression of the crisis of development in the country, and indeed of the crisis of the entire political systems."

Furthermore, Nabudere (1988) states that foreign aid only increased Uganda's dependency on other countries, failing to strengthen the country. Advocates of Uganda agree that the "world capitalist system is essentially exploitive and in fact initiates a process of class formation whereby local collaborators emerged to sustain the continuance of external exploitation and internal dependency by allying with foreign economic interests" (Hansen and Twaddle, 1988).

These arguments strengthen the criticism of the World Bank's IMF plan to help reduce poverty in Uganda. These debt relief programs seems to only increase Uganda's dependency on other nations. In addition, the presence of the international market and specifically Multinational Corporations, exploit the smallholders (peasant workers) to grow and create exports at low cost, benefiting the MNC at a higher selling price. Global and external power dynamics may keep Uganda from development and recovery to the extent at which Uganda will never surpass the super powers of the world.

A post-colonial nation

In the above discussion, it is implied that Uganda's colonial and neocolonial state contributes to Uganda's situation today. The presence of the British and other European powers only adds to cultural hostility between Ugandans and the Europeans, while simultaneously the British favoritism for the Bugandans only added to the cultural hostility between Ugandan cultural groups. Few authors talk specifically about the continued presence of the ex-patriot community, defined in my terms as all those persons living or visiting Uganda who are not African and/or indigenous to the area. While the post-colonial experience implicitly includes the physical presence of ex-patriots, I was unable to find literature describing the actual impact of this relationship. I see the impact as profoundly affecting the Ugandan state. Ex-patriots are predominately the most wealthy people in the country. The ex-patriot presence mimics the global inequality such that the wealthy bourgeoisie control much of the good, materials and services and any improvements thereof while the proletariat--the Ugandan-- receives little benefits. I have little doubt that the ex-patriots drive the need for technology and are the largest consumer group of these products. While some Ugandans have incomes close to that of the ex-patriots,

the majority of Ugandan's subsist at an income level far below. I am unsure whether the ex-patriots' presence helps to modernize Uganda, encouraging the country to become more technologically sound, or if in fact the ex-patriots drive the need for certain Western pleasures that then only Westerners benefit from.

Regardless, a dichotomy exists between Ugandans who are mostly not technologically focused, versus the ex-patriot community who thrives off of Western ways of living. It is almost as if Uganda consists of two states, one technological and the other not. In fact, it seems that "...Third World nations [can be seen] as 'dual societies', having two separate and technologically unequal spheres of production--one industrial, the other not" (Holzberg and Giovanni, 1998). There is a partial process of modernization such that Uganda is indeed "stuck" in transition between extreme poverty (mostly Ugandan's) and extreme wealth (mostly expatriots).

The physical presence of the ex-patriot community living in Uganda's post-colonial world creates many questions. Who are the improvement that have been made in Uganda and more specifically, who is benefiting from the progress? This presence and relationships needs further study and understanding.

Stuck in Transition?

The debate of the true cause of Uganda's plight continues. As I have discussed, some argue that external factors are to blame--such as global economic exploitation of Uganda-- while others suggest that Uganda's internal crises and cultural clashes are the root cause of poverty and disagreement. I am adding another dimension to the discussion by suggesting that the presence of the ex-patriot community causes an unequal distribution of power and material goods, which consequently only worsens the class and cultural split. Perhaps rather than attributing Uganda's status to one singular cause, Uganda is stuck in transition because of all of these reasons.

III. Policy and Program implications

Uganda is in dire need of program and policy solutions to help address the immediate needs of its population. I do not have enough experience with development literature and ideas to suggest real policy and program implications. However, my one-month experience and research for this paper has given me insight into a few basic ideas about how Uganda can change. I will give a few ideas for change based on others suggestions.

Agricultural Changes

Uganda needs to find a way to produce enough food for its people and for exports without overuse of its land and services. As stated above, Uganda currently relies on agriculture for profit. Agriculture comprises 55% of the GDP while it is over 99% of the GNP while the majority of the working population (86%) are employed in the agricultural sector (UOL communications, 1997). Besides the reliance on agricultural output for income, Uganda is overusing its land in order to meet demand. Moreover, Uganda's reliance on agriculture is risky; it does not provide Uganda with enough profit to become self-sufficient and eventually break away from its dependency on foreign aid. Policy and programs are needed to begin agricultural reform.

There are at least three ways in which Uganda can improve its agricultural system. First, Rondinelli (1979) focuses on agricultural reform at a local level. He suggests that new goals for the agricultural sector in countries like Uganda should be to increase agricultural output and productivity (to provide for basic food needs and incomes of the poor). Uganda has already begun to do this with consequences of land-overuse. Next, Rondinelli (1979) suggests that stimulating agro-processing, agri-business, and related rural industries would help to diversify local economics, employment, demand for domestically produced goods. Uganda needs to not only diversify its agricultural output by decreasing coffee output (as coffee is the major export) and by finding other sources of viable and sellable produce, but Uganda also needs to move away from the agricultural sector as the primary source of income altogether. Of course, this suggestion is more easily said than done.

As Uganda seeks more ways to improve its situation, it will need a way to predict how well new agricultural programs work. Uganda is in need of a way to determine the supply and demand need of its population and of its industries, while also calculating the limits of its environment. Researchers are continuing to attempt to predict such patterns in the

population-environment dynamic (Drake, 1993; Arlinghaus, YEAR; Mealow et al., 1992). For example, Mealow et al. (1992), in their book *Beyond the Limits*, look at "the long-term implications of the present rates of change in the human society." To do so, they use standard scientific and economic theory about the global system, statistical information on the world's resources and environment and a computer model to help to integrate this information. Finally, these authors take a system view-point "to see the world as a set of unfolding dynamic behavior patterns ... to focus on interconnections." These researchers use both theory and computers to model the current and past environment interactions in order to predict future change and intervention. It is this holistic perspective on the population-environment dynamic that Uganda needs. Unfortunately, it is unlikely that Uganda can afford the computer technology or human services it would take to analyze its systems. Change would certainly have to begin at a small level, and move forward project by project.

Secondly, to help stimulate agro-business and begin the diversification process, Uganda needs to improve its overall standard of living. Rondinelli (1979) suggests that increased access of the rural poor to social services, facilities, technologies and infrastructure would help improve health, nutrition, literacy and family planning. As Rondinelli (1979) warns however, "most governments in developing countries have been unwilling or unable to create the decentralized institutional structure that seems essential to meet the needs of the rural poor." In addition, he states that because rural development fails before the political commitment can even change such that the administrative structure and coordinate capacity are inadequate for an expansion in economic activity. Rondinelli's (1979) comments paint a hopeless picture of what can be done to institute change. However, Uganda's political situation is perhaps better off than other developing countries. While certainly the country experiences political unrest inside and outside the country (as neighboring countries are also struggling in their political endeavors), Museveni has been in power for over a decade and has maintained a decent level of power throughout the country. In addition, Uganda --on some level-- already localizes its services as NGOs continually focus their efforts on the rural poor of country. These relationships could be developed further and used as pilot sites for an agricultural reform project as describe above. Agricultural reform is not unlinked to other reforms needed throughout the country. In addition, there is no guarantee that if Uganda can begin to increase access to services for its local communities and begin to diversify its exports and local domestic products to increase profit, then Uganda can improve as an overall country. Uganda is still dependent on outside aid to even have enough money to make change.

Gender Reform

Internationally, gender inequality overwhelming. Uganda is no exception as a patriarchal country where men are favored in the political, economic and social realm. Research demonstrates that overall, Ugandan women and girls suffer at the consequence of men in many ways (e.g. UNICEF, 1998; Obbo; Oxfam international, 1996). For example, women are less likely to have the opportunity to attend school (with a higher male enrollment and a higher female drop-out rate), and "women and girl children are especially prone to malnutrition and vitamin deficiency, indicating household food allocation patterns favoring men and boys" (Oxfam International, 1996). In another example, women are particularly susceptible to AIDS, especially where sexually transmitted infections--such as syphilis- are not treated and cured (Caldwell and Caldwell, 1993). In addition, women's young age at marriage, the large age difference between spouses, the frequency of polygamy, the unequal work burden between the sexes, the high bride price and the low education level of women all combine to perpetuate the low status of women (Boserup, 1982).

Blumberg et al. (1995) explore the gendered nature of economic, technological and global change. They suggest there is a need to examine the gendered relationships through these changes to carefully examine the power relationships and roles that men and women play throughout the transition to modernization. For example:

"Even in societies where sex discrimination is illegal, women have been barred from some jobs because of real or alleged risks to their reproductive functions. At the same time, in most societies--socialist as well as capitalist--women workers remain responsible for unpaid domestic sphere activities which, among other things, serves to reproduce labor power....women industrial workers are often doubly exploited" (Holzberg and Giovanni, 1998).

Brumberg et al. (1995) emphasize that by looking that micro level issues we can uncover gender inequality on a world-wide scale. For instance, Moghadam (1995) states that "the driving force of the world system not only hinges on class and regional differences, it is also a gendered process." Brumberg et al. (1995) also discuss how in order to gain access to foreign markets, capital, and technology, developing countries must depend on multi-national corporations (MNC).

These corporations seek out cheap, unskilled labor in the informal sector to do their work. Women make-up the majority of the informal labor sector. The MNC give orders to those person in charge of the labor units, mainly men, even though women do most the hard labor (Blumberg et al., 1995). Gender and women advocates can push for MNCs to pay attention to micro-level gender dynamics.

By placing gender at the core of redevelopment and placing women at the front of economic revival, Uganda and other developing countries may revive themselves. For instance, reviews how the Grameen Bank supports women by giving them loans to become self-sufficient. This project as a very high percent success rate. Similarly, Mealow et al. (1992) suggests that "with enough investment sustained for a long enough time, with fair pricing for products and fair market conditions, with increased output allocated to the poor and especially to the education and employment of women, a population can life itself out of poverty" (1992).

Gender reform implies a societal need to eliminate gender inequality. This suggestion is an idealistic one and far too large of a problem to address in this paper. While ultimately it is needed, I cannot suggest that Uganda 'simply' reform is ideologies on gender equality in order to move forward. On the other hand, many sectors in Uganda that were reviewed in this paper exclude the acknowledgment of women's participation. On many levels Uganda still needs to begin to include women in its policy and program considerations and allowing them to participate at an equally powerful level. Furthermore, when I say that Uganda is in need of gender reform, I am insisting that overall, "the successful implementation of political decision aimed at solving societal problems depends upon the co-operation of women" (Obbo).

One reason I see Uganda as 'stuck in transition' is because it fails to equally incorporate women into the economic sphere. One way Uganda could begin to eliminate this inequality is to give women equal human and economic rights. For example, Uganda could focus its efforts on insuring that all children, girls and boys, attend school and learn to read and write. Currently, boys attend school at all levels in greater numbers of girls (UNICEF, 1998). Uganda does not currently have the money to institute such a policy, although it could require all schools to insist on an equal gender representation. Uganda could also give women economic rights to land and business (rights that women currently do not have).

Uganda is attempting to put women first. A new wave of programs in Uganda focus on women's self-sufficiency, modeling the Grameen Bank program. These Income Generating Activities (IGAs) seek to give groups of women loans to manage collectively by choosing to start a business together or give out loans individually. The collateral for many of these loans are the relationships between the women themselves.

However the success of these programs is debatable. Women already contribute 100 percent of their earning to the household, while men keep a substantial amount for their personal consumption (Ward). In addition, Ward states that many women enter the informal sector for household survival while men may enter to boost their wages relative to the formal sector. If women do enter the formal sector, they are often are the bottom of subcontracting.

One way for women to earn money is through agriculture means. But even here, women are disadvantaged. Even when women have access to land to cultivate, their economic position has often deteriorated. Producing a surplus of food for sale has become more difficult as family size has increased and with increases in village population, women must go farther to cultivate land (Boserup, 1982). Women are also restricted in economic development. They have difficulty in obtaining credit because they do not have land or independent legal status. Adult men can leave the village in large numbers for seasonal work but some leave for several years at a time. A man does not forfeit his right to land through emigration (Boserup). Uganda needs to insure that women have the right to own land and run their own business to earn money and subsistence for their families. In order for the country as a whole to survive, Uganda needs to give women equal rights.

How can gender be used to help development? This is a question I cannot answer but rather work toward and acknowledge in my work. Giving women autonomy and economic independence is certainly a step forward, but attention need to be given toward how this independence affects men and women's relationship. Until men and women live on equal ground, women will fight for their rights as human beings.

V. Conclusion

The relationship between population and the environment is clearly a complicated one. Many factors moderate how

these variables interact. This paper is an effort toward an enhanced understanding of global and local transitions and how these transitions are affected by the interrelationship of power, the environment and the population. Uganda is an example of a country that is stuck in-between this interrelationship. Perhaps my return trip will bring a more equal world and country.

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CHAPTER 13

Demographic Transitions and Equitable Water-Use in the Reconquista River Basin, Province of Buenos Aires ([Argentina](#))

by

Moirra Zellner

INTRODUCTION

From the origins of human communities, the first waterworks responded, in most cases, to evident and immediate needs of the population and its economy. They were therefore small projects for satisfaction of drink and hygiene, irrigation, energy, navigation, flood attenuation, conceived and exploited in many cases independently from one another. In that context, water demand was very low compared to the supply. Water was a natural gift, a renewable resource of infinite availability and, therefore, human populations assumed that it should be free (Capurro et al, in preparation). The growth of demand (due to increase in number of users and units of consumption) determined the increase of size of such waterworks, the consequent appearance of interference and interaction with the hydrological cycle - scarcity- and a competition between sectors of users.

In addition, the quality of both superficial and underground water resources started to deteriorate, as a consequence of human activity, especially in big urban concentrations. Many watercourses were not fit for any type of usage, generating infested and degraded areas in the surroundings. The response to these processes was a change in the conception of water as a natural gift, a limitless renewable resource. Water has ceased being an entirely renewable resource (its supply has decreased in time).

From the 1,400 million cubic kilometers of water in the world, only 1% is in the hydrologic cycle, of which half is in lakes, and rivers. Even so, there is more than enough water to cover current and future demand. The problem is that it tends not to be where it is needed, or it is of poor quality.

The amount of water used at the community level depends on various factors. Among them, we find climate (more water is needed in arid areas compared to humid areas), and socio-economic levels of the population. But mainly, water demand depends on its availability. People adapt to available volumes of water, so it could be stated that the greater the volume supplied, the greater its consumption level. Another important factor that affects water demand is existing service infrastructure, i.e. piping systems, treatment, storage and distribution. The policies implemented by the authorities can also be used to regulate water use. Those related to consumption records and prices are probably those that affect demand the most. Finally, the efficiency of technology to extract and use water can affect its demand. Better technologies would allow a greater availability of water, both for urban and agricultural use (Capurro et al, in preparation).

One of the most important problems in designing water strategies is related to water assignment policies and establishing priorities for different uses. The most common policy of price fixation is a canon mainly conceived to recover costs. This type of uniform price is not fixed as a function of the volume used, and is widely criticized because it lacks incentives to control water usage.

An important cost of water supply relates to its conduction from the place of production to place of consumption. Consequently, the nearer a water source is to a city, the more attractive it will be as exploitable resource. Generally, urban users can pay much more for each unit of water volume because transportation costs are divided among individuals and companies.

The hydrological sector constitutes a system depending on activities and processes, among them are agriculture and fishing, energy, industry, transportation, population dynamics, ecosystem preservation, recreation. As such, its integrated planning must take into account the available provisions of the development of these activities and processes. Uncertainties in determining these changes in development will affect the quality and even the validity of planning strategies.

In Argentina, the policies for water management were created as a response to regional growth and to problems that appeared during its development. The nation first, and the provinces later, followed this process and this is how currently there is a great disparity of criteria along the country. In many provinces, there is no water legislation that accounts for an integrated approach to this issue. Nevertheless, different institutions were created that coordinate, administer and regulate the development and management of water resources. With respect to a price for water, no policy has been applied to encourage its efficient use. The value of the canon is generally insignificant and fixed by political criteria more than by economic efficiency. In many cases, it is counterproductive in the sense that it provides free access to agriculturists inexperienced in irrigation systems, leading to elevation of groundwater table and salinization (Capurro et al, in preparation).

The use of water for agricultural use in Argentina depends on the provinces, which have the political right to manage their natural resources. The pampas region in Argentina, which concentrates most of the country's population, industrial activity and agricultural activity, is a great demanding area of water. An increase in demand is expected, not only due to urban growth or industrial activity, but also due to the important appearance of irrigation. For this reason, it is necessary to define water management strategies considering all the elements in the water equation.

Purpose

The purpose of this study is to propose policies that allow for equitable water allocation between competing activities in the [Reconquista River Basin](#), located in the Province of Buenos Aires (Argentina). This area expands to the northwest of the greatest metropolitan area of Argentina, the Metropolitan Area of Buenos Aires (MABA). The waterhead of this basin is located in a predominantly agricultural and agro-industrial area. Towards the river's mouth, urban and industrial density increases,

as well as its pollution levels. Most of the basin lacks sanitation infrastructure, and the main water supply are the underground aquifers and water tables nearer the surface, in some cases contaminated with fecal bacteria and industrial pollutants.

To accomplish this objective, it is necessary to understand the underlying interaction of population in environment, in terms of different types of transitions and their stabilization. The information used was:

- Demographics in the basin;
- Data on industrial discharges;
- Water use and sewage demand by partido.

Equitable allocation policies are those which allow a certain volume of water per capita for basic human needs and economic development. Often, these are competing demands, especially due to the lack of sustainable management of the resources. This study aims to define sustainable levels of use of water resources, and to propose allocation between activities.

CONTENTS:

- [Characteristics of the Reconquista River Basin](#)
- [Transitions \(economic and social\)](#)
- [Groundwater Use](#)
- [Conclusions and Recommendations](#)
- [References](#)

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Louis Garvin

Relationships Between Projects

Two Birds With One Loan: The Grameen Bank's Impact on Population Growth in Bangladesh is a research project completed as part of a class (SNRE 545) taught by Sandra Arlinghaus and William Drake. This project will be combined with others from the class into a single monograph. This short paper examines relationships between the projects.

Since the mid-1980s, people have been travelling to Bangladesh to learn more about Professor Yunus' "experiment" with microcredit. In 1991, a network of organizations trying to replicate the Grameen model was formed named CASHPOR (Credit And Savings for the Hard-core POoR). In 1992, the Grameen Trust was added to the Grameen Family of Organizations to assist replication efforts in other countries. The Grameen Bank has continued to demonstrate the power of microcredit to alleviate poverty and has captured the world's attention and imagination. In 1997, over 2900 people attended the Microcredit Summit in Washington, D.C., representing 1500 organizations from 137 countries. The summit participants plan to extend the reach of microcredit around the world and have launched a campaign to reach 100 million of the world's poorest families by 2005. (Microcredit Summit, webpage).

Professor Gibbons, CASHPOR's Executive Trustee, believes that the Grameen model should be changed to fit local cultures and needs, but that certain core elements must be kept to ensure success. (Todd, 1996) These elements are:

- exclusive focus on the poor, with preference for poor women
- simple loan procedures administered in the village
- small loans repaid weekly and used for any income-generating activity chosen by the woman herself
- collective responsibility through groups bolstered by compulsory group savings
- strict credit discipline and close supervision through weekly meetings and home visits.
- rigorous, practical training of full-time staff
- field-oriented management
- political neutrality
- open and transparent conduct of all business
- setting an interest rate which will cover costs at full operation and aiming for financial viability.

Using this definition, the use of microcredit to solve problems addressed by other class research projects is not always clear. For example, Martha Masterman describes the need for cooperatives for local farmers to give them better access to market their products. Farming cooperatives are not in the narrow definition of microcredit given by Gibbons, however. It is not clear how microcredit could help the street children whose plight is described by Chandra Sivakumar, because children do not fit within the defined target and structure of microcredit programs. On the other hand, the Grameen Bank has itself

been expanding beyond its basic microcredit program into new technology and business development programs. Grameen's example shows that variations are possible which deviate from the parameters described by Gibbon. Perhaps solutions based on microcredit could be developed to specifically address the issues raised by Masterman and Sivakumar.

Of the other class projects, Mark Schmidt and Christina Welter's work on Uganda shows the most promise for the application of microcredit. Schmidt describes the lack of any work available for women as the main factor leading them to work as prostitutes. This high level of prostitution has been a major contributor to the AIDS epidemic that has ravaged the country. Welter points out the low status of women as contributing to Uganda's lack of movement towards a stable and prosperous society. Microcredit can provide employment for women and raise their status in society. This focus on women has a positive rippling effect on family health, education, and economic and societal stability, all of which is desperately needed in Uganda.

Microcredit is only one tool to alleviate poverty. Natalie Henry's analysis of Mexico describes the maquiladora program, in which foreign individuals or businesses can establish a wholly owned operation in Mexico for the manufacture of export products. The maquiladora program forms a stark contrast to microcredit as practiced by the Grameen Bank. Most maquiladora factories use foreign management, so the only gains for the Mexican people are wage labor jobs. Microcredit builds local ownership of assets and strengthens indigenous economies. The maquiladora program forces people to move to the factories along the United States/Mexico border, into areas without a stable social structure and without the proper physical infrastructure to support them. Microcredit gives people the freedom to control their own work in their current communities. Maquiladoras provide much needed jobs and foreign currency for Mexico, but microcredit is a better strategy for developing countries to build strong communities and long term independence.

Sujata Narayan and Jennifer Talbot discuss the development of ecotourism in Costa Rica and Niger. Several comparisons between ecotourism and microcredit can be made:

- Ecotourism may fall somewhere between microcredit and maquiladoras in that it combines foreign dependency with some local control. In theory, ecotourism brings in foreign tourists for activities that respect local cultures and fragile environments and provides employment for local people. Narayan points out, however, that in reality, foreign tour operators often make most or all of the profits from ecotourism and that environmental protection is sometimes not maintained. Her analysis provides a warning for other countries adopting microcredit: a failure to carefully monitor the program can lead it astray from its goals. For example, allowing microcredit loans to go to the wealthy or allowing women to give loan money directly to their husbands can lead a microcredit program away from its goals of reducing poverty and raising the status of women.
- Talbot describes how the Tuareg people continued many of the conservation activities associated with Niger's ecotourism program because they had been closely involved with the program's development and it had become an integral part of their lives. In order for microcredit to be successful, it must similarly be integrated into the local culture. A microcredit program organized by an unknown outside organization is less likely to be successful because borrowers may not

have confidence that the program will continue. They may default on their loans if they do not see an advantage to be gained from staying involved with a trusted program run by themselves and their neighbors.

- Each program brings benefits outside of economic gain that the other program type does not address. Microcredit raises the status of women, but does not directly consider environmental issues as does ecotourism.

Two of the other projects raise interesting questions for future research:

- Natalie Henry describes the strong role the government has played in various transitions in Mexico. While government programs have also had a large impact in Bangladesh, the strength of non-governmental organizations (NGOs) stands the country apart from others. The Grameen Bank and many other large, successful NGOs play such a major role in the Bangladeshi economy and life that the government has at times expressed concern that it lacked control. The Bangladeshi people lost confidence in their government during the military coups of the 1980s and learned to trust the consistency and honesty of NGOs, which grew in support and reach during this decade. The Mexican people have also had little faith in their government in several periods of their history, yet an NGO infrastructure of comparable size has not emerged. What conditions have led to the strength of NGOs in Bangladesh? Is there an ideal mix of government and NGO power that balances the efficiency and innovation of NGOs with the accountability and legitimacy of a democratic government?
- Michael Teifel's analysis of Vietnam focused on the ethnic minorities who live in the northern highlands. The Vietnamese government has considered their territory as an open frontier for migration from other overpopulated areas. Teifel points out that the northern highlands can only sustain smaller populations due to lower agricultural productivity in the mountainous regions. Bangladesh also has a mountainous region populated by an ethnic minority. Most of Bangladesh is populated with a relatively homogenous cultural group. The Chittagong Hill Tracts, however, support about a million tribal people, of mostly Mongoloid origin, who remain largely separated from the rest of the country and zealously guard their traditions and cultural heritage. The Hill Tracts are mountainous and can support a much smaller population density than the rest of the nation. The Grameen Bank does not operate in the Hill Tracts most likely due to linguistic and cultural barriers. Teifel's analysis of ethnic minorities in Vietnam raises several questions: Are the Hill Tract peoples discriminated against in government representation and programs? Are people from the rest of the country moving into the Hill Tracts in an attempt to escape the population pressures in the rest of the country?

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RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Zeynep Asligul Gocmen

Although my research was the only one directly related to urbanization, I can easily say that there is a link with most of the other research. Two major aspects of my research were the examination of the urbanization transition from a developing nation's perspective and comparing the findings with a set of developed nations.

The findings of the research showed that there are vast differences among urbanization in developed versus developing countries. The study also concluded that there are various factors shaping urbanization in a nation. It also showed a need to emphasize on the fact that urbanization should not be seen as an independent transition. Other transitions such as demographic, industrial, and technological transitions are important factors shaping urbanization and likewise, urbanization is an important factor shaping various transitions including toxicity, epidemiological, and fossil fuel transitions.

It was really interesting to see how these transitions fit together. For example, although AIDS may not be conceived as related to urbanization, Mark Schmidt's research showed that rapid urbanization is a main cause of AIDS in Uganda. Another example is the existence of a high number of street children in Ghana investigated by Chandra Sivakumar. With rapid urbanization, there is a high unemployment ratio and high numbers of street children all over the world, particularly in developing countries.

Moira Zellner's and Marnie Boardman's papers show that without planning efforts and controlling the growth of urban population, water management is a big concern. Among these two studies, Moira's work relates more to mine. Buenos Aires, one of the world's most populous metropolitan areas is similar to Istanbul in terms of primacy and environmental issues related to that. In Istanbul, water management, supply of infrastructure, and environmental injustice are important issues and they are not usually addressed.

There are other research papers that have close relations to mine. The study of the transitions in Mexico undertaken by Natalie Henry shows that Mexico has been experiencing very similar transitions as Turkey. These similar transitions are apparent in the demographic, urbanization, and industrial transitions. Moreover, the insufficiency of government policies has resulted in similar outcomes in both countries; increasing regional disparities and problems related to overcrowding in the primate cities.

Another paper that showed relation was the one prepared by Taufik Hanafi on the decentralization of the health care in Indonesia. A common theme is the five-year development plans in these countries. Even though Taufik's research shows the need of decentralization in planning efforts due to the geography and the unique situations in the country, I recommend policy changes at the central level to direct the future of the urbanization pattern as well as more regulatory measures at the local level.

As concluding remarks, I would like to say that urbanization is a very complex and dynamic process and is related to many aspects of population and environment dynamics. The research undertaken by my

colleagues have proved my point and made me realize there are many avenues for future research in urbanization transition.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Taufik Hanafi

Interventions to improve health status are an important policy instrument in the Indonesia's overall strategy in alleviating poverty and improving the welfare of the nation's population. As in many developing countries governments intrude into many markets, but seldom as commonly or extensively as in health care. Growing awareness of the obstacles associated with this centralized structure has generated much interest and a number of government initiatives in decentralization. Decentralization of public services has been popular strategies in Eastern Europe countries and developing countries including Indonesia for remedying the problems of governance. Sixty-three of the 75 transitional and developing countries with population greater than 5 millions have transferred or in process of transferring authority from central to local governments (Dillinger 1994). The decentralization policy is advocated as a means to promote efficiency and responsiveness of the government programs and to strengthen community participation. My paper attempts to assess the extent of decentralization efforts in Indonesia and its impacts on sustainability of health care services at local levels.

Most societal issues including health, environmental, urban, economic, technological, and political problems can not be addressed adequately by a single discipline. A family of transitions paradigm suggested by Drake (1993), which has been hallmark of population-environmental dynamic approach, provides an useful framework how to sufficiently portray a complex societal problem, in which is characterized with the interconnectedness among sectors and across scales, and how to manageably deal with it. Having examined my colleague's papers with topics ranging from environmental (Angela, Natalie, Sujata, and Moria), economic (Lewis and Martha), urban (Zeynep and Chandra), poverty (Christina), population (Michael), and health (Mark), an interdisciplinary perspective is required to view complex relationships of such complex and dynamic setting. For example: demographic, economic, and epidemiological transitions contribute largely to the need of a higher degree of local autonomy in provision of public services in Indonesia. Demographic and economic transitions affect significantly to an increased demand for clean water and water resource preservation efforts in big cities and metropolitan areas in Argentina.

The transition periods in which are indicated by high rates of change and limited societal adaptive capacity are more likely to generate imbalanced structure. Economic transition as partly characterized by booming employment opportunities in many large cities has resulted a rapid urbanization rate and created urban crisis such as environmental pollution, limited availability of clean water, and increased demand for public services in Turkey. Similarly, the economic transition has contributed significantly to the spread of infectious disease such as AIDS/HIV, created high burden of health expenditure at both household and national level, and resulted high incidence rate of poverty in Uganda.

Given greatly varied issues discussed in the thirteen papers, emphasis of the policy implications proposed by my colleagues can be classified into individual, household, local, and national perspectives. For example, promoting changes in individual behavior towards more efficient use of clean water, promoting preservation of environmental resources at local and national level, promoting a greater

access of women to financial resources, and strengthening local institutions for carrying more responsibilities in provision of public services.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Martha Masterman

My paper focused on the prospects for developing Indonesia's cash crop sector, particularly in light of the financial crisis of the last two years. The transitional nature of rice as a primary crop has led to the need for crop diversification. Additionally, the increased value of cash crops on the world market with the weakened rupiah has created a boon for rural farmers and exporters of these crops. Many of these crops are early in their transitional stages, and thus are prime candidates for assistance as they have the potential for increased yields and productivity.

Several of the papers presented in this monograph introduced new issues to consider in light of my topic. The diverse needs and appropriateness of local responsiveness for policy in health care, a microcredit banking model, and a country with a similar cash crop to Indonesia brought out issues that should be considered for the development of Indonesia's rural agricultural sector. These are described below.

Taufik Hanafi's paper, *Towards Sustainable Health Care Development in Indonesia*, focuses on the prospects for decentralized policy-making in the health care sector. The paper expresses that because of the diverse nature and subsequent needs of the Indonesian population, different types of health care policy intervention are appropriate i.e. one size does not fit all. This is true of the agricultural sector in Indonesia as well. In order for each of the important cash crops described in my paper to smoothly experience an agricultural transition, each crop needs to be considered individually. The diverse geographical, cultural, and geological environments of the many islands of Indonesia deserve localized attention. While I do recommend government policy intervention to boost the agricultural sector, Taufik's paper drove home the importance of tailoring policy to the unique situations around Indonesia, on the islands of Sulawesi, Sumatra, Java, Irian Jaya, Bali, Timor, and others.

Lewis Garvin's paper, *The Grameen Bank Potential: Two Paths to Alleviating Poverty in Bangladesh*, links the work of the Grameen Bank to poverty alleviation, population stability, and dulling the impact of natural disasters in Bangladesh. Although the Bank focuses on the landless, the model could work well in the rural agricultural sector of Indonesia. Like Bangladesh, Indonesia has a high proportion of people employed in farming activities. These are mostly poor people who hold very little land. The Grameen bank model uses loans to empower people and make them productive members of their communities. It has achieved a payback rate of 98% by using "social capital" to ensure the successful payback of loans. Loans are given in groups, and each group member has an incentive to evaluate proposed loans carefully because the renewal of their own loans depends upon the successful payback of loans by all group members. The groups acts as an effective filter for loan approval and then provides both support and peer pressure to ensure that loans are paid back once extended. Indonesia's culture operates very much in this fashion; the group is more important than the individual, and group social pressure is very strong. If such a model were implemented to create a cooperative farming structure for cash crops, such as coffee and spices, farmers would be more accountable for its success. The Grameen model could improve the productivity and incomes of the rural sectors in both of these countries, and guide the sector through a successful transition.

Christina Welter's paper describes the Ugandan economy as being "stuck in transition." Uganda, like Indonesia, has sectors that are highly dependent on the world economy and particularly on developed markets. Coffee, for example, is the number one export of Uganda, and Indonesia is the world's 3rd largest producer of coffee. Many farmers' livelihoods are dependent on this crop. For that reason, both countries would be well advised to lessen their dependency by increasing the world market value of these crops. With production of specialty coffee, farmers move some distance (although not completely) away from the swings of a commodity market. Additionally, a high percentage of Uganda's population is in the agriculture sector (86%), which has led to environmental overuse and degradation of wetlands. Indonesia, although facing problems related more to urban migration, needs to preserve the sustainability of agricultural production. For example, much of the land in Java is overworked and overpopulated.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Sujata Narayan

When I first began the process of writing this paper on ecotourism, I was under the impression that it would be an outlier (of sorts) in relation to the other research topics that my colleagues were exploring. However, upon seeing the culmination of their work at the end of the semester, I now realize that our papers share several common themes. These similarities go far beyond mutual utilization of the "transition theory" as the basic framework for each paper. Most notably, there is the "sustainability connection." While discussed in a variety of contexts, it seems that virtually every paper makes reference to sustainability, whether explicitly or not. This paper is no exception. To be sure, sustainability – in the economic and environmental sense of the term -- is a central issue for this work. Indeed, it is a primary indicator and measure around which this paper is developed.

In addition to the general connections, this paper also links up quite well with the others in more specific ways. Just as Lewis Garvin and Jennifer Talbot analyze the success of alternative models for economic development in their papers, so too does this paper attempt to discover what about ecotourism can be of benefit to both the environment and the economy in Costa Rica. Moreover, like Garvin and Talbot's works, this paper seeks to shed light on community participation and empowerment as a legitimate, if not necessary, means of achieving sustainable social, economic, and political change. As can be seen in all three papers, without community participation, none of the programs and policies discussed could be successful.

Moreover, without community participation, practices such as ecotourism would quite possibly become the soul domain of external entities like international tour operators and multinational resort corporations. As such, it stands to exert the same negative influence and have the same potential implications for Costa Rica that the maquiladora enterprises along the US/Mexican border exert on that country. It is a situation where resources are utilized and the environment is damaged, all in the name of encouraging economic activity. At the end of the day, however, much of the revenues do not go back into the local economy, but rather, are remitted elsewhere internationally. Nathalie Henry's work describing this situation in Mexico provides a stark picture of what can happen within and to a country that allows itself to depend too much on foreign involvement and "assistance" when it comes to its economic development efforts.

In addition to the connections stated above, other relationships exist. Whenever a new approach is introduced into a fixed worldview, there is bound to be controversy and debate. Such is the case with ecotourism in Costa Rica. While there are many supporters of this alternative or "green" form of tourism, there are many others who question the fundamental principles underlying the practice. This phenomenon seems rather common; as demonstrated by the experiences of other countries where new programs and approaches are being implemented. As Moira Zellner and Marnie Boardman point out in their papers on Argentina and Arizona respectively, recent programmatic and policy measures around water management are often the subject of criticism and debate. While there are clearly legitimate social and biophysical pressures that justify the need for water management programs, not everyone seems to agree on how that management should take place. Evidently, then, there are also economic and political

dimensions to water conservation that cannot be ignored. Like ecotourism, water conservation is not an apolitical issue that transcends debate and controversy.

While there are several instances of overlap between this paper and some of the others, there are also instances of contrast and juxtaposition. For example, unlike Welter's Uganda, Costa Rica can hardly be described as a country "stuck in transition." Rather, it is a dynamic nation, constantly seeking new and innovative ways to raise the country's economic stature and profile while improving the standard of living for the individual. Ecotourism can be viewed as one piece of this multi-faceted effort. In that regard, Costa Rica is much like Indonesia in that both are attempting to diversify their economies, and thereby, move beyond the reliance on single crops as the primary source of revenue and exchange. Whether ecotourism (in the case of Costa Rica) and coffee (in Indonesia's case) will prove to be the key to success is still uncertain. It will be interesting to see if the principles of public/private cooperation, national commitment, and community participation can be coordinated, can actually come together to make ecotourism a viable structure for environmental sustainability and economic development in Costa Rica.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Mark Schmidt

This paper investigated the role of transition dynamics in the emergence and spread of HIV/AIDS in Uganda. In particular, I showed how historical and political transitions, as well as urbanization and industrialization were responsible for the initial amplification and spread of the virus. Further, HIV/AIDS is going to impact and be impacted by the population transition and the structure of the family in Uganda. Finally, policies that are currently used to combat the crisis are intended to prevent transmission of the virus through behavior modification. However, to be truly effective, it will be necessary to evaluate underlying problems in Ugandan society and culture, as the HIV/AIDS epidemic directly results from them.

In listening to the presentations by colleagues in the class, I was able to notice underlying themes and ideas that could be related to my own study. Here are some further examples of the relation of my project to others:

Lewis Garvin (<http://www-personal.umich.edu/~lgarvin>) described the role of the Grameen Bank in Bangladesh. Bangladesh is one of the poorest countries in the world, and the population transition is the single greatest threat to escaping this poverty. The Grameen Bank is a system of microcredit lending that was set up, resulting in raising the status of women, which in turn has helped stabilize population growth. A similar system of microcredit could of use in Uganda, which also needs to raise the status of women and help minimize the economic impact of the HIV/AIDS epidemic. This is a more fundamental approach to policy than simple the alteration of sexual behaviors.

Chandra Sivakumar's (<http://www-personal.umich.edu/~chandraz/HomePage.html>) study of the poverty of the worlds children was of particular interest. He went to describe the poor state of children, particularly in developing countries. Most of these children are abandoned and become street children with problems such as abuse and neglect. This characterization is particularly relevant, especially concerning the growing number of AIDS orphans in Uganda. Although the family is traditionally in charge of taking care of these children, an increasing number are having to live on their own and fall victim to many of the problems highlighted by Chandra.

Taufik Hanafi (<http://www-personal.umich.edu/~topik/nre545.htm>) had studied Indonesia and how improving health status is important in reducing poverty and increasing the general well being of the population. In particular, Taufik suggests that decentralization and sustainability of local health care are necessary to improve the health status of citizens in a developing country. As Uganda is experiencing such a crisis in health care right now due to the HIV/AIDS epidemic, it may be of use for the government to also consider some of these policies in order to reduce the poverty and improve status of its own population.

Moira Zellner (<http://www-personal.umich.edu/~mzellner/nre545.htm>) and Zeynep Gocmen (<http://www-personal.umich.edu/~zgocmen/nre545.htm>) have both studied urbanization in relation to how it affects

other transitions in Argentina and Turkey, respectively. The commonality of urbanization in the development of any country makes it seem almost inevitable. It is important to realize, though, that this urbanization can cause problems, whether it is the diminishing of water supplies for a growing population, toxicity to the environment, or the emergence of a new disease.

Although I have chosen the above projects to show similarities to my study, no two projects are mutually exclusive. Every project completed in this class has investigated some aspect of population and environment dynamics. A common theme shared between all of them is that no one transition can be studied in isolation from others. And more importantly, sometimes it is even more enlightening to study the interaction between different transitions than to study one in particular.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Chandra Sivakumar

I am very interested in comparing Turkey's rapid urbanization dynamics, which were succinctly presented by Asli Gocmen, and their problems relating to street children and the urban poor. The toxicity transitions she discussed will have a great impact upon urban populations, but what kinds of impacts will it have in addition to health outcomes and which populations will be most affected by them. How has Turkey managed to balance increasing urban populations, the loss of natural green space and the living conditions of the poorest residents of the cities. I am very interested to discover if Turkey has a street children problem and if so what project or policies they may have in place to deal with it. If they do not have one, then what social, economic, cultural and political factors play a part in keeping children of the streets?

I think Lewis Garvin's discussion of the Grameen Bank also has some significant implications for addressing the plight of street children. Perhaps there is a way for the Grameen Bank to approve loans for projects dealing with street children. The initial problem would be in finding a specific agency or group to allocate the funds to, who would be responsible for repaying the loans, insuring the money goes where it should, that projects are feasible and self-sustaining and that children will receive long-term benefits from the project. Loans could be used to fund arts and crafts projects which could be sold to tourists or local markets, under the "Street Children" label. This would give children a creative form of employment, make them self-reliant and creates a working atmosphere where one's peers are valued and respected. The Grameen Bank could also be useful in setting up a children's outdoor camp similar to the one I have proposed above. The loans could be re-paid through crops the children grow, animals they raise and other income-generating projects supporting the rural camp. Cooperatives for children sounds like an excellent idea, at least in theory. Since many of these children have developed a greater sense of maturity, street sense and ability to adapt quickly, I think they would make excellent entrepreneurs if given the faith and encouragement to do so. By putting street children in charge of a set amount of financial resources required for an income generating project, they would be operating under the peer-evaluated system Lewis discussed in the Bangladeshi model. Children would be forced to rely upon one another for guidance and instruction, be separated from the influences of gangs, drugs and negative sentiment, and working to support themselves while paying off an institutional loan. Of course, none of this is possible unless a pilot project proves successful and an agency is found which could manage or oversee the program.

A general connection to the other papers, which would be a valuable asset to my research is the comprehensive treatment/analysis of Transitional Theory relating to various conditions. Agricultural transitions in Vietnam, toxicity transitions in Turkey, epidemiological transitions in Uganda are examples of nation-specific research which has guided the social conditions within the respective country. How do these in-depth models explain forces leading to homeless children? Are there similarities between the transitions of various countries, be they agricultural or demographic, both in how they affect each other as well as how they collectively work to produce conditions amenable to the problem of street children? What are the variables which can potentially combine or clash to produce the pernicious conditions allowing children to take to the streets for survival? These are a few questions

which a more detailed study of transitions and their combined impact on society can answer. Hopefully, there will be a day when such efforts will be made to understand the underlying dynamics fostering an environment where children face daily struggles against a host of insidious elements.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Jennifer Talbot

This essay will compare and contrast Sujata Narayan's paper "Below the Surface: the Impacts of Ecotourism in Costa Rica" with Jennifer Talbot's paper "The Tuareg People and the Air Tenere Conservation and Development Project: Niger, West Africa". Both of these papers examine similar challenges surrounding ecotourism activities in developing countries. However, the geographic, political, and economic situations of the countries have led to considerably different conditions and thus different levels of success.

Costa Rica's high level of biological diversity and social, political and economic stability have created excellent conditions for ecotourism development. Niger, however, does not have such favorable conditions. While Costa Rica has been referred to as the "Switzerland of Latin America" because of its social and political stability, Niger has had a civil war in the area of one of its largest tourist attractions. Because Costa Rica is both intercontinental and interoceanic it has very high levels of biodiversity, which are appealing to researchers and tourists. Niger, does not have as high levels of biodiversity as Costa Rica although its Air mountains do create a microclimate within the desert, containing several endangered species. Economically Costa Rica is in a more favorable situation too, for both investing in tourism infrastructure and generating domestic tourism. Costa Rica's GNP per capita in 1992 was \$2000 while Niger's was only \$220. Costa Rica attracts hundreds of thousand of tourists annually and generated \$661 million in international tourist receipts in 1995 whereas the Air Tenere Reserve attracted several thousand tourists per year before the civil unrest and Niger's international tourism receipts totaled 15 million in 1995. Costa Rica has 21% of its national area under protected status, which is equal to about 1,000,000 while Niger has a smaller percentage at 7.7% but a larger overall area (almost 10 million hectares) due to its larger size. Thus while the conditions for ecotourism in Costa Rica are excellent and those in Niger, less so, Niger does have some potential for smaller limited ecotourism if it is integrated with other activities.

In both cases there are similarities in the difficulties with ecotourism management. Both areas have problems with habitat disruption and litter. In both areas fragile sites of ecological and cultural significance have been degraded by unregulated tourism. Both areas have also shown that ecotourism is not benefiting locals sufficiently but that there are potential benefits in terms of economics and conservation through including local communities in conservation and ecotourism activities.

Ecotourism can offer opportunities of employment and can provide incentives for biodiversity conservation. Local people can provide food and lodging and work as guides. However, in the case of Niger, where the tourism potential is less and the region is more politically unstable, projects need to be sure to focus on other appropriate conservation and development activities in addition to community based tourism.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Michael Tiefel

Members of Natural Resources 545 have produced a number of interesting papers this semester. Although not every paper relates to my own research, three projects stand out for their similarities: Lewis Garvin's work on Bangladesh, Mark Schmidt's project on AIDs in Uganda and Natalie Henry's study of population and industrial changes in Mexico. True, at first glance it is hard to understand how ethnic minority issues in northern Vietnam relate to these other projects, but certain issues in this course transcend areas of study.

Lewis Garvin's project on the Grameen Bank of Bangladesh shares many parallels with my own paper. Lewis observed that Bangladesh had one of the world's highest population densities in 1995; he noted that there were 836 people per square kilometer on average. With such a high population density, the need for living space has placed severe pressure on available land. Lewis claimed that the poor are not able to sustain themselves because they do not have access to arable land. This situation is quite similar to the case of northern Vietnam. As in Bangladesh, the population density of Vietnam continues to rise, which puts pressure on available land. The pressure for land especially affects ethnic minority farmers in the northern mountains because many Vietnamese move into their lands in order to alleviate lowland population pressures.

Lewis studied the Grameen Bank as an example of empowerment for poor residents, especially women. He found that the Grameen Bank empowers women and gives them a sense of "self-possession." The Grameen Bank also encourages education of Bangladeshi women. Vietnam offers its own version of the Grameen Bank. In the Vietnamese case, the Vietnam Bank of Agriculture is a government run organization. It was founded to help farmers by providing small loans to them. Amazingly, both institutions boast high pay back rates. Perhaps Vietnam could learn lessons from the Grameen Bank by encouraging women, especially minority women, to seek education and empower themselves through small loans.

Mark Schmidt studied the rise of the AIDs epidemic in Uganda. He discovered that the population transition in Uganda as well as the movement of young men to cities led to a rise in the transmission of AIDs. Mark found that "push" factors created by changes in agricultural production forced many young men into cities to look for work. Similarly in Vietnam, many ethnic minorities feel the "push" and "pull" to urban environments. They have been "pushed" off their land by wars, inhospitable conditions and mounting population pressures. Ethnic minorities are also "pulled" to cities by the lure of easy to find jobs and consumer goods. Although I did not study the impact of urbanization on epidemiological problems in Vietnam, including AIDs transmission, such an approach merits further study. Such a study might include a comparison of AIDs transmission among ethnic Vietnamese and ethnic minority groups.

Lastly, I would like to compare my paper to Natalie Henry's study of transitions in Mexico. Natalie discovered that the Mexican government's policy to move its citizens into southern Mexico was motivated by a desire for agricultural development in that region. The national government supported

agricultural reform policies, but could not sustain such policies since southern Mexico was not a fertile area. Once industry developed along the border with the United States, many Mexicans transmigrated from the southern part of the country to the north in search of employment in factories. Mexican cities soon became overcrowded because people were looking for money and opportunities. Unfortunately, the government has not pushed forward infrastructure development. Now many Mexicans are in poorly paid positions, live in unsanitary conditions and lack adequate education. Vietnamese national minorities also suffer from a lack of education. There is a fear that ethnic minorities in Vietnam could also be left behind because of doi moi economic reforms. As Vietnam transforms into a market-oriented economy, ethnic minorities without skills or education could become a permanent burden on the state. Vietnam claims to have a very high literacy rate; however, over fifty percent of ethnic minorities are illiterate. And like Mexico, the Vietnamese government has encouraged a transmigration policy. In both cases this policy appears to be unsuccessful.

Projects like those of Lewis, Mark and Natalie suggest that issues of population growth and density, the promotion of good education and the protection of disenfranchised groups are matters of universal concern. Although specific circumstances may vary, Vietnam, Bangladesh, Mexico, Uganda and numerous other countries share similar population and environmental difficulties. Differences between countries make common solutions doubtful; however, lessons can be learned and adopted from the success or failure of policies in other countries.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Christina Welter

An Environment-Population Dynamic is the interrelationship between a population and its environment. Our class spent the fall semester of 1998 exploring ways in which this dynamic can occur throughout the world. We attempted to build theories about how and why this relationship worked. Ultimately, each student came to his or her own conclusion about the meaning of an environmental-population dynamic.

My paper discussed, in a broad way, how Uganda is a country stuck in transition. In my paper, I review the past, current and predicted transitions in the economic, epidemiological, demographic and educational sectors to determine the status of Uganda today. While improvements have been made throughout Uganda, its future progress is questionable. Internal and external power dynamics may prevent Uganda from ever reaching a poverty-reduced state. My paper explores the interactive nature of how power dynamics can prevent transitions from occurring. I conclude with a few suggestions about how Uganda may implement policy and programs as a catalyst for change.

One way to understand the environmental-population dynamic is by describing the rate of change, or the transition, occurring in a community. For instance, by graphing the past and current population change in an area, we can predict future change. Using this information, we can then hypothesize how this change may affect sectors of the environment. Boardman reviews how population increase in Tucson, Arizona may affect the already depleted and poor water supply. Not only has the author projected that water stability in the near future will decline, but she also found that current methods of water use and restoration affect this dynamic and will likely fail to provide Tucson's population with adequate water. This projection would provide a similar use in Uganda. It would be helpful to predict how Uganda's eventual overuse of its land and resources for agricultural exports will eventually deplete land viability and subsequently, may increase poverty.

Demonstrating the diversity of environment-population dynamics, Schmidt (chose to trace the epidemiological transition of HIV/AIDS in Uganda. Although we both focused on similar areas, we discussed entirely different relationships. By tracing the epidemiology of a disease, we can determine what factors contribute to the spread of disease to better understand its etiology, course, outcome and ways to prevent further transmission. Schmidt determined that factors of urbanization and migration, and constant change in the political climate occurring shortly after the emergence of HIV, enhanced the virus' spread throughout the country. Today, more than 1/5 million Ugandans suffer from HIV/AIDS. By understanding how Uganda became plagued with HIV/AIDS and how HIV is most commonly spread today, can help to determine prevention methods. His paper demonstrates the complicated nature of Uganda's political and sociocultural system and Uganda's inability to eliminate HIV without some social transformation. Similarly, I have argued that Uganda may be stuck in transition because of the local sociocultural political climate—one that have been in constant conflict during both pre and post colonial eras.

Finally, we can also evaluate the impact of policy and program implementation. For example, Garvin

reviewed the impact of the Grameen Bank in Bangladesh on various sectors of the local economy and its people. This project focuses on women as the primary provider for their families. It seems that this income generating activity may prove as a viable option for other developing nations to incorporate into the recovery programs, but that each country's situation must be taken into consideration. Using the Grameen Bank's strategy, I have argued that a similar program could be instituted in Uganda as a way for women to gain independence, autonomy and equal rights as human beings, contributing to Uganda's overall development.

Through independent projects, we have each determined that relationships between the population and the environment are complicated. This relationship cannot be reduced to a single definition or situation, and must be seen as interchangeable. Myriad elements must be included when examining and theorizing the dynamics between the environment and population.

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Moira Zellner

The Reconquista River Basin is located in the Province of Buenos Aires (Argentina). This area expands to the northwest of the Metropolitan Area of Buenos Aires (MABA). The waterhead of this basin is located in a predominantly agricultural and agro-industrial area. Towards the river's mouth, urban and industrial density increases, as well as its pollution levels. Most of the basin lacks sanitation infrastructure, and the main water supply are the underground aquifers and water tables nearer the surface, in some cases contaminated with fecal bacteria and industrial pollutants.

The purpose of this study is to propose policies that allow for equitable water allocation between competing urban activities in the Reconquista River Basin. I tried to find a relationship between current environmental problems and the underlying interaction of population in environment, in terms of different types of transitions and their stabilization. I identified critical areas in terms of water use and water quality. Based on this analysis, I defined sustainable levels of use of water resources, and proposed allocation between activities. Policies that might be applied to the river basin cover the areas of education and behavior patterns, economic activity, increasing the provision of sanitary services through water supply from surface waters, and expansion of sewer systems. Coordination between all the interested parties in the basin is essential for success in the implementation of these policies.

The work most closely related to the issues I address here is Marnie's study on Population Migration and Water Usage in Tucson, Arizona: Transitions in resource supply and resource management policies. Her analysis provides a deeper description of aquifer dynamics, and we both observe the lack of planning in urban growth and development within the constraints posed by the local environmental dynamics. Migration, as a response to the incentives for development, imposes the greater stress on the water resources in both studies. In Tucson, given that it is located in an arid region, water might be perceived as a limiting factor more than in Buenos Aires, where precipitation is more or less uniform along the year and amounts to around 1,000mm/year. Water is "always there", and this perception is enhanced when the source is not visible, as is the case of groundwater aquifers. Social (economic development) processes are much faster than the cycles of natural resources, and human communities tend to force the latter to match their own rhythm. The consequence is environmental deterioration, and since societies are sustained within environments, social deterioration cannot do anything but follow.

The common thread linking all the studies is this blindness alienating human activities from the environment from which they draw their resources, not only for economic purposes, but for cultural, spiritual and social purposes as well. Whether it is poverty, AIDS, street children, overpopulation, uncontrolled urbanization, agricultural mismanagement, environmental degradation or social inequities, all these factors have in common that they appear when human communities lack the ability to perceive themselves as part of a greater environmental system. Understanding how the dynamics of population and environment relate as an integral system is essential for generating healthy environments.

Tradition and culture are very locally based, and are therefore very important in providing an identity, a

perspective from which communities can relate to their environment. This is closely connected to a sense of ownership that may also encourage a better caring and, consequently, a better management of the different resources that communities need for sustainability.

In the core of this alienation of man from its surroundings is the definition of progress as perpetual growth. **This concept does not exist in environmental dynamics.** While environments progress in cycles, human ambition of progress is linear. Until this gap is closed, stabilization of population growth, urbanization, toxicity and other related transitions is going to be very difficult to achieve.

“ In the wake of burgeoning populations, water development is currently being driven beyond the absolute limits of guaranteeable supplies and past the point of long-term sustainable livelihoods, thus, preparing the ground for future crises throughout the world.”

(Water Management in Desert Environments, Bruce Roberts)



The Grameen Bank Surprise

Two Paths to Alleviating Poverty in Bangladesh



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Future of Turkish Cities: New Cities in EC?

- Transition of the project
 - Urban environmental problems due to rapid urbanization in Turkey.
 - Urbanization and toxicity transitions among European Community members.
 - Urbanization in Turkey with comparison to European Community members



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Towards Sustainable Health Care Development in Indonesia

by
Taufik Hanafi

NRE 545:
Population-Environment Dynamics: Towards Building A Theory



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Returning to the Land

Prospects for Agricultural Exports
and Rural Development in Indonesia



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Below the Surface: The Impacts of Ecotourism in Costa Rica

PRESENTED BY
SUJATA NARAYAN

DECEMBER 1, 1998
NRE 545



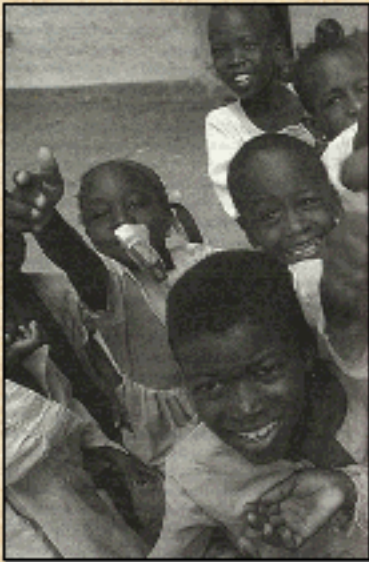
Slide 1 of 26

UGANDA: A Study in Transitions and the Emergence of HIV/AIDS

Mark Schmidt
NRE 545
November 24, 1998



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Children of the Twilight:
STREET KIDS, SOCIETY AND THE
SEARCH FOR
SUSTAINABLE SOLUTIONS

Global Analysis of Street Children

- Categories
- Causal Factors
- Conditions

Sub-National Description

- One view of School
- Statistical Analysis

Interventions

- History
- Potential Applications

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The Tuareg People and the Air Tenere National Nature Reserve

Department of Agadez
Republic of Niger
West Africa

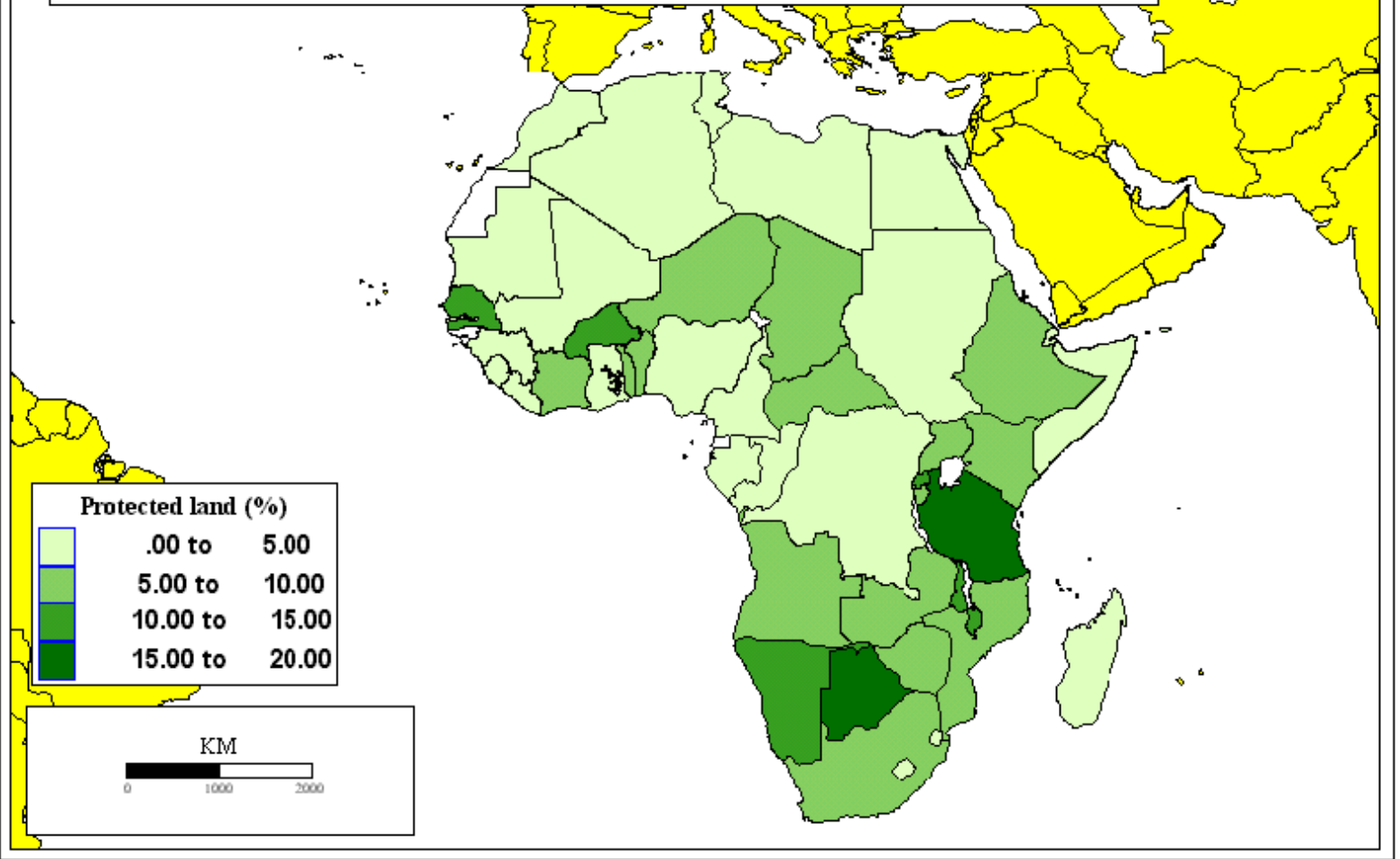


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Percent of National Land Area Protected

World Conservation Monitoring Centre (WCMC), 1997.

World Resources Institute, 1998.

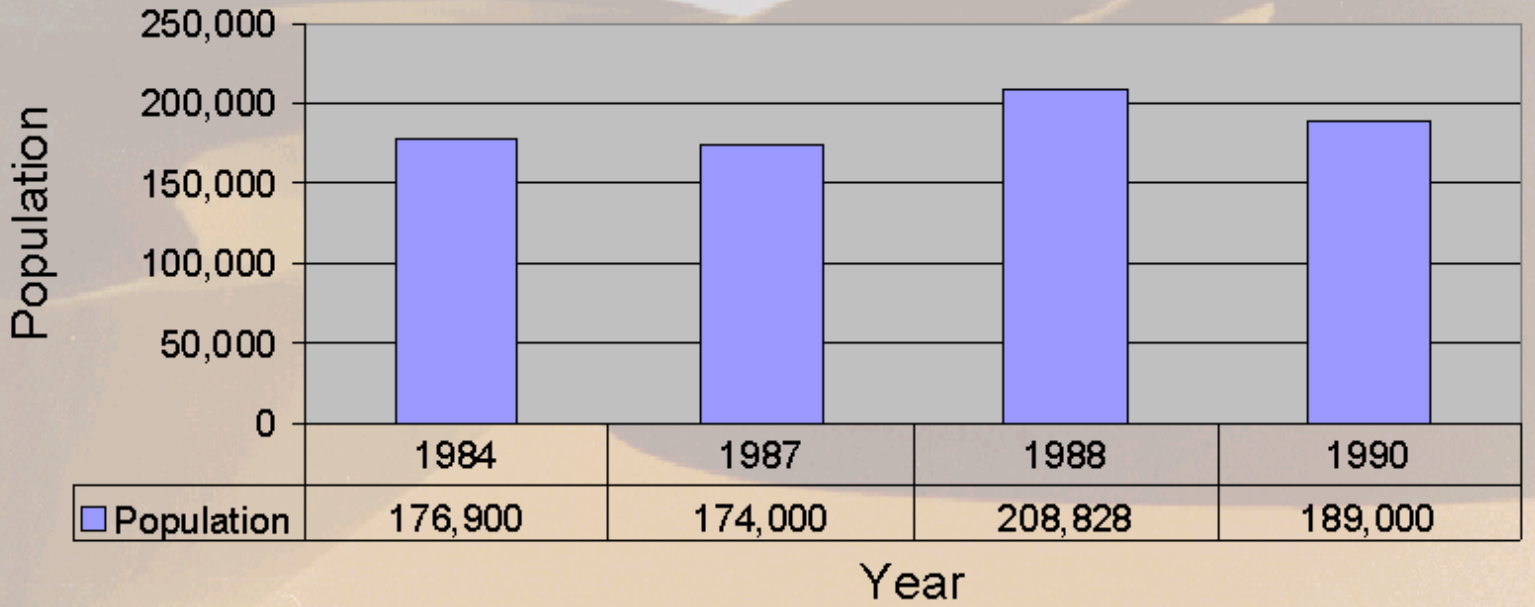


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Population of the Department of Agadez, Republic of Niger 1984-1990

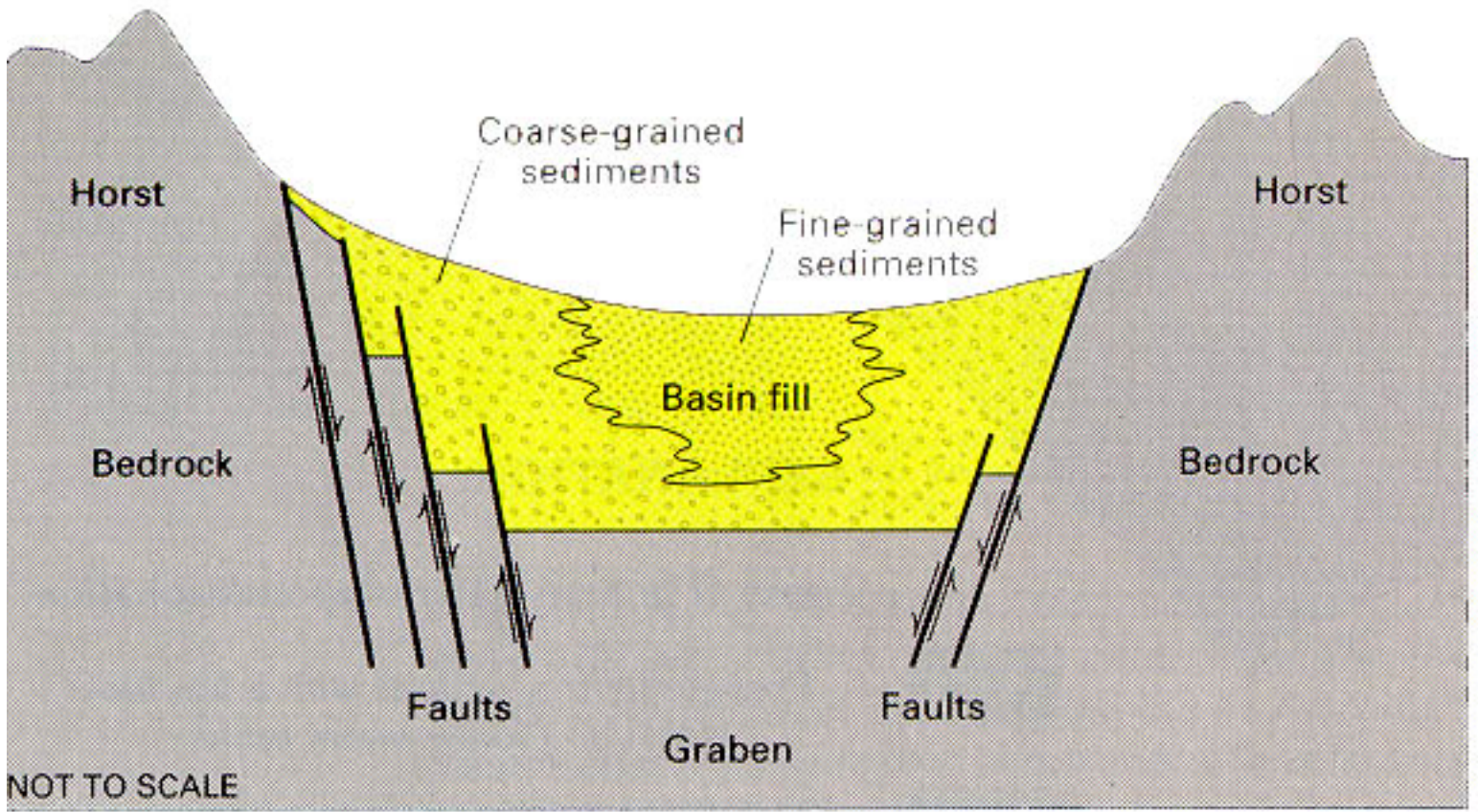


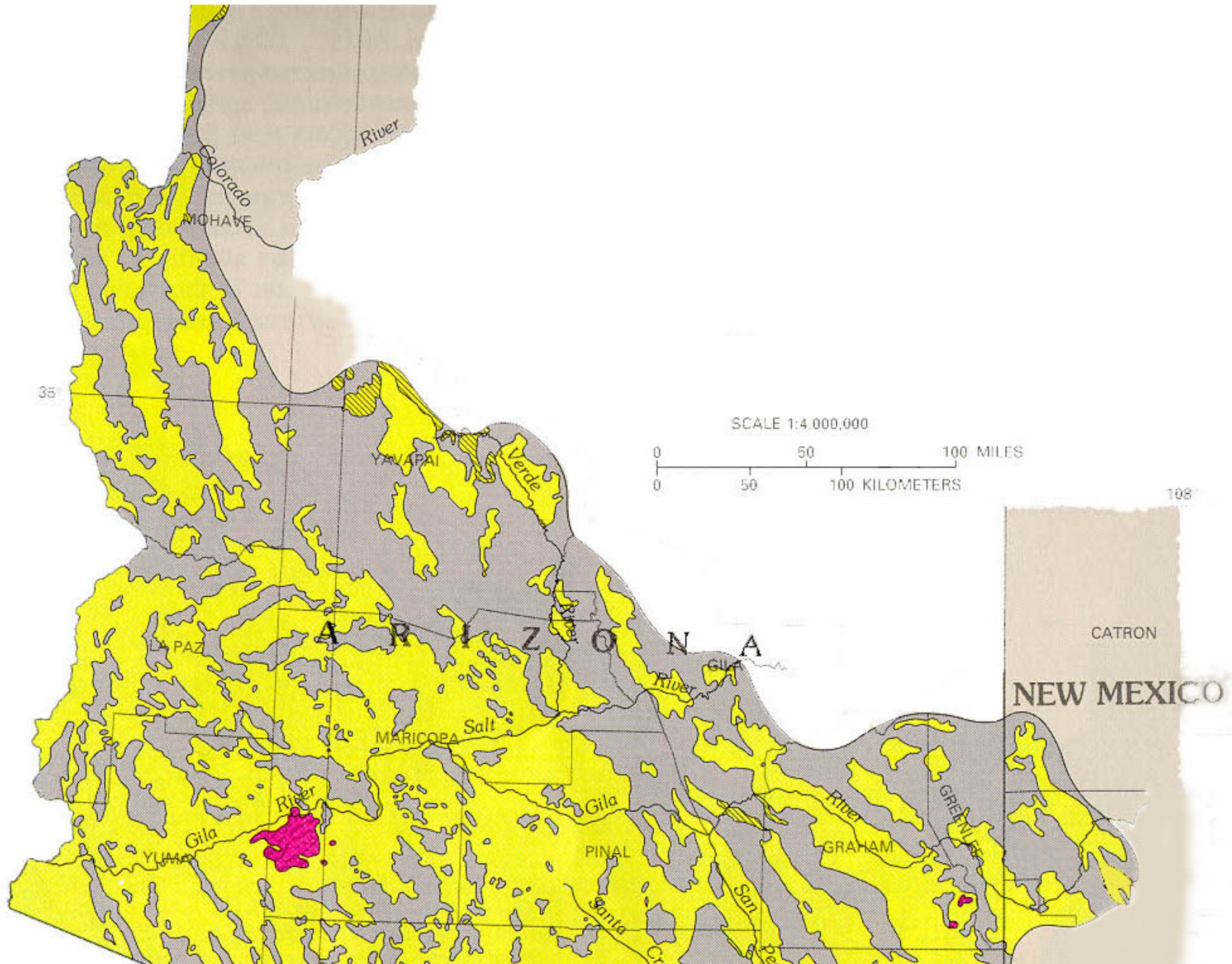
Stuck in Transition

An Analysis of Change in Uganda

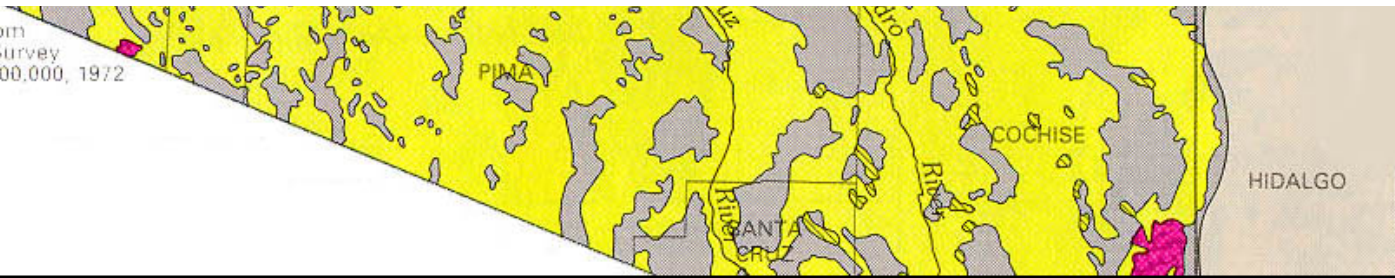


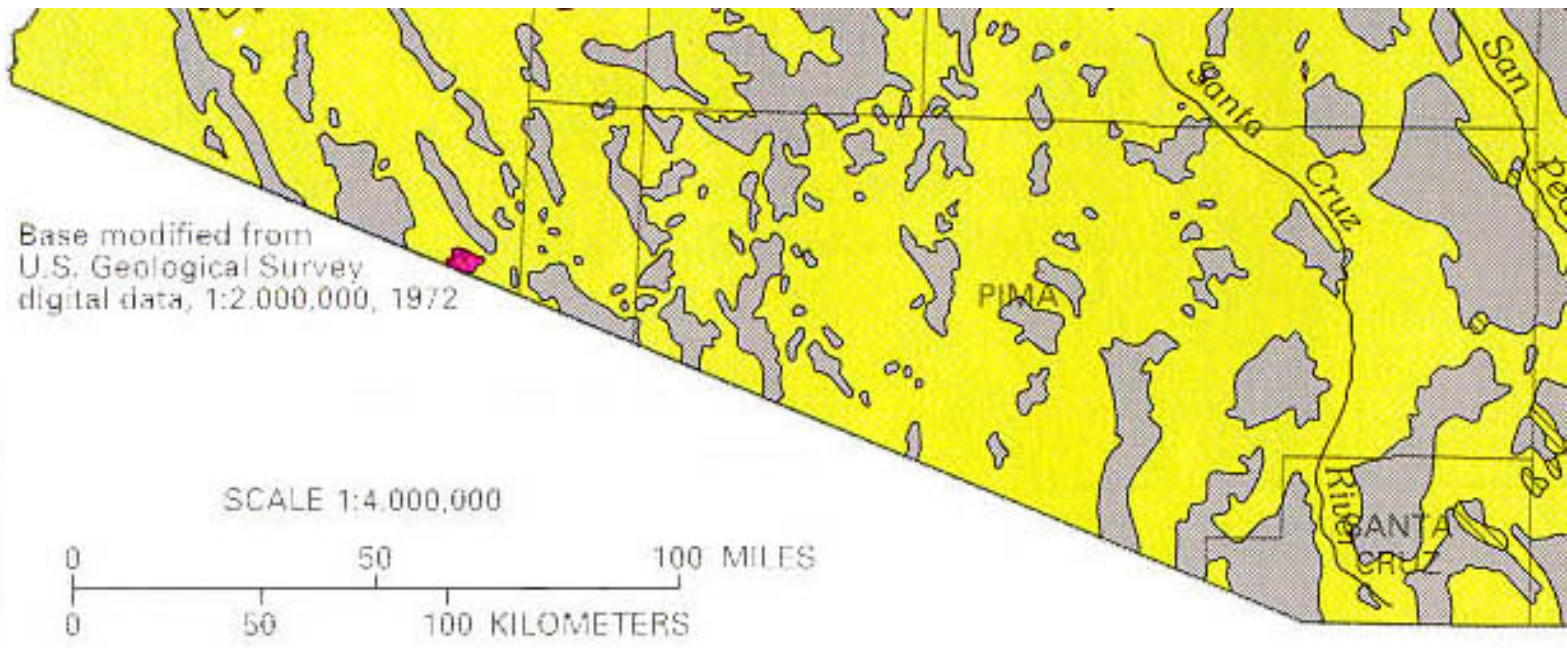
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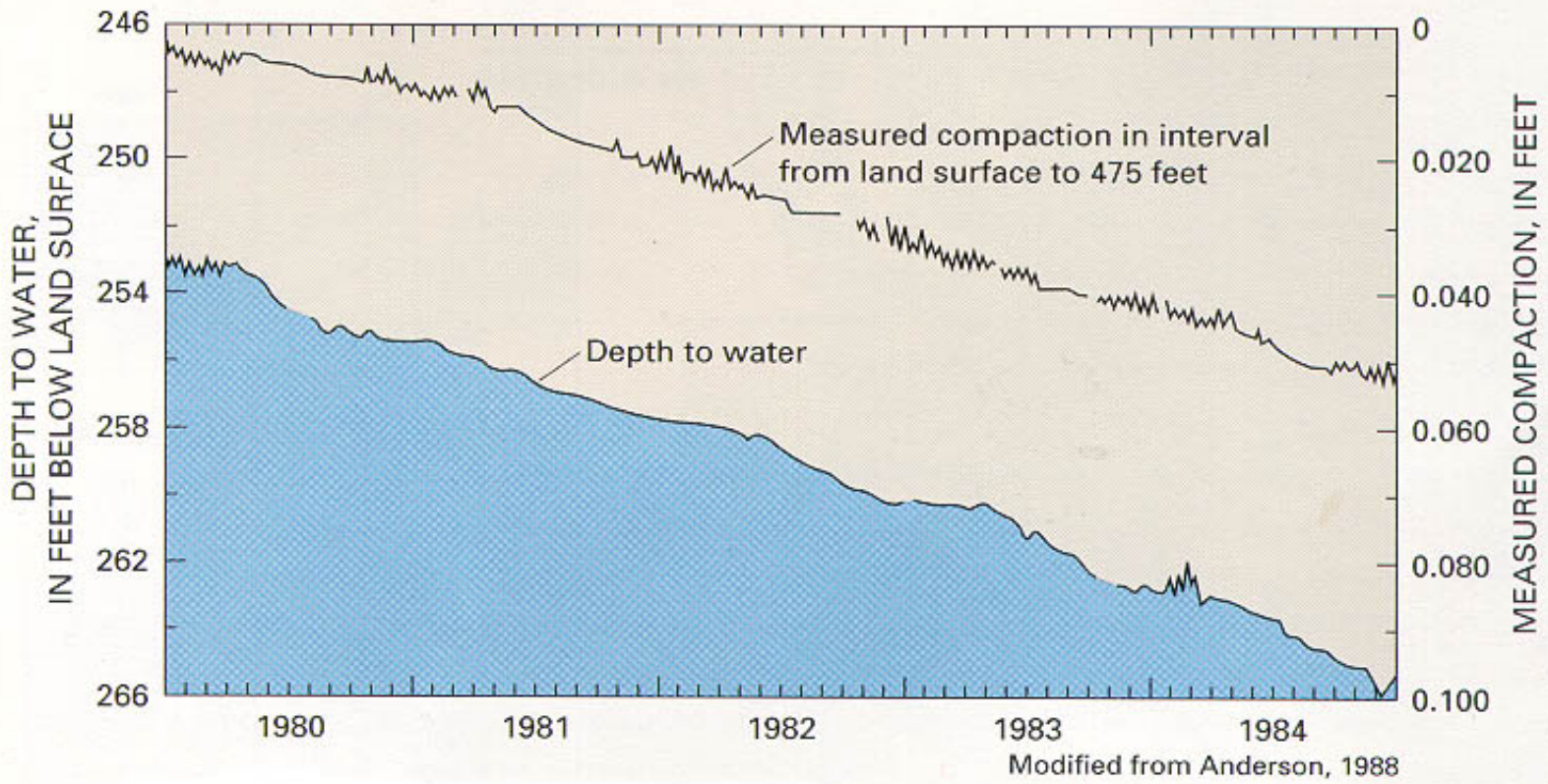




Base modified from
U.S. Geological Survey
digital data, 1:2,000,000, 1972

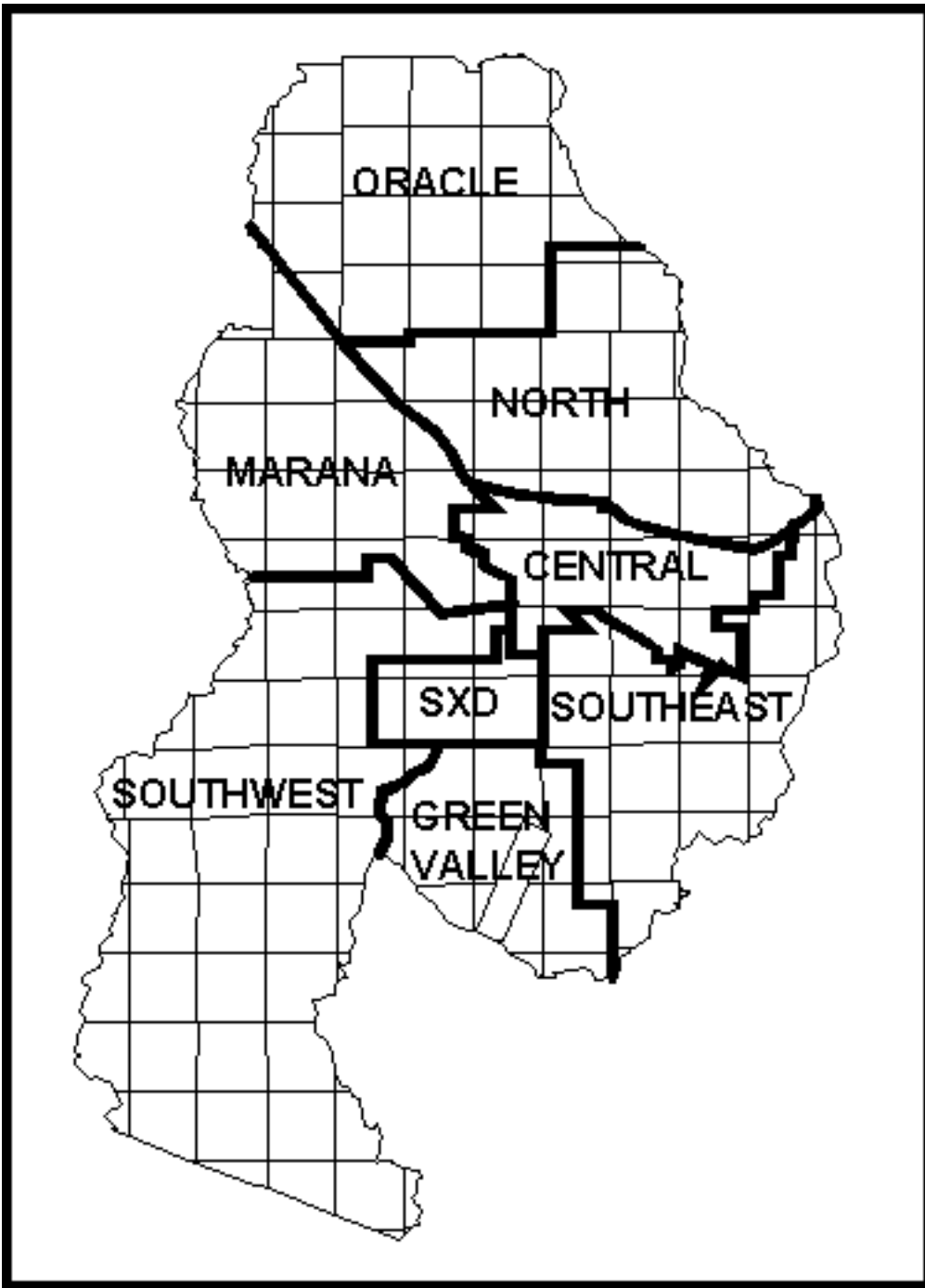








Anderson and others, 1992









Abstract / Introduction

The Grameen Bank is a non-governmental organization in Bangladesh which has pioneered the practice of microcredit, in which small loans are given to the rural poor in order to build entrepreneurial activity and economic assets. The Grameen Bank has won international acclaim for its success in alleviating poverty in Bangladesh, which is one of the world's poorest countries. Poverty cannot be considered in isolation, however. Population growth and poverty are mutually reinforcing problems in Bangladesh. For example, population growth increases poverty by reducing the per capita availability of resources such as land and food and by magnifying the impact of natural disasters such as floods.

This research project describes this relationship between population growth and poverty, and suggests that the Grameen Bank should look at the two problems together instead of focusing only on poverty. The Grameen Bank's programs already make a large contribution to reducing population growth by improving economic conditions. Also, by focusing on women for its microcredit programs, the Grameen Bank raises their economic and social status, which are conditions that lead to having fewer children. The Grameen Bank can do more, however. It should adapt its programs to specifically address population growth by promoting family planning and education programs. It should look for and address regional causes of population growth in regions where population density is a critical issue. By expanding its vision to include population issues, the Grameen Bank can better achieve its end goal of poverty alleviation.

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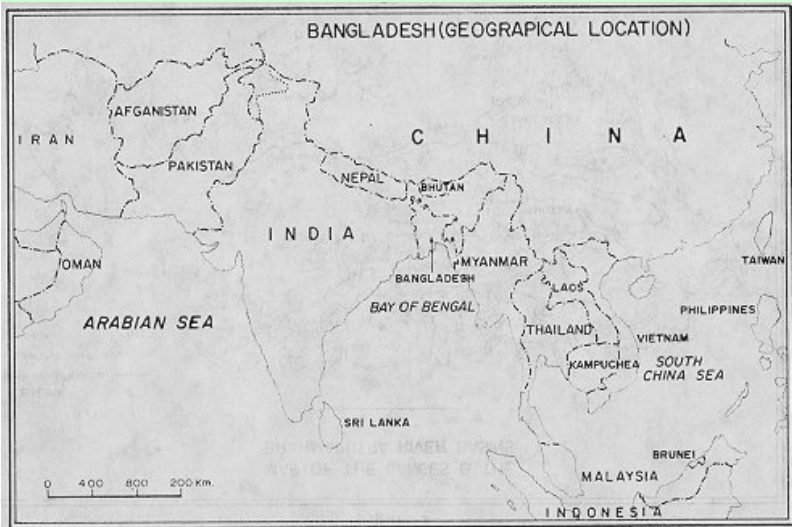
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Bangladesh History and Physical Environment

Exhibit 1: Bangladesh in Geographic Context



The People's Republic of Bangladesh is a South Asian country that gained its independence from Pakistan in 1971. It covers 143,988 square kilometers and is bounded by India on three sides and by the Bay of Bengal from the south. It also shares a small border with Burma in its southeast corner.

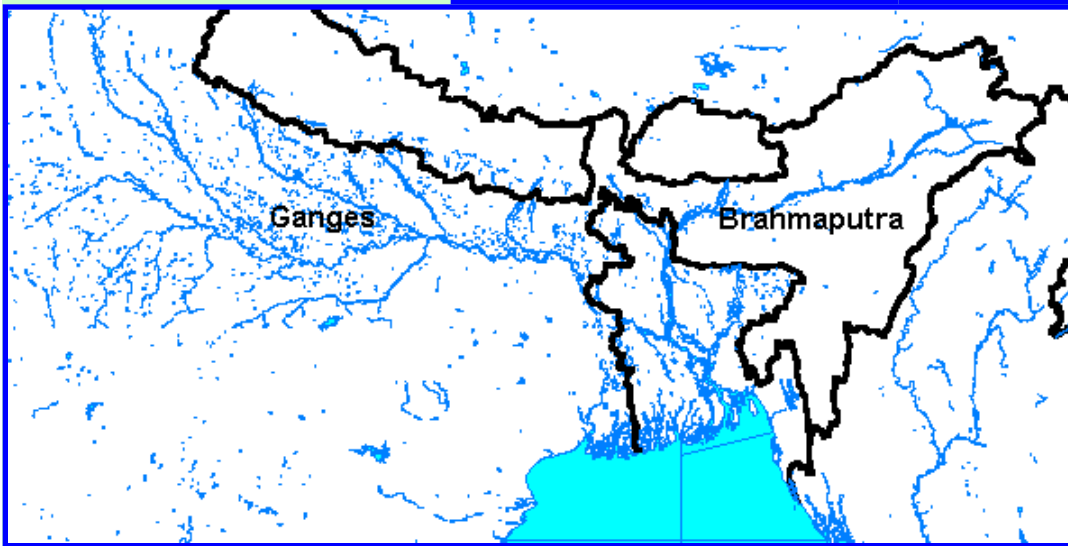
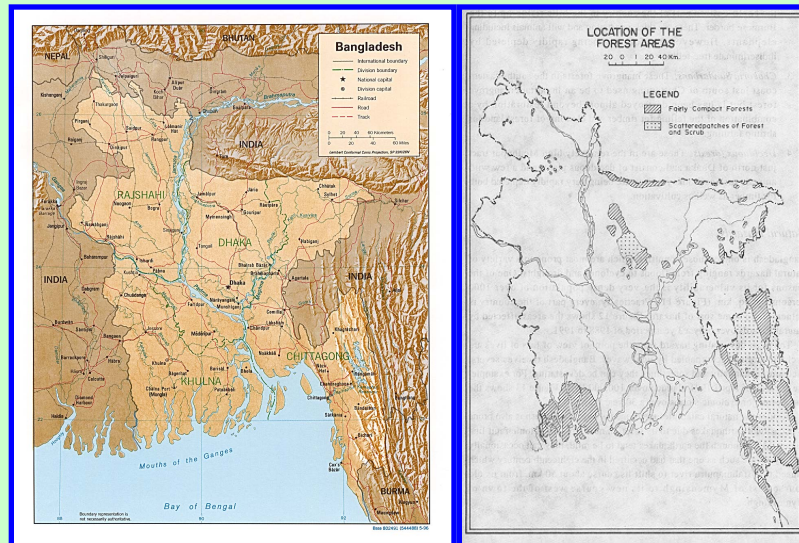
Exhibit 2: [Historical Timeline](#)

Bangladesh has enjoyed relative prosperity for much of its history. The rich soils of its large floodplains and its strategic position as a gateway between India and East Asia made the area bountiful in agriculture and trade. The region was also known for its prized mulsin cloth. This prosperity declined under British rule, though hopes were renewed with the formation of a sovereign state in 1971. The new Bangladesh is a democracy, but it has suffered through corrupt regimes and a series of military coups which has weakened confidence in the government. (Bornstein, 1996)

Exhibit 3 - General Map

Exhibit 4 - Forest Areas

Exhibit 5 - River Systems



Most of Bangladesh is a flat delta at the confluence of several major river systems, the largest of which are the Ganges and Brahmaputra. The basin areas for these river systems lie mainly outside of Bangladesh such that 93% of the waters passing through the country come from outside its boundaries. Rivers cover 7% of the country's surface. The country is very flat, with the exception of the Chittagong Hill Tracts in the Southeast. Plains cover most of the country, but forests and scrub cover the Chittagong Hill Tracts. The Sundarbans, the largest mangrove forests in the world, are found along the Southwestern coast.

Bangladesh has a humid, warm, and tropical climate which is fairly uniform across the country. The three seasons are summer, monsoon, and winter. Summer is a hot and humid season from March to June. Heavy rains occur in the monsoon season, which lasts from June to October. Winter is relatively cooler and dryer, stretching from November to March. Rainfall ranges from 55 inches to 140 inches annually, with 90% of the rainfall occurring during the monsoon season. Floods regularly occur during the monsoon season, and droughts are not uncommon in winter. Mean annual temperature is about 25 degrees Celsius, with a high of about 43 degrees. (Huq, 1994)

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Connections Between Population and Poverty

Poverty and population density cannot be considered independently in Bangladesh. An examination of demographic trends and the distribution of income and land show that population growth is the greatest single threat to Bangladesh's rise out of poverty.

Exhibit 6 - Population 1950-1995

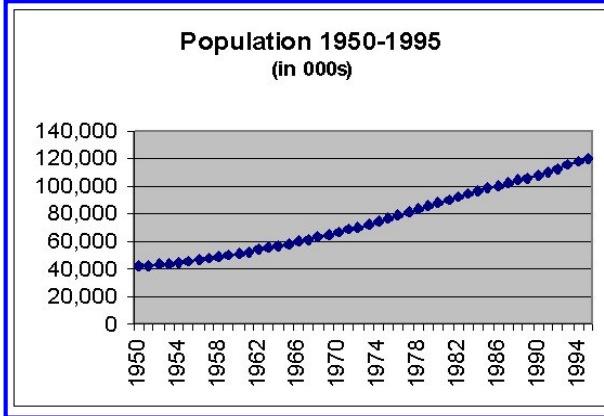


Exhibit 7 - Population Density 1950-1995

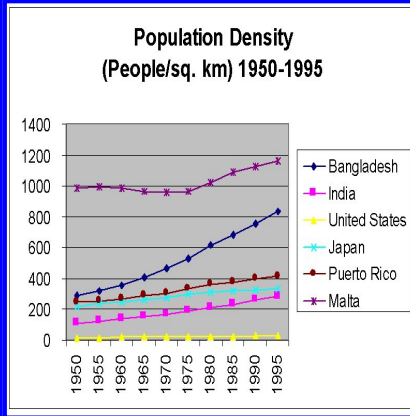


Exhibit 8 - Population Distribution

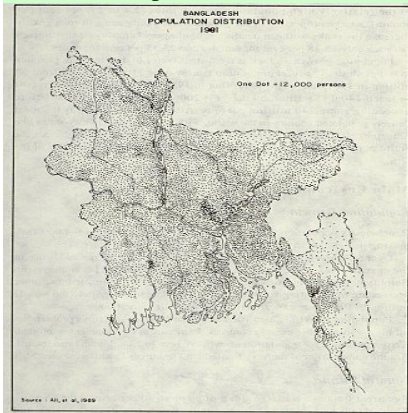
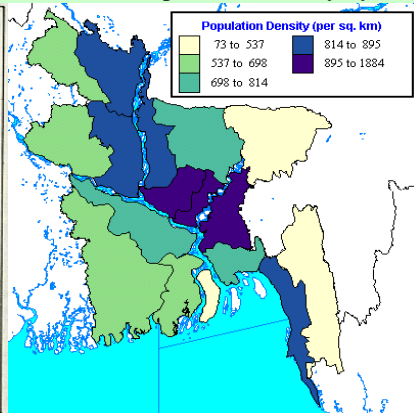


Exhibit 9 - Population Density by Zone

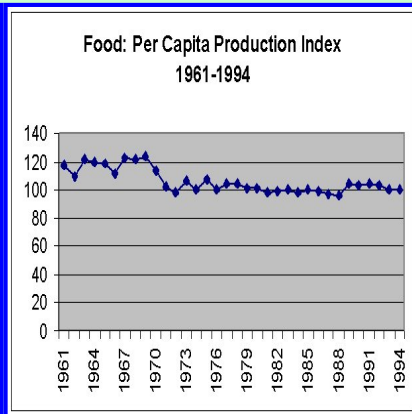
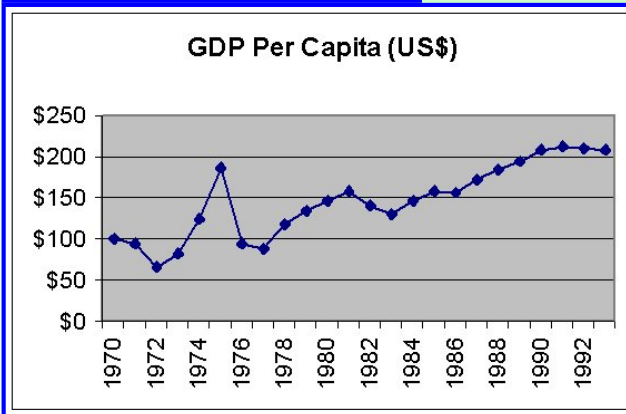
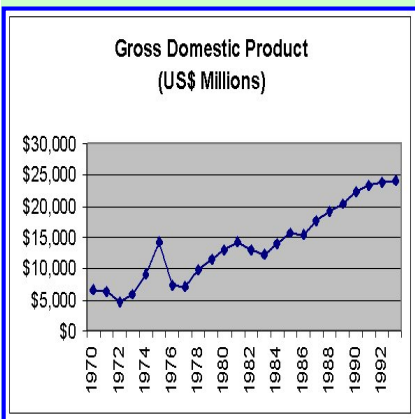


Bangladesh has one of the highest population densities in the world. Sustained population growth has pushed the population density from 290 to 836 people per square kilometer between 1950 and 1995. Population tripled during this period from 42 million to 118 million. Bangladesh's high population density is prevalent across the nation except in the mountainous Hill Tracts in the Southeast, the Sundarbans mangrove forests in the Southwest, and to a lesser degree the Sylhet area in the Northeast corner.

Exhibit 10 - GDP Food Production

Exhibit 11 - GDP Per Capita

Exhibit 12 - Per Capita



Bangladesh has made great progress in increasing its GDP throughout its history as an independent nation after colonial rule. Its early rapid gains after gaining independence in 1971 were lost in the aftermath of Rahman's assassination (see Exhibit 2). Subsequent gains were also threatened by the assassination of Zia in 1981. Ershad's regime made additional progress during the 1980s, but this growth has slowed in the last few years, however. With this slowdown, the growth of the economy has not been able to keep up with population growth, resulting in a shrinking GDP per capita in recent years. The growth of food production has been able to keep up with population growth, but has led to the overuse of farmland and lack of crop rotation. It is questionable whether these increases in production will continue to keep pace with population growth. Already the percent of households meeting basic calorie requirements shrunk from 41% to 21% from 1975 to 1991. (Ahmad, 1994)

The growing population density is an increasing threat to the livelihood of the people of Bangladesh. Agriculture plays a critical role in the economic life of Bangladesh, employing 73% of the labor force and making up 34% of the nation's GDP in 1992. (Ahmad, 1994) The rural poor are increasingly unable to sustain themselves through agriculture because there is not enough land to divide among an ever-growing population. 500 rural males were surveyed in 1974 and indicated that the decrease of per capita land was caused by an increase in the population and the increasing difficulty in distributing land among children. (Duza, 1977) Landlessness has grown from about 20% around World War II to over 50% today. (Bornstein 1966) In 1989, 64% of all rural households (10.4 million households) were landless. (Ahmad, 1994) It should be noted that those with land holdings less than about one acre are often counted as landless because they lack enough land to make a productive living from its use.

The alleviation of poverty in Bangladesh depends on maintaining steady food supply, growing GDP per capita, and maintaining adequate land per capita for economic use. Each of these factors depend upon stabilizing population, so an analysis of Bangladesh's demographic transitions is in order. Many developing countries experience four stages of demographic transition, with the highest population growth occurring during the transition from the second to third stage.

- (1) At low levels of industrialization, birth and death rates (fertility and mortality) are high, creating a balance of slow population growth.
- (2) Death rates fall as basic human health improves while birth rates remain high, creating rapid population growth.
- (3) Birth rates decline as income, education, and health improve, slowing the growth of the population boom.
- (4) Birth and death rates stabilize at a new lower level, creating slow population growth.

(Drake, 1993)

Exhibit 13 - Population Growth Rate

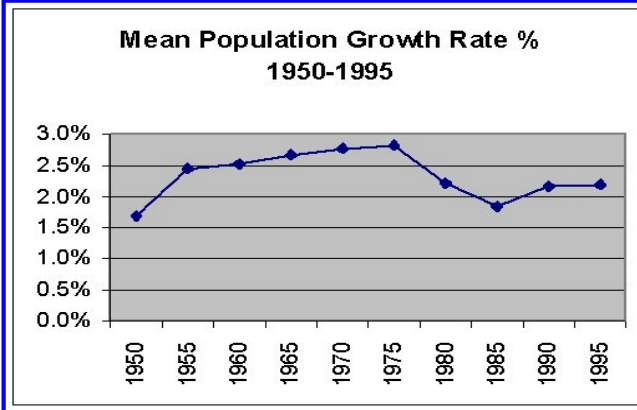
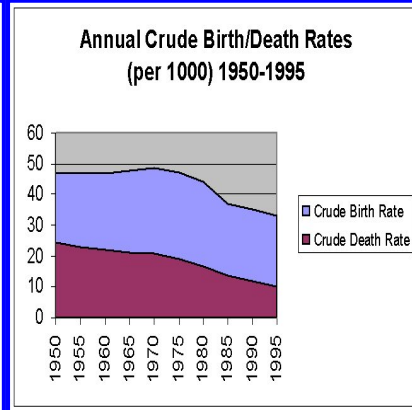


Exhibit 14 - Crude Birth/Death Rates



Bangladesh shifted from the first demographic stage earlier this century. Between 1950 and 1970, the crude death rate decreased due to improved sanitation and medical technologies without a corresponding decrease in the birth rate. As a result, the population grew at a rate of 2.5%-3% during this period. The independence of Bangladesh in 1971 brought with it new economic prosperity and the creation of family planning programs, both of which helped bring the population growth rate down to about 2%. The government's First Five Year Plan (1973-78) and the Second Five Year Plan (1980-85) built a network of Thana Health Complexes which provided family planning and other health services. (Khan, 1988) Bangladesh has remained in the transition from the second to third stages of demographic transition for the past three decades as death rates have continued to fall along with the fertility rate. The difference between the birth and death rates is larger today than it was in 1950 (23.8 vs. 22.8). Bangladesh's status straddling the second and third stages predicts that its rate of population growth is at its highest throughout the overall demographic transition.

Exhibit 15 - Population 1950-2050

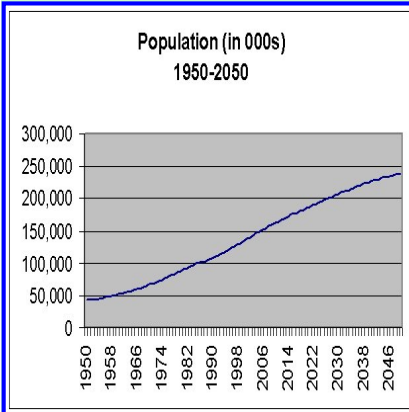


Exhibit 16 - Crude Rates 1950-2050

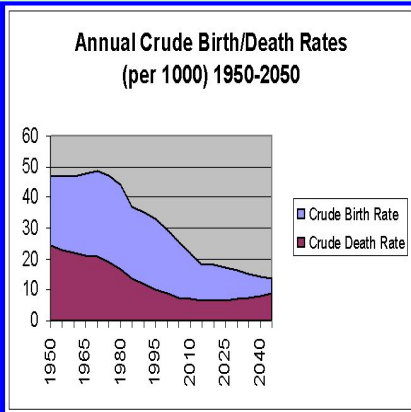
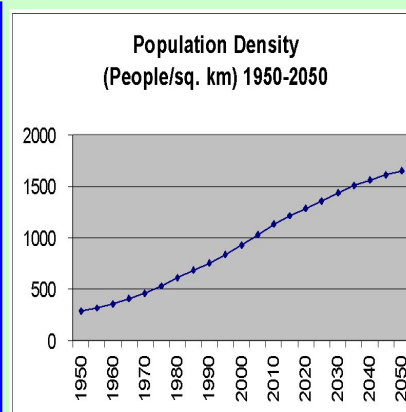


Exhibit 17 - Population Density 1950-2050



The United Nations Population Division's forecast for Bangladesh's population also predicts that the current rate of growth is at its peak for the overall demographic transition, which stretches from earlier this century to about 2050. According to this prediction, Bangladesh will not be able to stabilize its population until the middle of the 21st century. In the meantime, the population will grow at a rapid rate, double in density, outstrip the resources of Bangladesh, and create growing levels of poverty, malnutrition, and pollution. The UNDP model reflects this possibility by predicting that the death rate will stop its decline around 2020 and begin to increase once again.

Exhibit 18 - Langsten's Demographic Models

Figure I-1. Demographic Future of Bangladesh: The Demographic Transition Model.

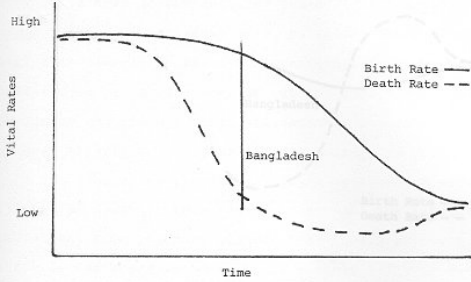


Figure I-2. Demographic Future of Bangladesh: The Doomsday Model.

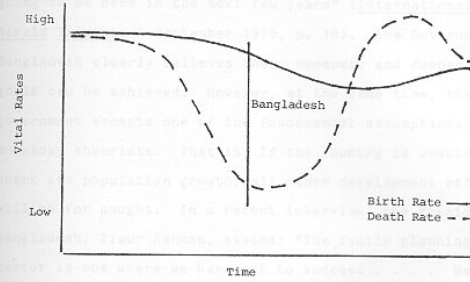
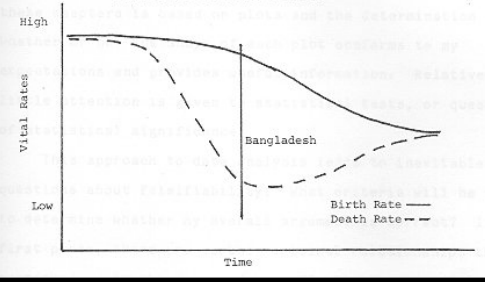


Figure I-4. Demographic Future of Bangladesh: The Middle-Level Alternative.



Predictions for the future of Bangladesh's mortality depend upon assumptions of the carrying capacity of Bangladesh and the society's ability to adapt to the reality of rapidly shrinking resources. In a review of the vital rates of Bangladesh, Langsten presented three models for Bangladesh's future. The UNDP and the government of Bangladesh have assumed that the demographic transition will play itself out with only limited interruption from hitting a lack of resources (Figure I-1). Other doomsday theorists predict food shortages and social chaos creating Malthusian high death rates and population collapse (Figure I-2). Langsten predicts a "middle-level alternative" which is more pessimistic than the UNDP model yet refrains from predicting a total social collapse. (Langsten, 1980) In any case, it remains clear that stabilizing population should be a priority for anyone attempting to alleviate poverty in Bangladesh.

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The Grameen Bank

After the War of Independence, Dr. Muhammad Yunus returned to his native Bangladesh from the United States and became the chairman of the Department of Economics at Chittagong University. Yunus stepped out from his theoretical economic models to interact directly with the local rural poor to find out what their needs were. He discovered that the poor often knew exactly what they needed in order to start or build successful business and agricultural activities, but they lacked access to the credit to make the initial investment.

The poor have a large need for credit to buy assets that will build their potential for income and to cover their needs during emergencies such as illness and drought. In 1987, 59% of all households who borrowed money were poor. Their average credit amount was 537 taka, compared with 16,507 taka borrowed by the average rich borrower. (Bangladesh Bureau of Statistics, 1989) The poor depend upon professional money lenders for credit because traditional banks demand collateral to obtain loans and do not offer small loans (less than \$100US). These money lenders wield strong bargaining power over their poor customers and are able to charge interest rates of 20% per month, which are higher rates than those paid by the rich for commercial bank loans.

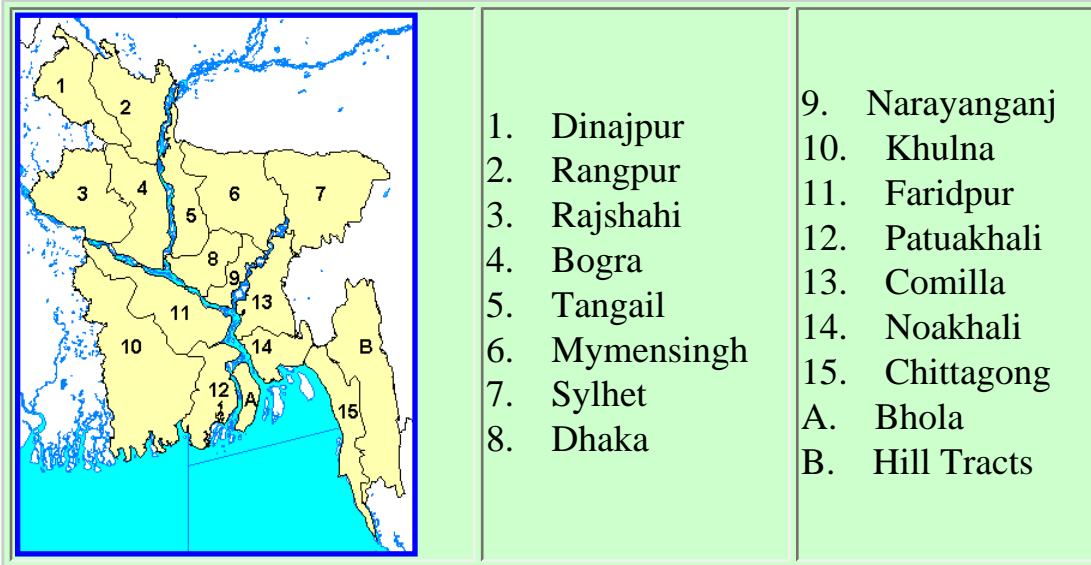
Yunus discovered this strong need for credit and approached the local banks to extend loans. After being rejected by the banks, Yunus lent his own money to the local poor. Heartened by the high payback rate of his borrowers and the economic impact it had on their lives, he institutionalized the practice by creating the Grameen Bank. The Grameen Bank's mission is to eradicate poverty using the tool of microcredit (small loans made to the poor).

The Grameen Bank has achieved a payback rate of 98% by using "social capital" to ensure the successful payback of loans. Loans are distributed to Grameen Bank members through groups. Groups are made up of 5 or 6 members and have the power to decide whether to allow a new member into their group and whether to approve a new loan for one of the members. Each group member has an incentive to evaluate proposed loans carefully because the renewal of their own loans depends upon the successful payback of loans by all group members. The groups acts as an effective filter for loan approval and then provides both support and peer pressure to ensure that loans are paid back once extended. Social capital is the set of close relationships found among rural villagers. The success of microcredit thus depends on the social capital that binds members together and ensures payback.

The Grameen Bank extends loans at the same rate as commercial loans. These loans are typically used to enhance agriculture and entrepreneurial pursuits that range from husking rice and repairing radios, to manufacturing brooms and selling saris. In addition to the standard loans, Grameen Bank members are required to save 1 taka per week. There is also a Group Loan fund that each member must contribute

to. The Group Loan fund is loaned out to cover short-term loans for group members. Both the required savings and the Group Loan fund provide members with the financial reliance to survive through tough times. (Bornstein, 1996)

Exhibit 19 - [Grameen Bank Zones, 1998](#)



Decision making at the Grameen Bank is very decentralized, yet it maintains a clearly hierarchical organization structure shown below. This structure, defined in the early 1990s, allows for a total of 2,700,000 members = $(1 \times 15 \times 10 \times 10 \times 60 \times 6 \times 5)$. Grameen operates in 15 zones and does not currently have operations in Bhola or the Hill Tracts.

- 1 Head office
- 15 Zonal offices
- 120 Areas offices (up to 10 per zone)
- 1117 Branch offices (up to 10 per area)
- 66,293 Centers (up to 60 per branch)
- Groups (6 per center)
- 2,322,736 Members (5 per group)

The Grameen Bank has defined a subset of the population that it targets for its membership. Setting this target helps it maintain its organizational effectiveness and achieve its goals of eradicating poverty. (Bornstein 1996)

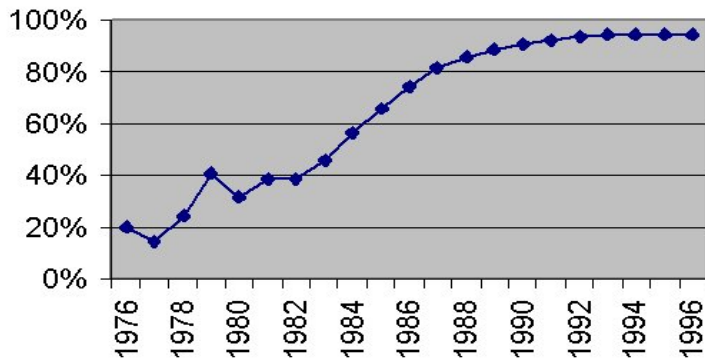
- **Poorest 50%:** The Grameen Bank targets the poorest 50% of the population but admits that its model is not effective in reaching the poorest 10%. The poorest lack social capital because they are often not accepted into groups and approved for loans by Grameen members who fear that these poorest will be unable to pay the loans back.
- **Landless:** The definition of landless has been expanded to include the "functionally landless"

(those with less than 1 kani = .4 acres).

- Rural villages
- Sole family member: Multiple people from the same family will not be accepted as members. This restriction helps to maintain the objectivity of group loan approval decisions.
- Women

Exhibit 20 - Percent Female Members

**Percent Female Members
1976-1996**



Early on, Grameen decided it could have the greatest impact by making loans to women. Women are more likely than men to invest money in ways that will provide food, clothing, and shelter for their families. Women feel the effects of poverty more acutely than do men, and landless women are the group most unlikely to have access to loans from other sources. In order to effectively target women as members Grameen has had to create mechanisms to ensure that the loan money is not simply passed on to their husbands. The Grameen Bank has steadily recruited more women as members and today has a membership that is 94% women.

Exhibit 21 - Grameen Membership
1998

**Grameen Bank Members
1976-1998**

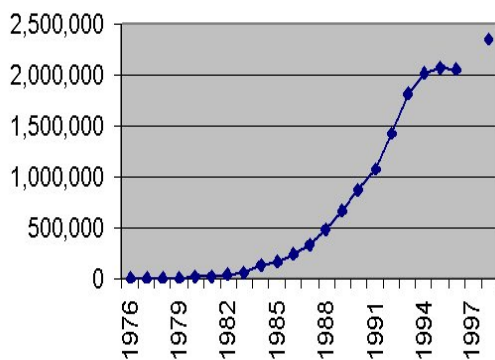


Exhibit 22 - Loan Disbursements

**General Loan Disbursements
(US\$ Millions) 1976-1996**

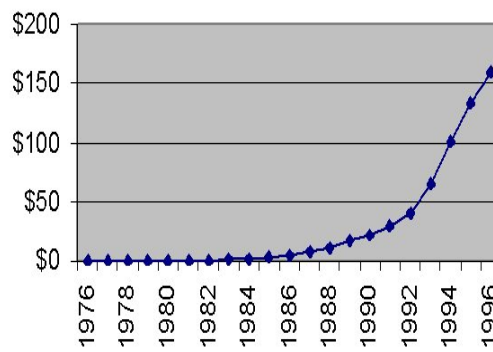
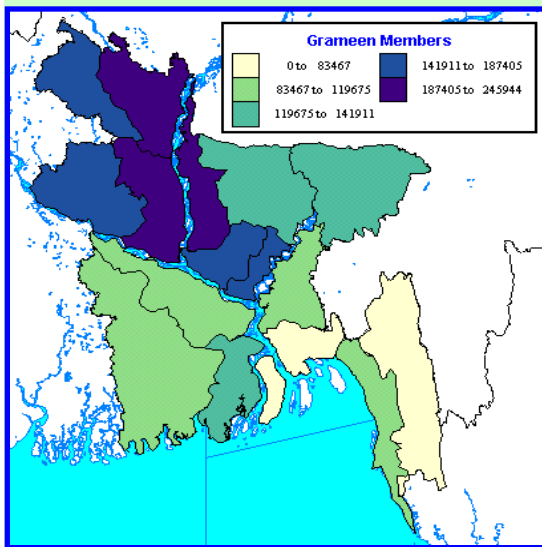


Exhibit 23 - Grameen Members,
1998



The growth of the Grameen Bank has followed an exponential pattern. The biggest constraint to growth in the earlier years was the training of new employees. Training lasts six months, 90% of which is done in existing Grameen centers. The number of new employees and thus new centers was restricted by the number of existing centers, creating the constraint of slow exponential growth in the early years. (Bornstein, 1996)

After growing slowly during the late 1970s and early 1980s, the Grameen Bank rapidly grew during the late 1980s and early 1990s. Today it is the largest non-governmental organization in Bangladesh with over 2 million members throughout the country. Grameen has administered over \$2.5US Billion in loans throughout its history.

Exhibit 24 - Centers per Village

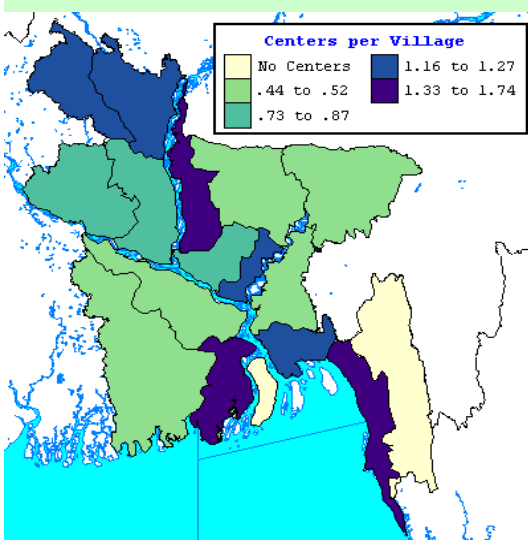
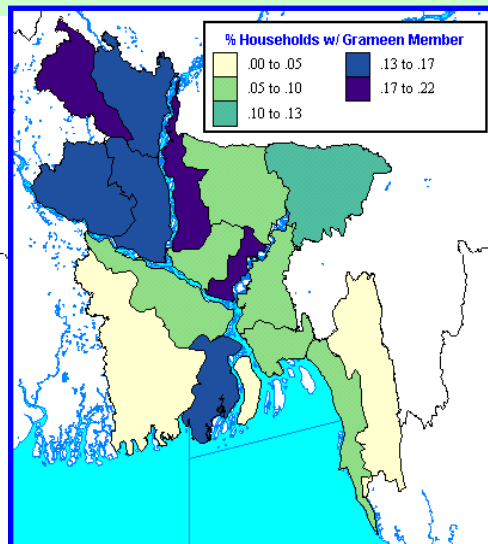


Exhibit 25 - % Households with Grameen Members

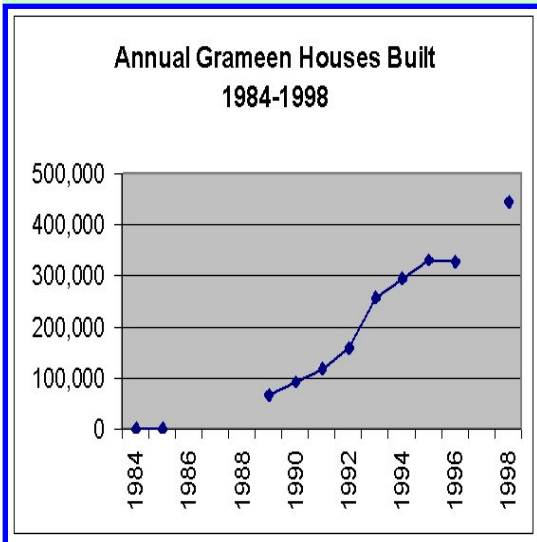


Note: These schematic maps use Grameen member/center information from 1998 and household/village information from 1991. These maps illustrate the relative geographic presence of Grameen rather than to indicate an accurate level of penetration into the population.

Exhibit 26 - [Analysis of Member Penetration](#)

In 1991, Yunus decided to slow the growth of Grameen's membership and focus instead on expanding the variety of services Grameen provides for its members. This slowing of growth is understandable when one estimates the reach of the Grameen Bank into its target population. The organizational structure he designed for Grameen accommodates up to 2,700,000 members but is now almost at full capacity (1998 membership is 2,322,736). Grameen already averages more than one center per village in almost half of the zones in which it operates (but see note above). On average, there are almost two Grameen centers for every three villages. The Grameen Bank has reached a critical mass of members, and it cannot continue its growth indefinitely.

Exhibit 27 - Houses Built w/ Grameen Loans



With the now extensive reach of the Grameen Bank, Yunus has realized that he can do more to alleviate poverty by expanding services offered to current members than by pushing for continued expansion. Through these new services and businesses, Grameen is growing into a family of organizations with the Grameen Bank at its center. In addition to growing economic opportunities for the poor in traditional activities such as weaving cloth, the Grameen Family of Organizations is using market mechanisms to bring high-tech infrastructure into rural Bangladesh. These new services and businesses are listed in the exhibit below with the year in which they were started.

Exhibit 28 - [Additional Services Provided by Grameen Family of Organizations](#)

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Impact of Grameen Bank on Fertility

The Grameen Bank does not place great importance on the stabilization of Bangladesh's population among its broad array of tools it uses to fight poverty. Despite this lack of focus, the Grameen Bank makes a significant contribution to reducing the fertility of its members.

Exhibit 29 - [Sixteen Decisions](#)

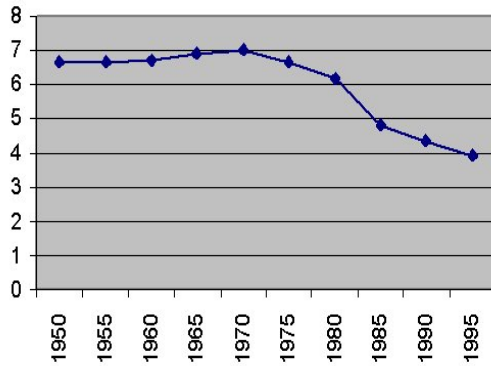
The Grameen Bank has placed some emphasis on having small families. The Sixteen Decisions are the Grameen Bank's social development manifesto, and they are memorized by all members and recited during group meetings. Decision #6 states that "We shall keep our families small." Nurjahan was one of the first female employees and became the highest ranking woman in the Grameen Bank. She and her husband elected to have only one child, an unusual decision in Bangladesh. She explained, saying "If I set a proper example, I can open up opportunities for other women. If I do not, I will create problems for them." (Bornstein, 1996) It should be noted that male children are strongly desired in Bangladesh, and it is likely that Nurjahan was willing to stop at one child because her first was a son. The Grameen Bank does not, however, actively support family planning by providing contraception or family planning education. Members receive contraceptive supplies from government family planning programs or other non-governmental organizations.

Despite this lack of active focus, the Grameen Bank's programs have been shown to increase the use of contraception. Multiple studies have shown that Grameen members are much more likely to use contraception and are more likely to report desiring no more children than non-members. The rate of use increased with the duration of membership. This impact extends (to a lesser degree) to non-members in villages with a Grameen center, who are more likely to use contraception than are women in villages without a Grameen center. The same trends are found among other non-governmental rural credit programs that target women. (Amin, 1996; Hashemi, 1997)

Though rates of use were found to vary between regions (women in Chittagong are less likely, and women in Rajshahi are more likely to use contraception relative to Dhaka), the impact of the Grameen Bank was consistent. Other characteristics of Bangladeshi women which were found to contribute to their use of contraception were: educated, has a son, Hindu (rather than Muslim), has freedom of mobility, has freedom of domination by her family, economically secure, and economically active. (Amin, 1996; Hashemi, 1997)

Exhibit 30 - Total Fertility Rate

**Total Fertility Rate
1950-1995**



The fertility rate has been falling through the 1980s and 1990s. The use of contraception has risen from 3% to 45% since 1971, largely due to government family planning programs started with the emergence of an independent Bangladesh. (Shuler, 1997)

How have the Grameen Bank's programs contributed to this decrease in fertility? The exhibit below lists factors that affect fertility, whether current trends related to each factor are causing fertility to rise or fall, and how the Grameen Bank influences each factor. Each factor is further described below.

Exhibit 31 - Factors Affecting Fertility

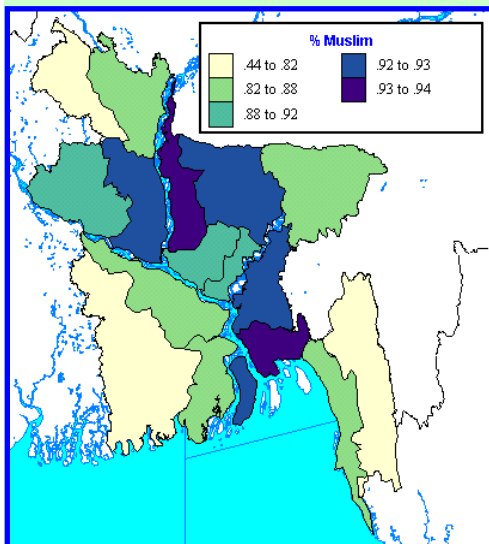
Fertility Factor	Current Trends Increasing or Reducing Fertility?	Grameen Bank Influence on Fertility
Status of Women	Reducing	Reducing
Economic position	Increasing	Reducing
Land holdings	Increasing	Reducing
Purdah	Reducing	Reducing
Independent income	Reducing	Reducing
Education, literacy	Reducing	Reducing
Disease	Reducing	Reducing
Urbanization	Reducing	Increasing
Social Collateral	N/A	Reducing
Access to Contraception	Reducing	Reducing

Distance Between Generations	Reducing	Reducing?
------------------------------	----------	-----------

Status of Women: Women in Bangladesh often hold a low position of status. They are dependent on their husbands for access to money and the external world, are restricted from interacting with others or taking employment, are frequently beaten, and can even be "returned" if their husbands decide they no longer make a good wife. The Grameen Bank strengthens the role of women, giving them money, social interactions, decision-making authority, and a sense of self-possession. This changing role lowers fertility because the women are less dependent upon their children for their sense of security, they have control over decision making for their own lives, and because they grow confidence in themselves and their futures to plan for the future, including using contraception to help plan the growth of their own families.

- **Economic Position:** Sons stay with the family and receive a dowry when married, and they can earn money when grown. For these reasons, women in Bangladesh want male children to provide financial security for their old age. This lack of support in old age is especially prevalent for women because only 20% of women over the age of 65 have a spouse compared with 80% of men (who can remarry). (Bornstein, 1996) Women are fully dependent on and subject to the authority of their husband and his family and have no resources of their own as a backup. The Grameen Bank provides women with the assets they need to feel more secure, and they have fewer children as a result.
- **Land holdings:** Landless women are more likely to be poor, which in turn leads them to want to have more children to provide financial security. This population growth in turn creates more landlessness. High population density can also lead to increased deforestation and water pollution, causing economic and health damage. The Grameen Bank helps to break this cycle by reducing both poverty and fertility.

Exhibit 32 - Percent Muslim



- **Economic Position:** Sons stay with the family and receive a dowry when married, and they can

earn money when grown. For these reasons, women in Bangladesh want male children to provide financial security for their old age. This lack of support in old age is especially prevalent for women because only 20% of women over the age of 65 have a spouse compared with 80% of men (who can remarry). (Bornstein, 1996) Women are fully dependent on and subject to the authority of their husband and his family and have no resources of their own as a backup. The Grameen Bank provides women with the assets they need to feel more secure, and they have fewer children as a result.

- **Land holdings:** Landless women are more likely to be poor, which in turn leads them to want to have more children to provide financial security. This population growth in turn creates more landlessness. High population density can also lead to increased deforestation and water pollution, causing economic and health damage. The Grameen Bank helps to break this cycle by reducing both poverty and fertility.
- **Purdah:** Purdah is a Muslim social code that restricts women from touching or talking to men not in the immediate family. It also restricts women to work in and around the home and forbids the use of contraception. Purdah contributes to high fertility because it restricts their access to information about family planning and more generally reduces the status of women. The Grameen Bank looses the bonds of Purdah by encouraging interaction with other women outside the home and with men who are Bank employees. The women remain Muslim yet gain more control over their lives. Grameen Bank members cite religious tenets as the reason they do not use contraception 10.3% percent of the time, compared with 20.9% for non-members. (Amin, 1996)

Exhibit 33 - Females in Labor Force

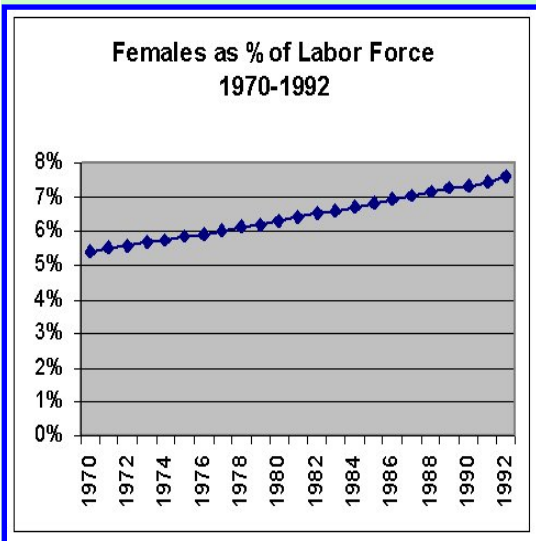
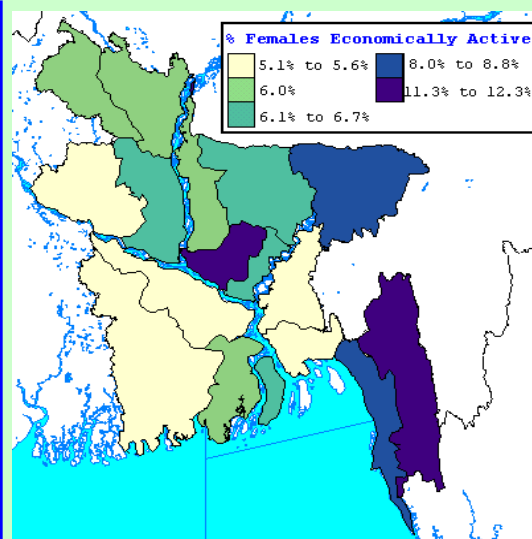
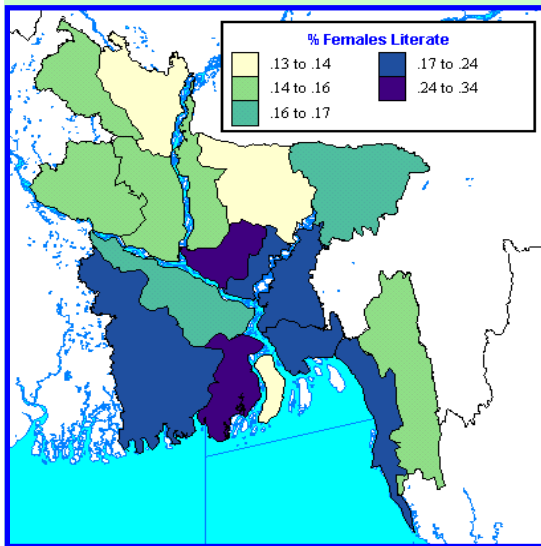


Exhibit 34 - Economically Active Females



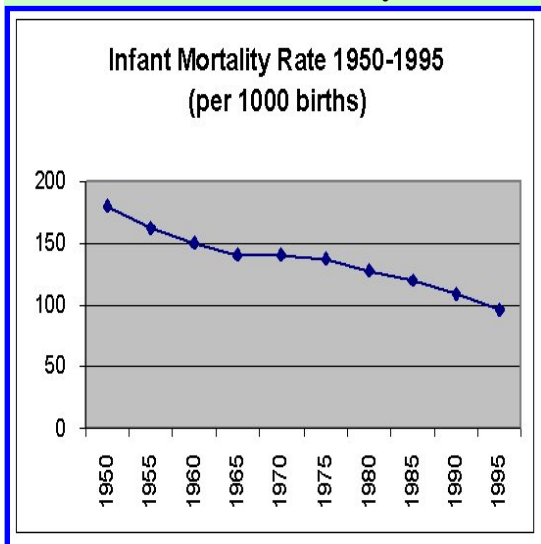
- **Independent income:** Women who have a source of independent income exert greater influence on their husbands and feel a greater sense of economic security. The Grameen Bank gives women the resources and confidence they need to take entrepreneurial action and generate income. In most cases Grameen member bring more income into the household than their husbands. Also, 10% of Grameen's employees are women.

Exhibit 35 - Percent Females Literate



- **Education/Literacy:** Educated and literate women are more likely to use family planning. They are more likely to understand contraception and its use and are more able to generate income which provides for greater economic security. The Grameen Bank indirectly encourages the education of women, if only so that they can record and administer the loans.

Exhibit 36 - Infant Mortality Rate

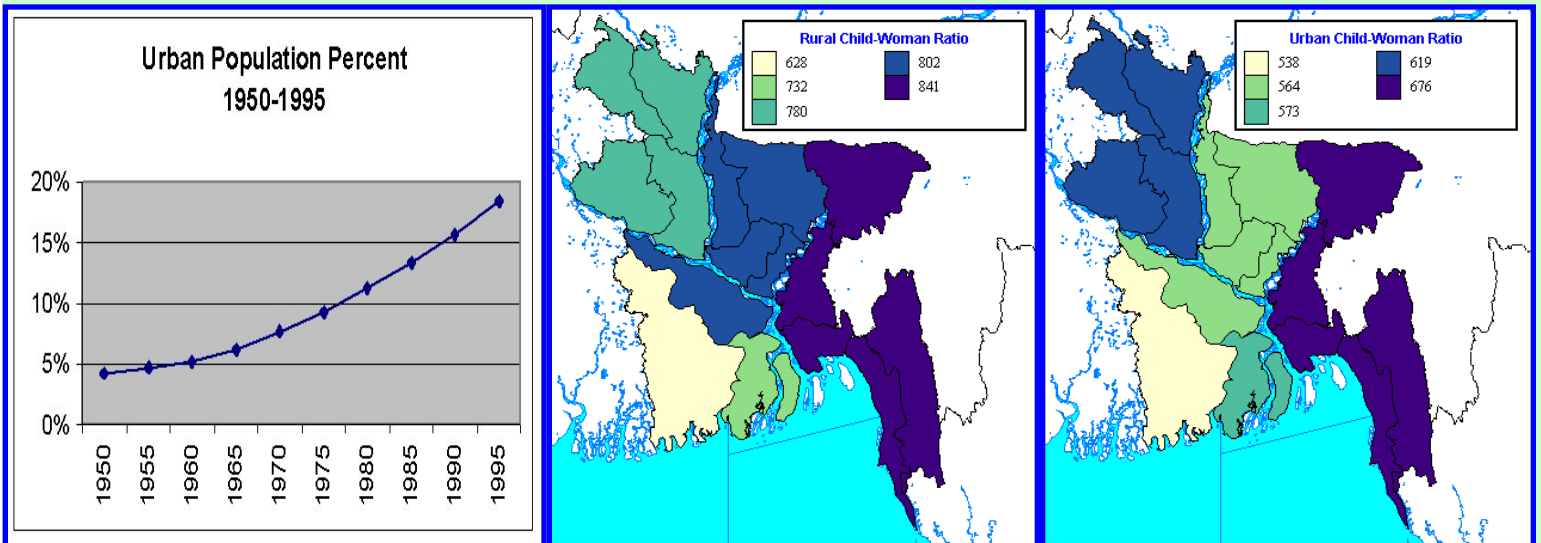


Disease: Disease increases fertility because it is a critical barrier to rising out of poverty, which is itself a contributor to fertility. Also, high rates of infant mortality raise fertility as women have more children to compensate for the high potential for loss. The Grameen Bank helps reduce the incidence of disease through its healthcare and housing loan programs.

Exhibit 37 - Urban Population
Woman Ratio

Exhibit 38 - Rural Child/Woman Ratio

Exhibit 39 - Urban Child/
Woman Ratio



Urbanization: Urbanization by itself does not impact fertility, but an urban setting gives women more access to education, contraception, and employment. Also, child labor is not as valuable away from the agricultural work of rural Bangladesh. The exhibits above show the differences in the ratio of children to women between rural and urban areas. Bangladesh is steadily urbanizing, but the Grameen Bank works to stop the migration of the rural poor by giving them the resources they need to build their incomes in their home villages. For this one factor, Grameen may be increasing fertility by keeping people in rural settings.

Social Collateral: Women sometimes fear that if they become pregnant, they will not be approved for a loan by the members of her Grameen group. There is no official policy that punishes those who have additional children, but the fear of having loans withheld is enough to make some women delay having another child.

Access to Contraception: The use of contraception in rural areas has grown dramatically through government sponsored family planning programs and other NGO programs. Grameen does not include family planning and contraception in its programs, but it may increase access to contraception simply by given women opportunities to communicate with others outside their home and immediate family. The assertiveness they develop through Grameen gives them the confidence to seek out and speak with family planning providers.

Exhibit 40 - Births by Age Group

Exhibit 41 - Age Pyramid

Ages Responsible for Births, 1995

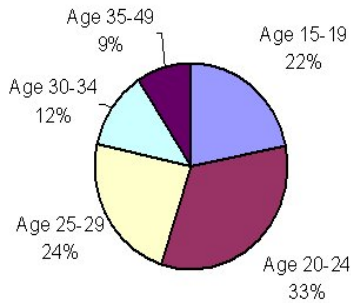
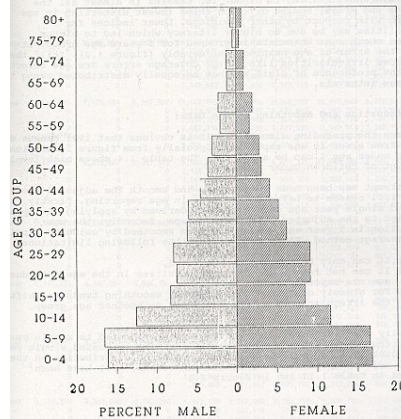
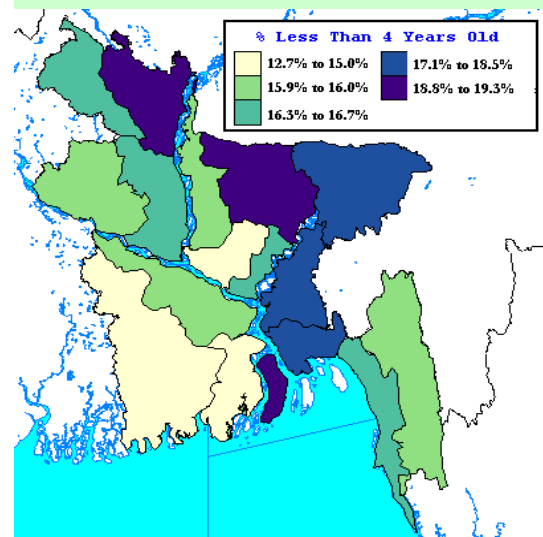


FIGURE 1.2 AGE AND SEX PYRAMID
FIVE YEAR AGE GROUP
FOR ENUMERATED PULATION, 1991



Distance Between Generations: Marriage is nearly universal for Bangladeshi women and occurs early in life, typically between the ages of 13 and 16. Women who marry at a young age start bearing children sooner and have more children over the course of their life. Over half of all Bangladeshi children are born to mothers less than 24 years old. Bearing children while young creates less distance between generations, accelerating the trend of population growth if subsequent generations also have children early in life. The age pyramid in the exhibit above illustrates the "pyramid" pattern of ages found in many developing countries with low life expectancies and high birth rates. The average age of marriage has increased slightly over time. It is not clear whether Grameen is having an impact on the distance between generations. It is possible that enhanced economic security and status of women could make mothers feel less concerned about marrying off their daughters soon.

Exhibit 42 - Percent Less Than Four Years Old



The exhibit above shows the percent of the population in each zone that is less than four years old. In the absence of regional fertility statistics, age distribution data can act as a proxy because a population with a higher fertility rate will have more small children per capita.

Exhibit 43 - [Linear Regression](#)

The exhibit above contains the results of a linear regression showing the contribution that four factors have on the percent of the population under four. This regression was performed with data from the [Grameen Data Spreadsheet](#) file, which contains statistics by zila. A zila is a small area, and Grameen defines its zones as a collection of zilas. The four factors tested are: % of females economically active, % of females literate, % Muslim, and % Urban. It should be noted that the regression was not very conclusive and that many factors could not be included due to lack of data. Most of the results of the regression weakly agree with our expectations that all factors would lower fertility except "% Muslim", which would raise it.

One conclusion that does seem clear is that female literacy has a clear relationship to the percent under four. The three zones with the highest fertility are also the three zones with the lowest percent of literate women. (Rangpur, Mymensing, and Bhola) The three zones with the lowest fertility are among the most literate zones for women.

Other factors still contribute to fertility rates, however. The other zones with high fertility (Sylhet, Comilla, and Noakhali), have reasonably high literacy rates for women. These three are all very rural. Two of these zones (Comilla and Noakhali) are strongly Muslim and have few of their women working. Sylhet is known as Bangladesh's most conservative area, and Grameen has struggled with religious fundamentalists over its activities. (Bornstein, 1996)

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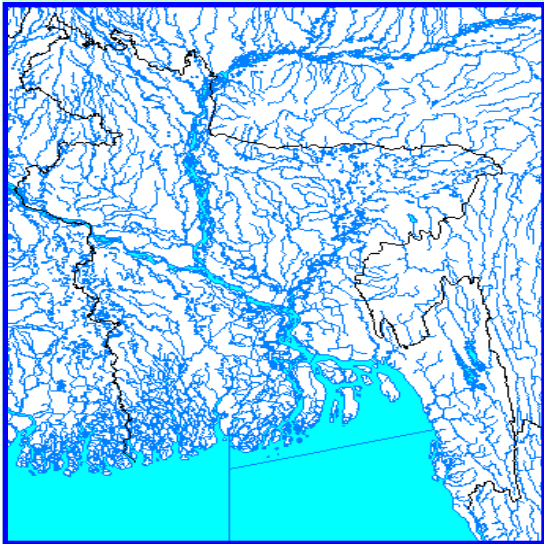
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Natural Disasters

"Inshallah" means "God willing" in Bangladeshi. This word is used whenever people describe a future event or express hope for the future, and its use is indicative of lives full of uncertainty. Part of this sense of insecurity is due to the frequency of natural disasters that threaten the economic gains the country has made. Though these disasters are responsible for a loss of life in the short-term aftermath, the resulting increases in poverty and disease create an overall rise in fertility and therefore population growth. The Grameen Bank has been able to operate effectively in the face of natural disasters and plays a major role in protecting the rural population from an economic collapse.

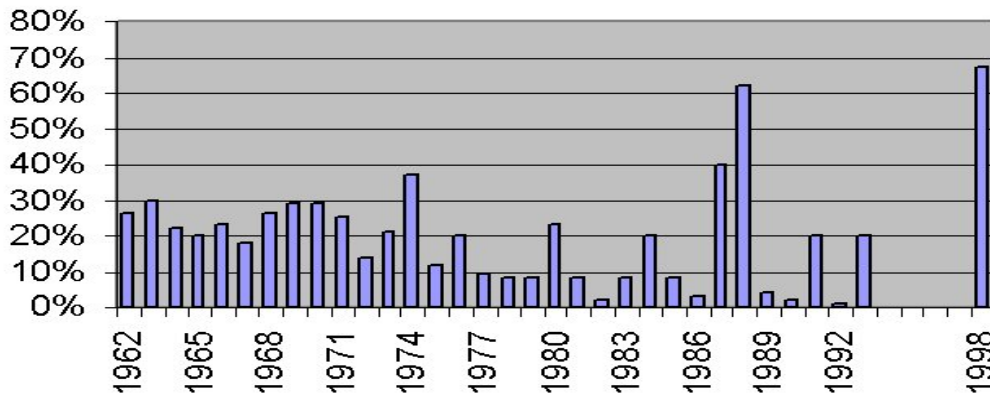
Exhibit 44 - River Systems



Floods are the most prevalent form of natural disaster in Bangladesh. The country is criss-crossed with 230 rivers, and most of the land is very flat with local relief ranging between 1 and 2 meters. (Pramanik, 1994) These characteristics provide ideal conditions for flooding, which can result from the combination of a number of contributing factors such as siltation, excessive rainfall upcountry, simultaneous peaks in the levels of multiple rivers, and human disturbances such as deforestation and the construction of roads and bridges. Other influences can include tidal and wind effects and earthquakes.

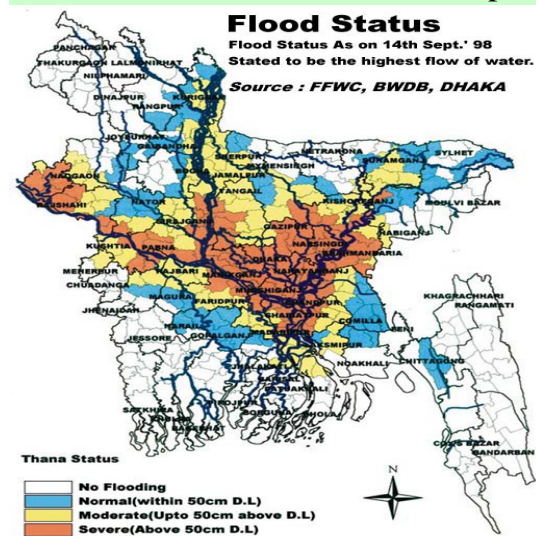
Exhibit 45 - Flood History, 1962-1993

Percent Land Area Affected by Flooding



Floods normally occur in the Monsoon season each year, covering up to 30% of the land surface. The people of Bangladesh have adapted to these conditions, for example breeding a strain of rice which can grow in flood conditions over twenty-foot deep. These floods are considered beneficial to floodplain agriculture because blue-green algae that thrive in the floodwaters fix atmospheric nitrogen to the soil and therefore enhance the fertility of the soil.

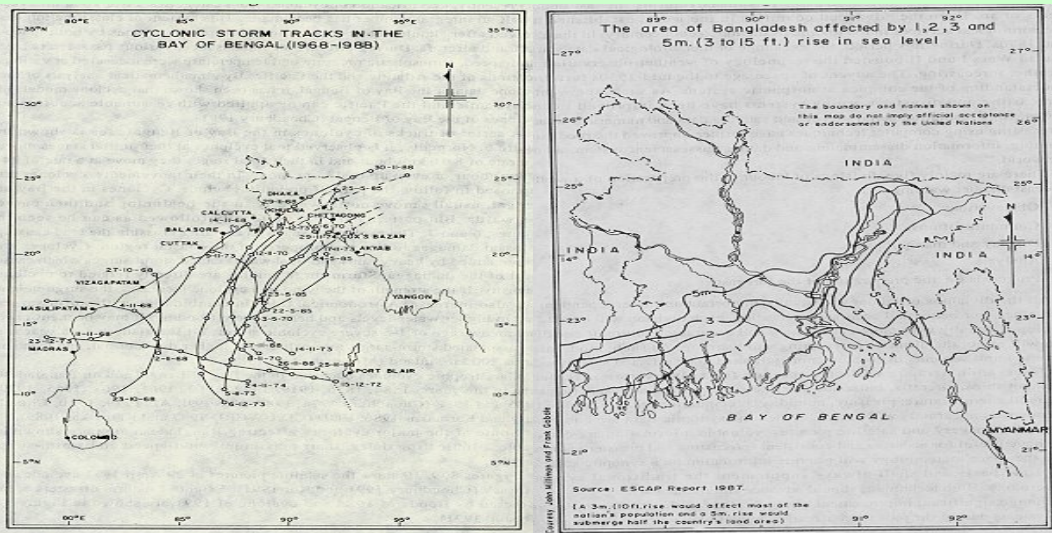
Exhibit 46 - 1998 Flood Status Map



Catastrophic floods have occurred periodically that overwhelm the ability of the people and agricultural systems to adapt. Such floods were recorded in 1787, 1830, 1926, 1938, and more recently in 1987 and 1988 when the floodwaters covered 40% and 62% of Bangladesh's total land area respectively. Bangladesh is recovering from the worst flood of the twentieth century which occurred during the Monsoon season of 1998 and flooded over two thirds of the country's land area. Maps, photographs, damages, Grameen's response, and case studies of the impact to Grameen members can all be found in [1998 Flood Zones](#).

Exhibit 47 - Cyclone Paths

Exhibit 48 - Sea Level Rise



Other types of natural disasters regularly threaten Bangladesh. (Pramanik, 1994)

- **Cyclone:** Winds from the north and south hemispheres meet at the equator and frequently create storms which are funneled up to Bay of Bengal towards Bangladesh. Each year, about 80 tropical storms occur around the world, four of which appear in the Bay of Bengal. An average of 16 cycloners hit Bangladesh each decade. In 1991 a cyclone hit Chittagong with 225 km per hour winds. The cyclone killed 139,000 people overnight along the shore. Most of the damage occurred not from the winds but from the twenty-foot tidal wave that hit the coast.
- **Drought:** Droughts sometimes occur during the winter season, when there is little rainfall. The most recent bad drought occurred in 1979 and impacted 42% of the country. Droughts are most common in northwestern Bangladesh.
- **Earthquake:** These occur most often in the northeastern part of the country. Earthquakes have been recorded up to 7.0 and 8.7 on the Richter scale.
- **Sea-level change:** 20% of the landmass of Bangladesh is less than three meters above sea level. This places the country at great risk if global warming causes sea level to rise in the future.

These natural disasters cost a huge toll on human life and productivity. This impact comes in the form of:

- Human death
- Loss of livestock
- Loss of crops
- Disease (diarrhoeal diseases and hepatitis)
- Contaminated drinking water
- Loss of housing, roads, infrastructure
- Economic slow down
- Land erosion, changing of river courses

Landless women face more risks from random catastrophes than others. They usually have no resources to serve backup and provide for basic needs after a catastrophe. Due to their observance of Purdah and

their socialized passivity, women also tend to come last in the queue of distressed people waiting to get relief from aid agencies. Children are dependent on their mothers for food, so they are also deprived of relief goods.

Exhibit 49 - Early Grameen Territory



The Grameen Bank has successfully established centers within the floodplains. The normal annual flooding does not disrupt the social fabric of the rural villages enough to destroy the social capital upon which the success of the Grameen Bank depends. By 1982, the Grameen Bank had expanded out from Chittagong into four other areas: Rangpur, Tangail, Dhaka, and Patuakhali. In choosing flood-prone areas such as Rangpur, Tangail and Dhaka for early expansion, Grameen showed its confidence in its ability to operate in floodplains.

Grameen's success factors in its operations have been consistency, transparency of information, trust and close relations with villages, and dedicated staff. Natural disasters have placed great stress on Grameen, yet internal struggles that threaten Grameen's key success factors have been the larger threat. (Bornstein, 1996)

- Grameen suffered a crisis in Rangpur when default rates climbed as high as 25% after the floods of 1987 and 1988. Shah Alam, a troubleshooting Grameen manager, came to Rangpur and set up meetings with staff members and members to listen to their problems. He discovered a large amount of resentment towards Grameen due to the zonal manager pressuring them to pay back their loans regardless of their situation. Shah Alam acted to restructure their loans and created innovative programs to bring them back into confidence with Grameen and back on their feet economically. Once the unraveling of the relationship between the members and Grameen was stopped, the damage caused by the flood could be effectively addressed.
- In 1991 Chittagong was hit by a large cyclone just as Grameen was struggling with the possibility of a new union among its staff. Unions are particularly volatile in Bangladesh, leading a worker to later say, "We can deal with natural disasters. The cyclone made life difficult for borrowers in Chittagong. But by destroying the staff discipline, a union could destroy the bank. Everything

depends on the bank workers going to the center meetings regularly and doing their work systematically. No cyclone could cause the collapse of the Grameen Bank, but all it would take would be one strike."

The Grameen Bank has made strong contributions to the resilience of its members in the face of natural catastrophes. The number of deaths, while tragic, is not catastrophically large in these disasters; the lasting damage done is economic. In addition to reacting to natural disasters after they occur, Grameen builds proactive protection for its members. These activities preserve conditions that promote lowered fertility by protecting the incomes, health, and prosperity of Grameen's women members who are the hardest hit by natural disasters. These reactive and proactive activities are described below:

Reactive

- **Meet with members:** Grameen employees contact members and gain an understanding of their needs immediately after a natural disaster. Their presence in the absence of representatives from the government or other organizations builds strong trust in the Grameen Bank.
- **Reschedule payments:** Grameen loans are never cancelled, but their payment schedules are delayed when a natural disaster destroys the ability of members to pay their installments.
- **New loans:** Grameen extends new loans to members for food, housing, and other essentials so that they can rebuild their asset base and more quickly become self-reliant once again. One popular loan extended in response to the 1987 floods in Rangpur was the goat loan. Goats were offered to members, who would pay back the "interest" in the form of the goat's first two kids.
- **Distribute supplies:** Grameen distributes supplies such as food, saplings, and medicine to victims of natural disasters, though it often offers these supplies in the form of a loan. Government supplies are often not effectively distributed because they are dropped from aircraft and either rot or sink in the floodwaters or are possessed by a small number of recipients and not equitably distributed. The Grameen Bank's employee and member network make it more effective in distributing aid. Supplies reach the women members who would not otherwise have access to aid.

Proactive

- **Housing loans:** By requiring that all houses built with Grameen housing loans be constructed according to strict standards, members own a house which is more likely to survive and provide roof-top protection during a flood.
- **Required savings:** By requiring weekly savings, Grameen ensures that its members will have at least a minimum of resources to build upon after a natural disaster.
- **Build relationships:** Grameen builds strong relationship with its members through the consistency, commitment, and honesty of its organization and employees. These relationships allow Grameen to survive in the aftermath of a natural disaster. Members would be likely to ignore their loans if they did not trust Grameen and think it would not return.

High population density worsens the impact of natural disasters. For example, the health and wellbeing

of more people are impacted by each local disaster. Relief supplies of food, water, and medicine must stretch further. People forced to build on marginal land due to population pressures are vulnerable to land erosion. Most importantly, the simultaneous economic devastation of ever increasing numbers of people makes Grameen's task of financial relief increasingly difficult.

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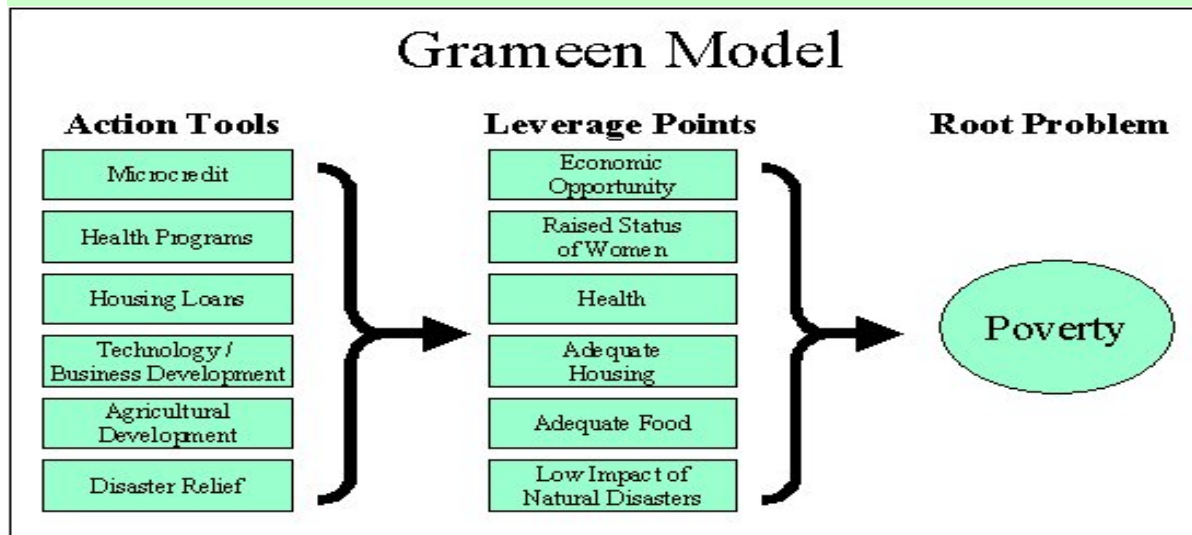
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Conclusions

Yunus describes his attitude towards population growth as follows: "Population is not the problem. If you had a lot of land, would you worry? No, you wouldn't. You'd think it was a source of income. If you had a lot of trees, you wouldn't worry. So why worry if there are a lot of people? Because they eat. They take away resources. But you're only looking at one side of the picture; you forget that they also produce. You're not seeing that part of it and that's why you worry. I see the other part. I see that people are creative. You worry because you don't promote that creativity. You don't allow them to produce things. If we provide opportunities for people, we don't have to worry about them." (Bornstein, 1996) This view of people as creative resources is what allowed Yunus to develop the idea of microcredit, in which the rural poor create their own economic opportunities. The Grameen Bank has used the tool of microcredit to successfully address the problems of poverty among rural landless women. Its model has proved to be robust enough to not only survive the onslaught of natural disasters, but blunt their impact on Grameen members.

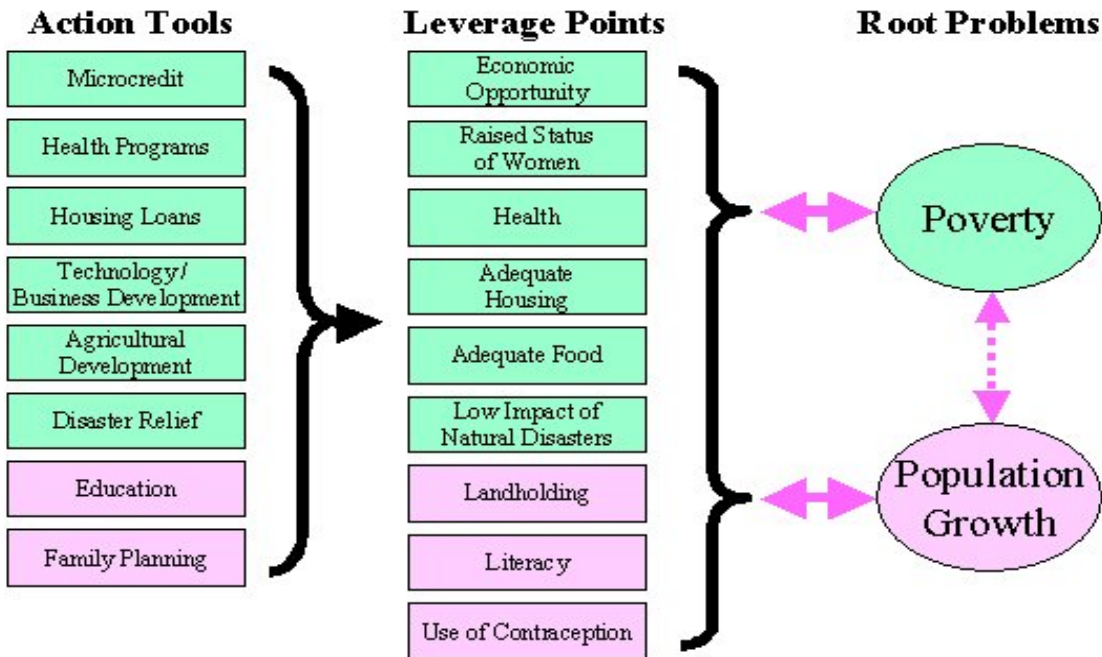
Exhibit 50 - Grameen Model



The exhibit above shows the conceptual model Grameen follows today. It uses a broad set of "action tools" such as business development and health programs centered around microcredit in order to impact the factors that contribute to poverty. These factors, or "leverage points" for poverty include creating economic opportunity, raising the status of women, and others. Grameen sees alleviating poverty as its single goal. Note that action tools impact multiple leverage points. For example, housing loans increase adequate housing, economic opportunity, and the status of women (the houses are in the woman's name). Note also that many connections exist between leverage points where one impacts the other. For example, lowering the impact of floods directly or indirectly improves all of the other leverage points.

Exhibit 51 - Expanded Grameen Model

Expanded Grameen Model



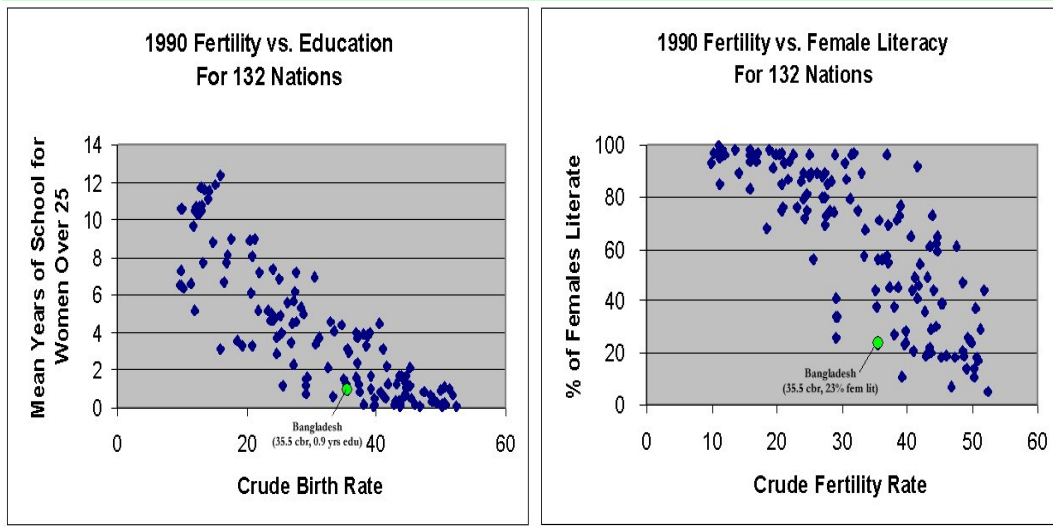
The Grameen Bank should take the issue of population growth more seriously, however. The exhibit above shows an expanded and more complete conceptual model that Grameen should adopt, with new elements shown in purple. This model adds population growth as a root problem to be addressed in addition to poverty. This expanded model also shows a two-way relationship between the leverage points and the root problems. For example, many of the leverage points such as literacy and use of contraception influence population growth. Population growth in turn influences leverage points such as landholding, low impact of natural disasters, and adequate food (and other possible leverage points not explored in this paper, such as deforestation and pollution). By influencing the leverage points, the two root problems influence each other, as represented by the dotted double arrow joining them in the model. Therefore, in order for Grameen to achieve its mission of eradicating poverty, it must work to stabilize population in Bangladesh.

Grameen already contributes to stabilizing population by (1) reducing fertility by raising the status of women and (2) reducing the impact of natural disasters that would create conditions for population growth. Grameen can do even more by incorporating two additional action tools into their strategies: family planning and education for women. Doing so would fit Grameen's current strategy of expanding its services beyond loans. Grameen could develop ways to integrate family planning and educational services into its own operations, but it may not want to lose focus from its current strategies. At the very least, Grameen should promote, coordinate efforts with, and lend assistance to other government and NGO programs that specialize in family planning and education.

Grameen can have an especially large impact through these action tools because its target group (rural poor) experience higher fertility rates than other sectors of society. Grameen members are 94% women, making it an ideal vehicle to communicate and promote female education and the use of contraception

by women.

Exhibit 52 - Fertility vs. Female Education Exhibit 53 -Fertility vs. Female Literacy



Grameen might be able to have a larger impact by focusing on educating women than through family planning. Family planning programs have been fairly successful in Bangladesh and had grown the use of contraception from 3% to 45% of all women by 1990. These programs have been the main force driving the decline in fertility since the 1970s. Education and literacy for women had not progressed as far in 1990, with only 23% of women able to read and an average schooling of less than one year for women over 25 (compared to 47% literacy and over three years of schooling for men). The above exhibits show Grameen's position relative to other nations in terms of comparing fertility rates with literacy and education rates. In both cases, Bangladesh has one of the lower fertility rates among countries with similar education and literacy rates. This accomplishment is due to Bangladesh's successful family planning programs (which have moved Bangladesh's data point to the left on the exhibits). The exhibits suggest that the benefits of family planning have largely been achieved for Bangladesh and that Bangladesh can continue to reduce fertility by raising education and literacy rates (which corresponds to moving Bangladesh's data point up and to the left in the exhibits, following the path laid by other nations). This importance of education and literacy for Bangladesh agrees with the evidence from the linear regression performed on regional literacy and fertility data.

Cultural and economic factors vary widely between regions in Bangladesh, so Grameen should attempt to understand the primary factors that contribute to fertility in each region and act accordingly. Grameen should also target zones that have the highest rates of fertility and the highest population density because these two factors together determine the amount of population growth over time. The regional data used in this report is of limited use due to its timeliness (1991 data), its accuracy (using the percent of population under four as a proxy for fertility rates), and its completeness (data was limited to the factors of % urban, % females literate, % females economically active, and % Muslim). With its large network, Grameen should do some data collection of its own to better understand which factors most influence fertility regionally. It should also track this data over time to understand how fertility and these factors are changing. Despite its current limitations, the current data does suggest some possible actions that Grameen should evaluate. All of these suggestions focus on reducing fertility and ignore other goals and

factors which Grameen should take into account. The easiest way to understand these suggestions is to refer to the [Bangladesh Zonal Maps](#).

- Grameen should promote education programs in Rangpur and Mymensingh, which have the highest fertility rates and lowest literacy rates.
- Bhola has a high rate of fertility, but its population is still very low. Grameen should consider entering Bhola to help stabilize the population, but the need is not urgent.
- Comilla and Noakhali have high rates of fertility and low rates of economic activity for women. Grameen should consider further penetration in these zones with its microcredit and other economic development programs.
- Population growth is high in Sylhet, most likely due to the strength of fundamentalist Islam in the region, though the rural nature of the population could also be contributing. Grameen should consider further penetration of Sylhet with a variety of programs that focus on raising the status of women, though the low current population of the zone means that the need is not urgent.
- Grameen should emphasize family planning programs in Chittagong, where contraception usage remains low with no other obvious contributing factors.
- Grameen should focus current flood relief efforts on Comilla, Narayanganj, and Bogra, which all sustained heavy flood damages and all have relatively high population density and fertility rates.

Bangladesh is a country known for its problems of poverty, population growth, and natural disasters. 1998 headlines brought news of Bangladesh's largest flood of the century and the discovery that naturally occurring arsenic in ground water has been slowly poisoning millions of Bangladeshi people for years. (Bearak, 1998) In contrast, the Grameen Bank has gained international acclaim and has illustrated the ingenuity of the Bangladeshi people as an example for the rest of the world. The Grameen Bank plays a critical role as Bangladesh tries to regain the prosperity of its earlier history, and this role could be made even more effective by expanding its vision to include the problem of population growth.

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RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Louis Garvin

Relationships Between Projects

Two Birds With One Loan: The Grameen Bank's Impact on Population Growth in Bangladesh is a research project completed as part of a class (SNRE 545) taught by Sandra Arlinghaus and William Drake. This project will be combined with others from the class into a single monograph. This short paper examines relationships between the projects.

Since the mid-1980s, people have been travelling to Bangladesh to learn more about Professor Yunus' "experiment" with microcredit. In 1991, a network of organizations trying to replicate the Grameen model was formed named CASHPOR (Credit And Savings for the Hard-core POoR). In 1992, the Grameen Trust was added to the Grameen Family of Organizations to assist replication efforts in other countries. The Grameen Bank has continued to demonstrate the power of microcredit to alleviate poverty and has captured the world's attention and imagination. In 1997, over 2900 people attended the Microcredit Summit in Washington, D.C., representing 1500 organizations from 137 countries. The summit participants plan to extend the reach of microcredit around the world and have launched a campaign to reach 100 million of the world's poorest families by 2005. (Microcredit Summit, webpage).

Professor Gibbons, CASHPOR's Executive Trustee, believes that the Grameen model should be changed to fit local cultures and needs, but that certain core elements must be kept to ensure success. (Todd, 1996) These elements are:

- exclusive focus on the poor, with preference for poor women
- simple loan procedures administered in the village
- small loans repaid weekly and used for any income-generating activity chosen by the woman herself
- collective responsibility through groups bolstered by compulsory group savings
- strict credit discipline and close supervision through weekly meetings and home visits.
- rigorous, practical training of full-time staff
- field-oriented management
- political neutrality
- open and transparent conduct of all business
- setting an interest rate which will cover costs at full operation and aiming for financial viability.

Using this definition, the use of microcredit to solve problems addressed by other class research projects is not always clear. For example, Martha Masterman describes the need for cooperatives for local farmers to give them better access to market their products. Farming cooperatives are not in the narrow definition of microcredit given by Gibbons, however. It is not clear how microcredit could help the street children whose plight is described by Chandra Sivakumar, because children do not fit within the defined target and structure of microcredit programs. On the other hand, the Grameen Bank has itself

been expanding beyond its basic microcredit program into new technology and business development programs. Grameen's example shows that variations are possible which deviate from the parameters described by Gibbon. Perhaps solutions based on microcredit could be developed to specifically address the issues raised by Masterman and Sivakumar.

Of the other class projects, Mark Schmidt and Christina Welter's work on Uganda shows the most promise for the application of microcredit. Schmidt describes the lack of any work available for women as the main factor leading them to work as prostitutes. This high level of prostitution has been a major contributor to the AIDS epidemic that has ravaged the country. Welter points out the low status of women as contributing to Uganda's lack of movement towards a stable and prosperous society. Microcredit can provide employment for women and raise their status in society. This focus on women has a positive rippling effect on family health, education, and economic and societal stability, all of which is desperately needed in Uganda.

Microcredit is only one tool to alleviate poverty. Natalie Henry's analysis of Mexico describes the maquiladora program, in which foreign individuals or businesses can establish a wholly owned operation in Mexico for the manufacture of export products. The maquiladora program forms a stark contrast to microcredit as practiced by the Grameen Bank. Most maquiladora factories use foreign management, so the only gains for the Mexican people are wage labor jobs. Microcredit builds local ownership of assets and strengthens indigenous economies. The maquiladora program forces people to move to the factories along the United States/Mexico border, into areas without a stable social structure and without the proper physical infrastructure to support them. Microcredit gives people the freedom to control their own work in their current communities. Maquiladoras provide much needed jobs and foreign currency for Mexico, but microcredit is a better strategy for developing countries to build strong communities and long term independence.

Sujata Narayan and Jennifer Talbot discuss the development of ecotourism in Costa Rica and Niger. Several comparisons between ecotourism and microcredit can be made:

- Ecotourism may fall somewhere between microcredit and maquiladoras in that it combines foreign dependency with some local control. In theory, ecotourism brings in foreign tourists for activities that respect local cultures and fragile environments and provides employment for local people. Narayan points out, however, that in reality, foreign tour operators often make most or all of the profits from ecotourism and that environmental protection is sometimes not maintained. Her analysis provides a warning for other countries adopting microcredit: a failure to carefully monitor the program can lead it astray from its goals. For example, allowing microcredit loans to go to the wealthy or allowing women to give loan money directly to their husbands can lead a microcredit program away from its goals of reducing poverty and raising the status of women.
- Talbot describes how the Tuareg people continued many of the conservation activities associated with Niger's ecotourism program because they had been closely involved with the program's development and it had become an integral part of their lives. In order for microcredit to be successful, it must similarly be integrated into the local culture. A microcredit program organized by an unknown outside organization is less likely to be successful because borrowers may not

have confidence that the program will continue. They may default on their loans if they do not see an advantage to be gained from staying involved with a trusted program run by themselves and their neighbors.

- Each program brings benefits outside of economic gain that the other program type does not address. Microcredit raises the status of women, but does not directly consider environmental issues as does ecotourism.

Two of the other projects raise interesting questions for future research:

- Natalie Henry describes the strong role the government has played in various transitions in Mexico. While government programs have also had a large impact in Bangladesh, the strength of non-governmental organizations (NGOs) stands the country apart from others. The Grameen Bank and many other large, successful NGOs play such a major role in the Bangladeshi economy and life that the government has at times expressed concern that it lacked control. The Bangladeshi people lost confidence in their government during the military coups of the 1980s and learned to trust the consistency and honesty of NGOs, which grew in support and reach during this decade. The Mexican people have also had little faith in their government in several periods of their history, yet an NGO infrastructure of comparable size has not emerged. What conditions have led to the strength of NGOs in Bangladesh? Is there an ideal mix of government and NGO power that balances the efficiency and innovation of NGOs with the accountability and legitimacy of a democratic government?
- Michael Teifel's analysis of Vietnam focused on the ethnic minorities who live in the northern highlands. The Vietnamese government has considered their territory as an open frontier for migration from other overpopulated areas. Teifel points out that the northern highlands can only sustain smaller populations due to lower agricultural productivity in the mountainous regions. Bangladesh also has a mountainous region populated by an ethnic minority. Most of Bangladesh is populated with a relatively homogenous cultural group. The Chittagong Hill Tracts, however, support about a million tribal people, of mostly Mongoloid origin, who remain largely separated from the rest of the country and zealously guard their traditions and cultural heritage. The Hill Tracts are mountainous and can support a much smaller population density than the rest of the nation. The Grameen Bank does not operate in the Hill Tracts most likely due to linguistic and cultural barriers. Teifel's analysis of ethnic minorities in Vietnam raises several questions: Are the Hill Tract peoples discriminated against in government representation and programs? Are people from the rest of the country moving into the Hill Tracts in an attempt to escape the population pressures in the rest of the country?

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Exhibit 1: Bangladesh in Geographic Context

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Exhibit 2: Historical Timeline

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Exhibit 3: General Map

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Exhibit 5: River Systems

Digital Chart of the World

Exhibit 6: Population 1950-1995

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Exhibit 7: Population Density, 1950-1995

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Exhibit 8: Population Distribution

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Exhibit 9: Population Density by Zone

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Exhibit 10: GDP

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Exhibit: 11: GDP Per Capita

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Exhibit 12: Per Capita Food Production

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Exhibit 13: Population Growth Rate

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Exhibit 14: Crude Birth/Death Rates

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Exhibit 15: Population 1950-2050

World Resources Institute. *World Resources Database, 1996.*

Exhibit 16: Crude Rates 1950-2050

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Exhibit 17: Population Density 1950-2050

World Resources Institute. *World Resources Database, 1996.*

Exhibit 18: Langsten's Demographic Models

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Exhibit 19: Grameen Bank Zones, 1998

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Grameen Trust. *Bangladesh, Grameen Bank Districts in 1996.* Map.

Exhibit 20: Percent Female Members

Grameen website <http://www.grameen.org>

Exhibit 21: Grameen Membership

Grameen website <http://www.grameen.org>

Exhibit 21: Loan Disbursements

Grameen website <http://www.grameen.org>

Exhibit 22: Grameen Members, 1998

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Exhibit 24: Centers per Village

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Exhibit 25: % Households with Grameen Members

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Exhibit 26: Analysis of Member Penetration

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Exhibit 27: Houses Built w/ Grameen Loans

Grameen website <http://www.grameen.org>

Exhibit 28: Additional Services Provided by Grameen Family of Organizations

Grameen website <http://www.grameen.org>

Exhibit 29: Sixteen Decisions

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Exhibit 30: Total Fertility Rate

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Exhibit 31: Factors Affecting Fertility

Original

Exhibit 32: Percent Muslim

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Exhibit 33: Females in Labor Force

World Resources Institute. *World Resources Database, 1996*.

Exhibit 34: Economically Active Females

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Exhibit 35: Percent Females Literate

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Exhibit 36: Infant Mortality Rate

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Exhibit 37: Urban Population

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Exhibit 38: Rural Child/Woman Ratio

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Exhibit 39: Urban Child/Woman Ratio

Bangladesh Bureau of Statistics. *Bangladesh Population Census 1991*. September 1994.

Exhibit 40 - Births by Age Group

World Resources Institute. *World Resources Database, 1996*.

Exhibit 41 - Age Pyramid

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Exhibit 42 - Percent Less Than 4 Years Old

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Exhibit 43: Linear Regression Results

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Exhibit 44: River Systems

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Exhibit 45: Flood History, 1962-1993

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Exhibit 46: 1998 Flood Status Map

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Exhibit 47: Cyclone Paths

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Exhibit 48: Sea Level Rise

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Exhibit 49: Early Grameen Territory

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Exhibit 50: Grameen Model

Original.

Exhibit 51: Expanded Grameen Model

Original

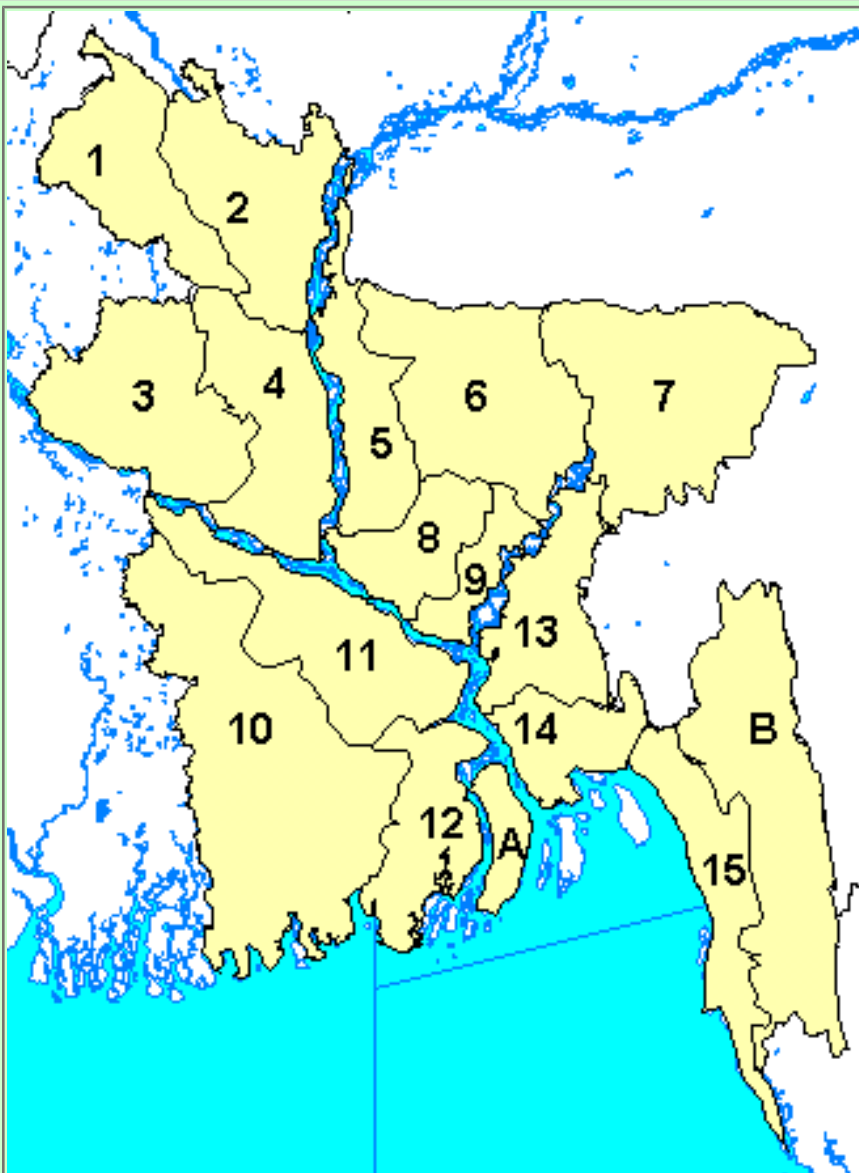
Exhibit 52: Fertility vs. Female Education

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Exhibit 53: Fertility vs. Female Literacy

World Resources Institute. *World Resources Database, 1996*.

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Grameen Bank Administrative Zones - 1998

1. Dinajpur
2. Rangpur
3. Rajshahi
4. Bogra
5. Tangail
6. Mymensingh
7. Sylhet
8. Dhaka
9. Narayanganj
10. Khulna
11. Faridpur
12. Patuakhali
13. Comilla
14. Noakhali
15. Chittagong
- A. Bhola
- B. Hill Tracts

Bangladesh Zone Maps

1998 Grameen Bank

- [Grameen Bank Administrative Zones](#)
- [Grameen Members](#)
- [Grameen Centers per Village](#)
(Mixed 1991/1998 data)
- [% Households w/ Grameen Member](#)
(Mixed 1991/1998 data)
- [% Grameen Members Affected by 1998 Flood](#)

1991 Census

- [% Less Than Four Years Old](#)
- [Rural Child-Woman Ratio](#)
- [Urban Child-Woman Ratio](#)
- [Population Density](#)
- [% Urban](#)
- [% Females Literate](#)
- [% Females Economically](#)

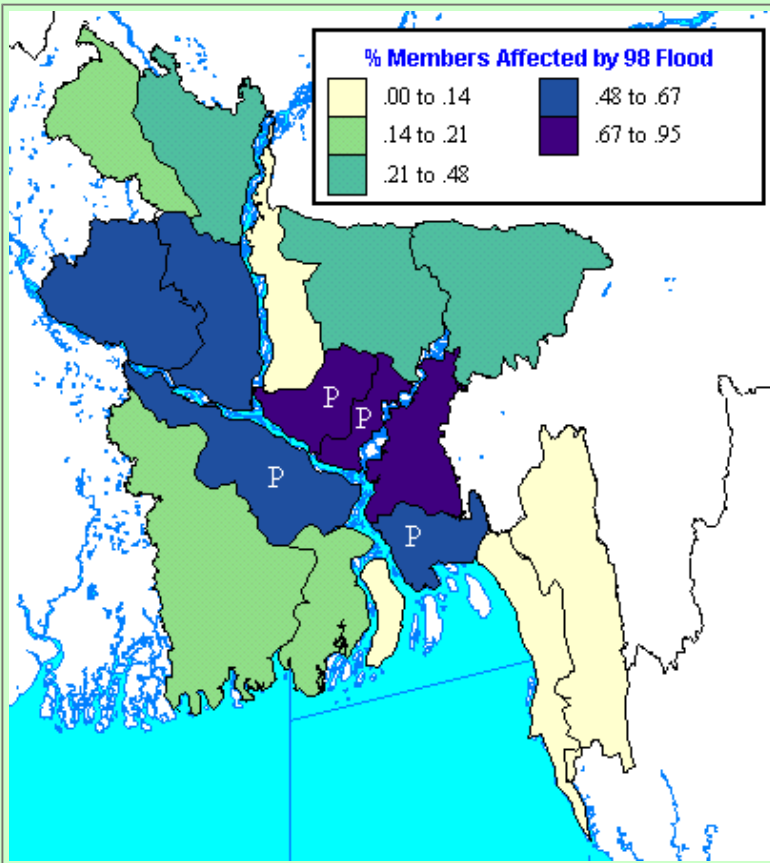
[Active](#)

- [% Muslim](#)

[Return](#)

Note: These maps were made by combining information from the following sources:

- World Resources Institute. *World Resources Database, 1996*.
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- Bangladesh Bureau of Statistics. *Bangladesh Population Census 1991*. September 1994.
- Grameen website <http://www.grameen.org>
- Grameen Trust. *Bangladesh, Grameen Bank Districts in 1996*. Map.



1998 Flood Impact

Grameen Impact:

Click on the zones of the map to see impact statistics, Grameen actions, and case stories for each zone. Zones marked with a "P" have pictures.

[Flood Status Map at Peak](#)

[Additional Flood Pictures](#)

[National Damage Assessment](#)

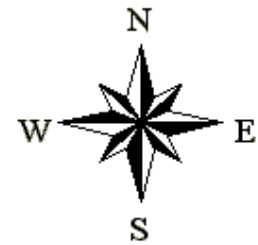
All of the pictures, data, and information on this site came from the two sites listed below. Refer to them for more complete information about the flood.

- [Bangladesh Flood 98](#)
- [Floods in Bangladesh, 1998](#)

Location of Turkey



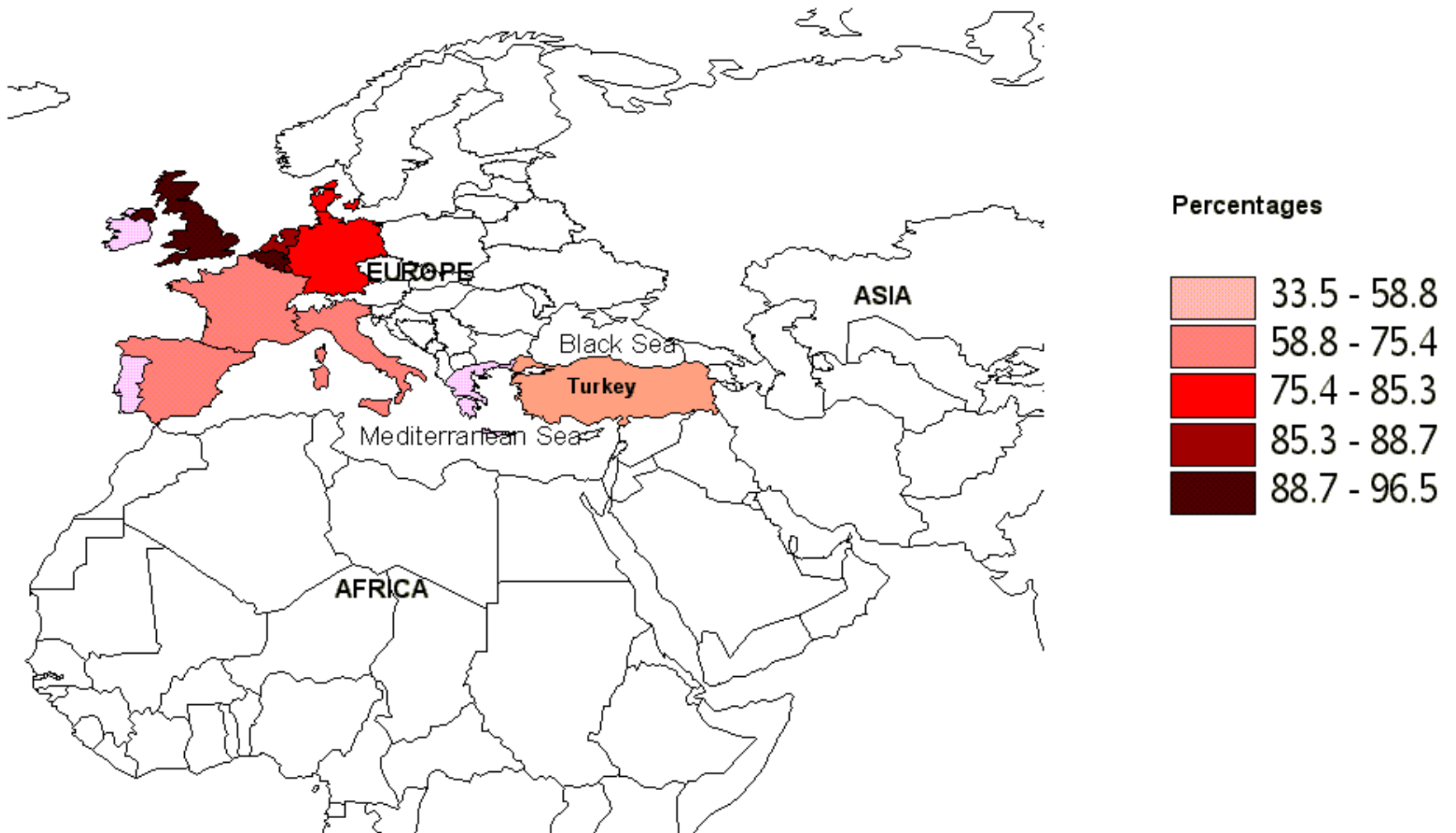
Regions and Cities

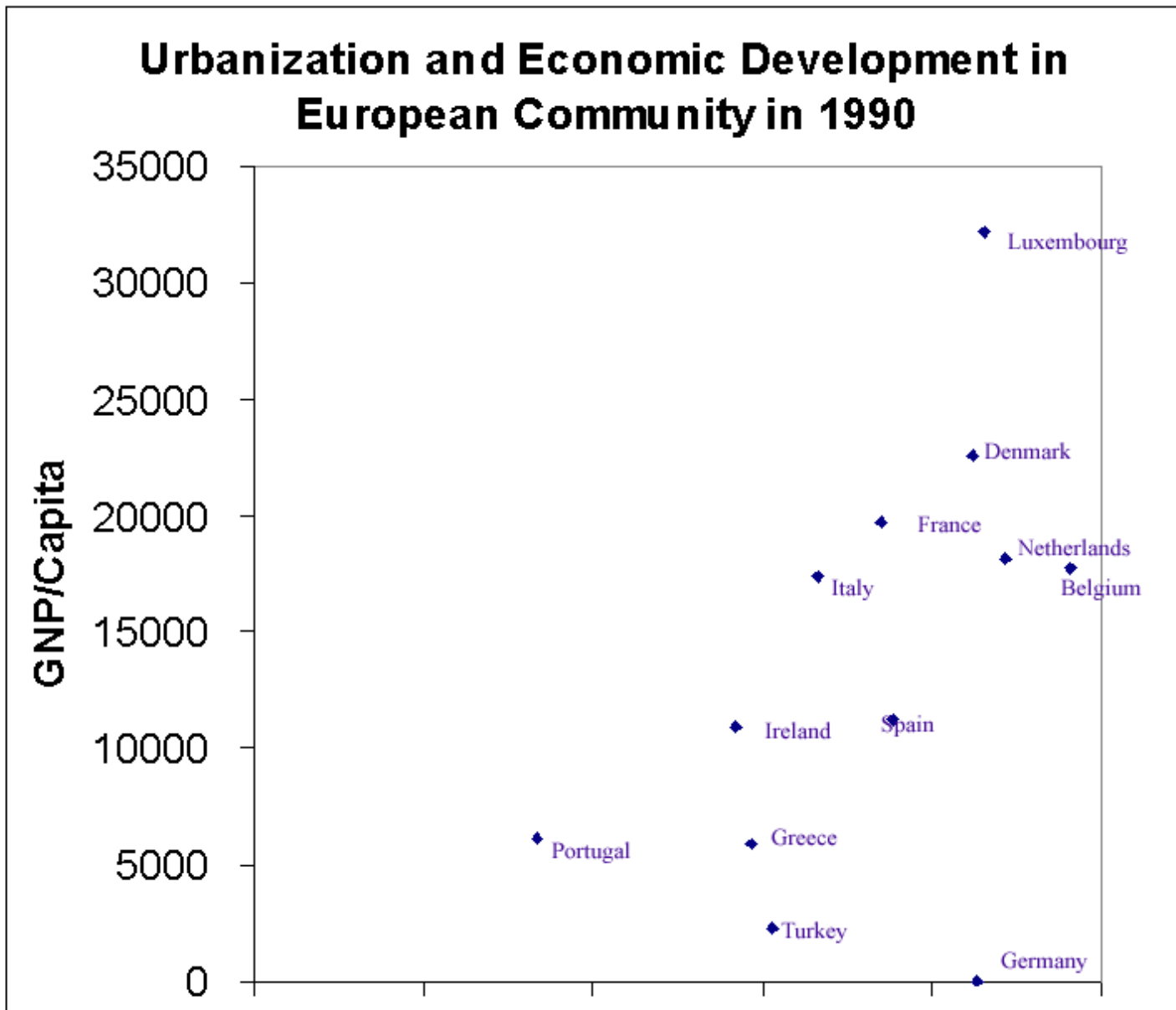


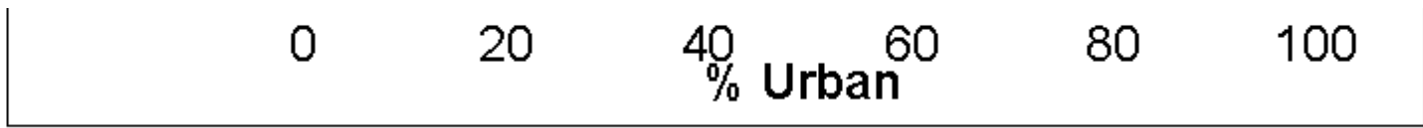


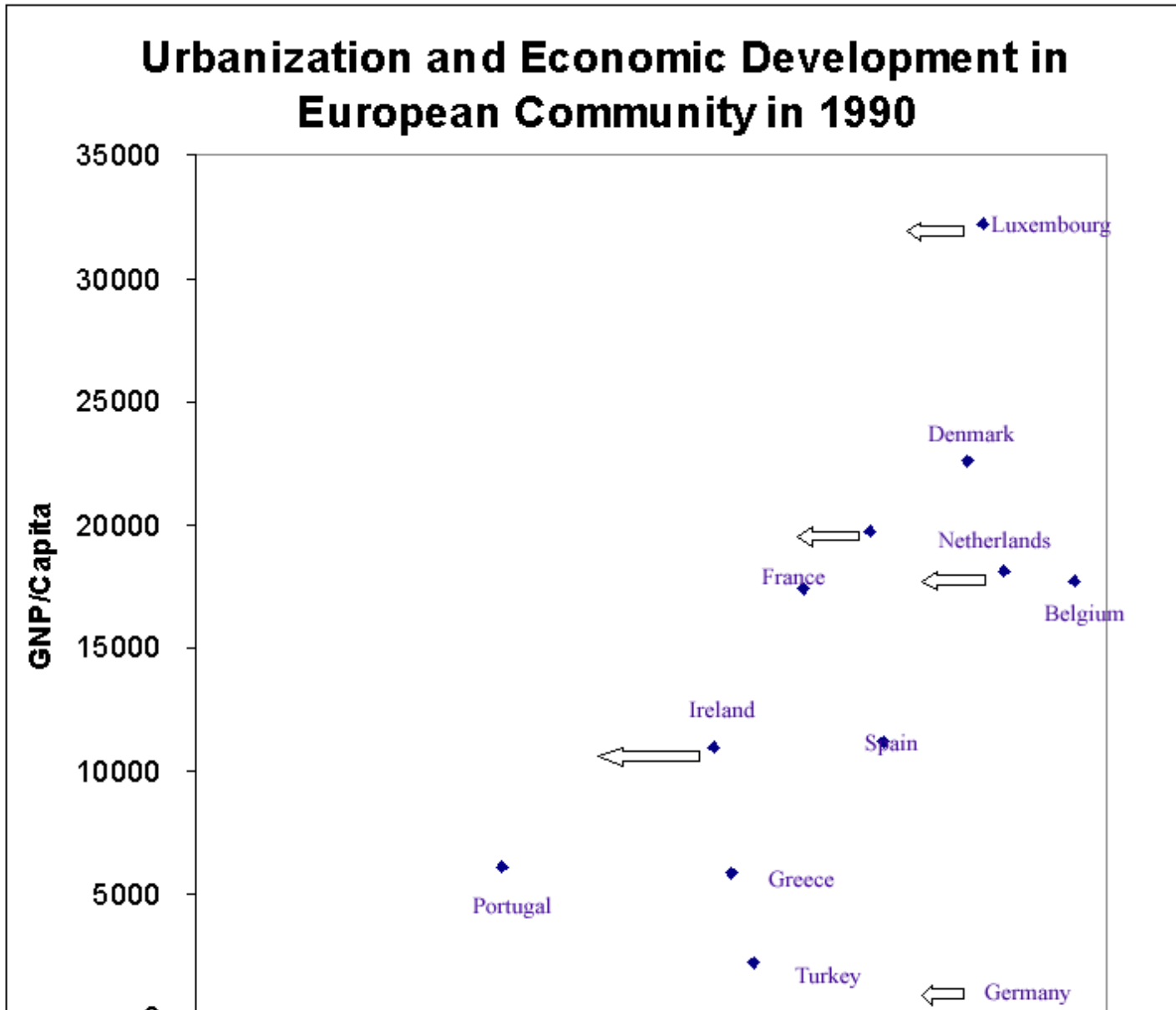
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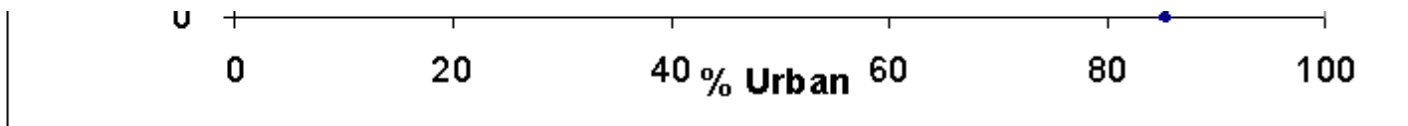
Urbanization Levels

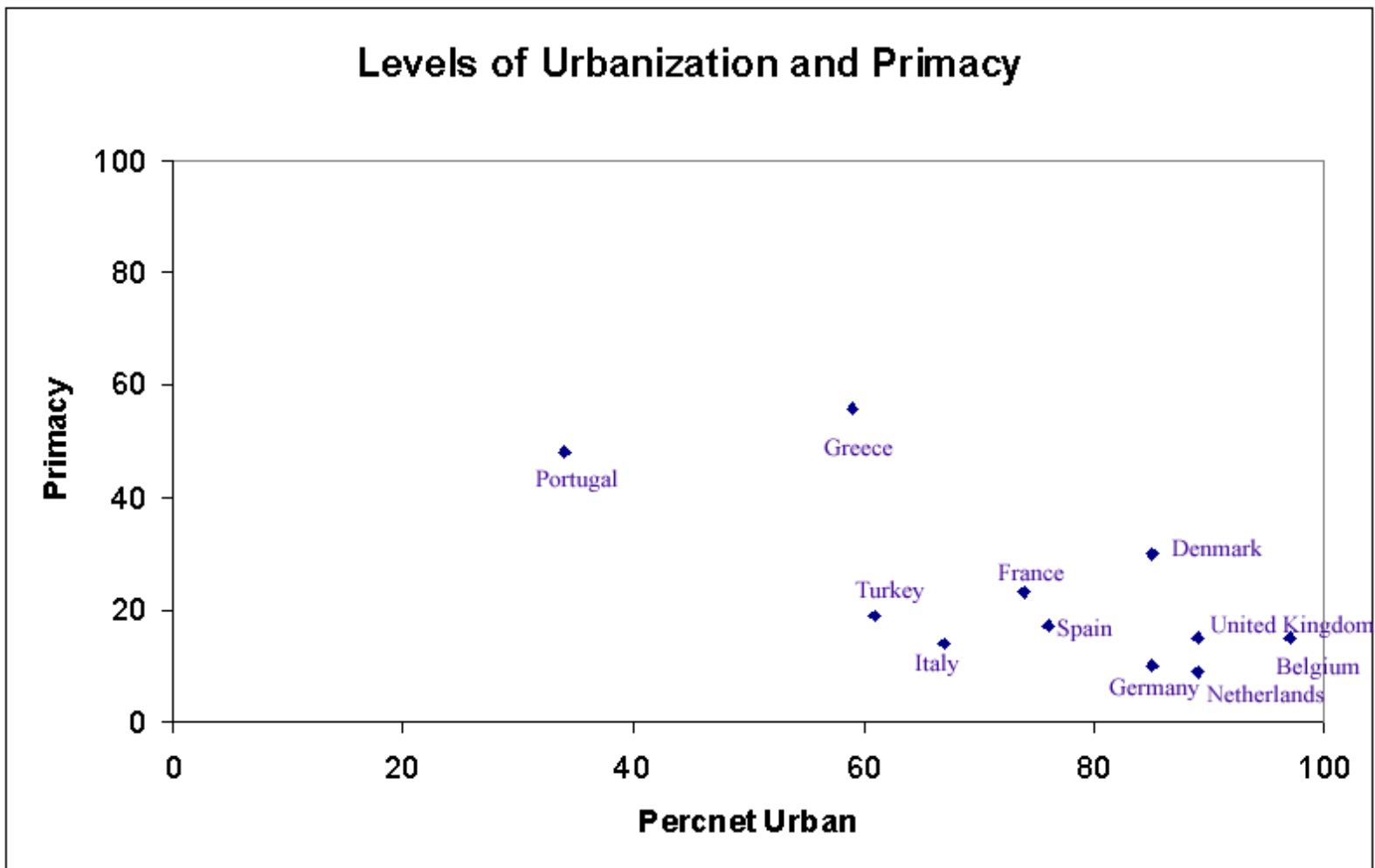




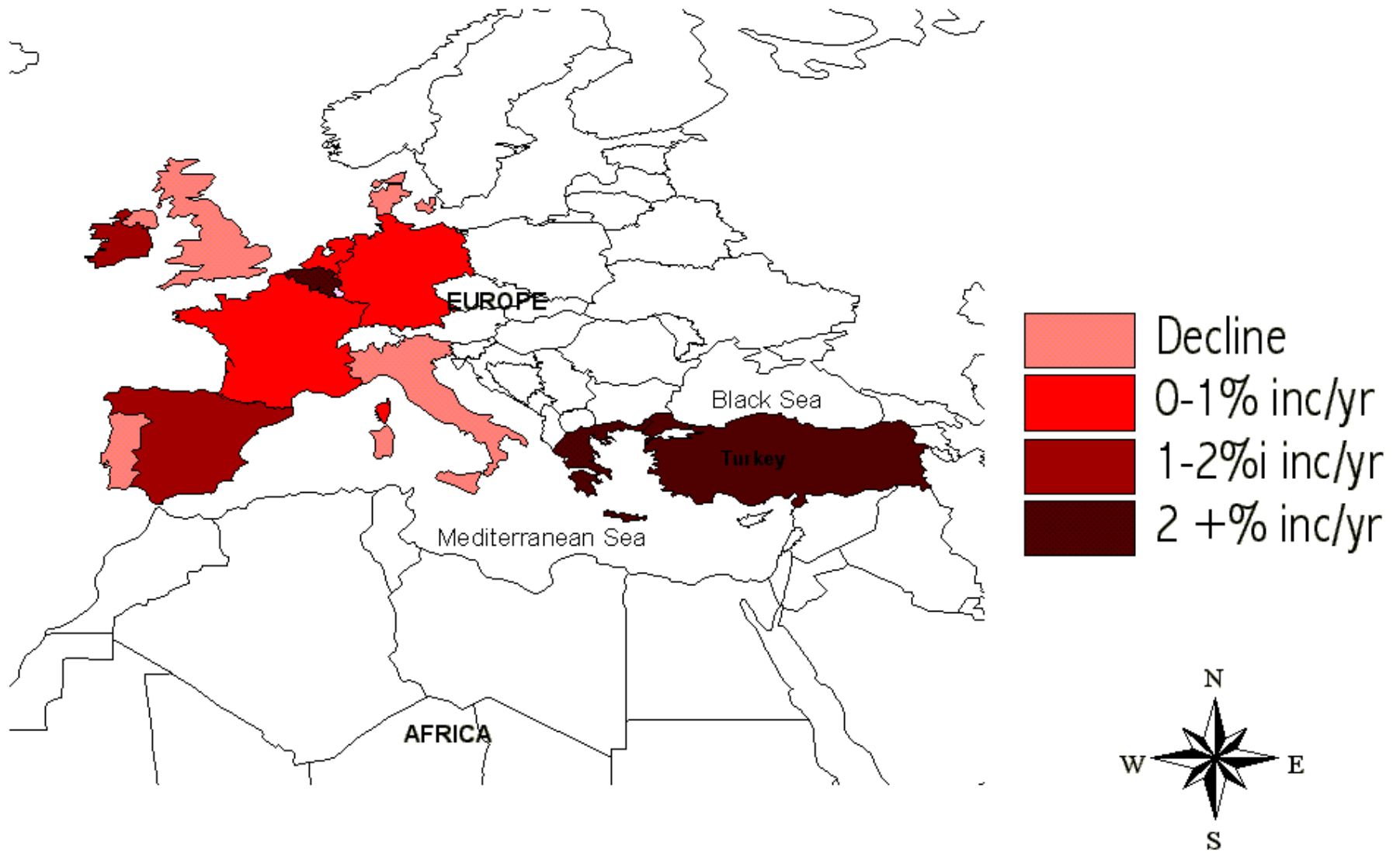








Growth of the Large Cities



ABSTRACT

Martha Masterman

This paper focuses on the prospects for developing Indonesia's cash crop sector, particularly in light of the financial crisis of the last two years. The transitional nature of rice as a primary crop has led to the need for crop diversification. Additionally, the increased value of cash crops on the world market with the weakened rupiah has created a boon for rural farmers and exporters of these crops. Many of these crops are early in their transitional stages, and thus are prime candidates for assistance as they have the potential for increased yields and productivity.

In light of these two issues -- the need for diversification away from rice and the recent refocus on the agricultural sector -- this paper will concentrate on cash crop development for export to Western developed countries (i.e. U.S. and Western Europe). In the short term, developed Western markets are the most viable targets for export due to the current recession of Japan and the general economic malaise of the Southeast Asian region. Thus, for the purpose of this study, the target crops should meet the following criteria: 1) dominated by smallholders, 2) growing demand by developed (Western) countries, and 3) have the potential to increase productivity i.e. are in early stages of agricultural transition.

In addition to identifying those crops which have potential to stimulate Indonesia's economy, it is also important to analyze how rural small-landholders can integrate with urbanizing communities to realize growth and equitable economic gain. There exists an opportunity to develop the rural agricultural population, but in order to create sustainable growth of this sector, policy alternatives should be considered carefully. This requires a close study of the value chain, from the producer to marketing the product to consumers. Currently, there are several intermediaries in the process of getting the coffee cherry to the coffeepot, for example, which may or may not have inefficiencies. Additionally, it will be helpful to review past government policies in both the rice sector and cash crop sector, both to provide a context for future development and to avoid past mistakes.

Finally, other models of rural agricultural development may serve as positive examples that could be transferable to Indonesia. In particular, this paper will explore the development of cocoa farming in Sulawesi, and coffee production in Kenya. These models identify policies and systems that helped to integrate the rural farming sector into the national, and ultimately, the world economy.

I. Introduction: Theoretical Framework for Thesis

The most distant history of Western involvement in Indonesia conjures up visions of opportunistic explorers, traveling long distances on European ships in search of the riches that these precious islands held. Valued as dearly as gold, the exotic spices grown on the Indonesian archipelago were the foundation for conquering and colonizing this part of the world.

Indonesia is now known not for its spice trade, which accounts for a mere 1% of export revenues, but rather for its low-wage labor, fast-growing economy, and corrupted government. Since Indonesia became an independent nation in 1945, the priorities of its leaders have turned to building a nation and an economy based on industrialization. Indonesia has been swept up in a path common to the fast-growing economies of Southeast Asia: import substitution, followed by export orientation, attracting foreign investment, utilizing a large, low-wage labor pool to fill up manufacturing plants, and finally a turn towards value-added, technology-driven manufacturing. Indonesia's comparative advantage in agriculture was not seen as the wave of the future, and was not the engine of growth.

This is not to say that the agriculture sector was completely ignored. On the contrary, President Suharto, who ruled the Indonesia from 1965-1998, allocated substantial resources to agricultural development, with a clear bias towards developing rice production. The government spent heavily on fertilizer subsidies, crop intensification programs and farmer training. The decision to focus so strongly on agriculture is probably best explained by Suharto's rural upbringing and his memory of how rice shortages destabilized Sukarno's (his predecessor) regime. Although farmers had no political voice to speak of, they did comparatively well in obtaining subsidized credit. Within a decade, 1974-1984, Indonesia moved from being the world's largest rice importer to self-sufficiency.

The thrust of Suharto's agricultural development was on the island of Java, considered the political and economic center of the nation. Indonesia is a unique nation in its geographical layout. Consisting of 7 major island groups, the population and environment varies widely across the archipelago. Java is the most densely populated and heavily farmed of the islands. On Java, the limits of arable land expansion were reached by 1930, after which increased productivity was due to intensification. On the other islands, the growth of labor-productivity was largely caused by increases in the land-labor ratio, which implies that producers on average expanded the area under their control. The outer islands are much less densely populated, and land availability makes it possible for farmers to increase acreage. Additionally, the other islands have traditionally grown cash crops as opposed to rice, a result of both the appropriateness of the land for these crops as well as government policy.

The growth of other sectors of the economy, such as oil and manufacturing for export, has naturally led to a relative decline in the contribution of agriculture to GDP. Specifically, rice's contribution to the agriculture sector has declined in the past three decades, from 37% in 1968 to less than 25% throughout the 1990s. It appears that intensification programs and the "green revolution" have been fully expended and led to diminishing returns of rice production. Production per hectare has been leveling off since 1982, implying the need for crop diversification to increase employment, income, and economic growth

of the rural economy.

The impetus for this paper is drawn not only from the need for crop diversification in the rural sector, but also from the recent financial crisis in Asia that has hit Indonesia particularly hard, and resulted in a drastic depreciation of its currency. The exchange rate dropped from 2100 rupiah per dollar in April 1997 to an all time low of 11,000 rupiah per dollar in March of 1998. In the midst of this downturn, farming has been one of the only sectors to see economic gain. The rupiah's fall has made dollar-based exports of agricultural produce more valuable, in rupiah, than before. Exports have brought in badly needed foreign exchange, and have also been a boon to the rural farmers who dominate the agricultural sector. Recently, several individuals have recognized this need to "return to the land:"

"Agriculture, mining, and commodities are basic strengths of these countries," says Indonesian economist Thie Wie at Lipi, the Indonesian Institute of Sciences. "These strengths will remain for a long time. We have to use this crisis to remind us to look again at our fundamentals." (Far Eastern Economic Review, 1/29/98)

Suharto, at the 1997 National Competition for Agricultural Intensification commented, "In facing the current economic and monetary upheavals, the agricultural sector has become one of our mainstays because it does not need imported raw materials." (Jakarta Post, 1/20/98)

In light of these two issues -- the need for diversification away from rice and the recent refocus on the agricultural sector -- this paper will concentrate on cash crop development for export to Western developed countries (i.e. U.S. and Western Europe). In the short term, developed Western markets are the most viable targets for export due to the current recession of Japan and the general economic malaise of the Southeast Asian region. Thus, for the purpose of this study, the target crops should meet the following criteria: 1) dominated by smallholders, 2) growing demand by developed (Western) countries, and 3) have the potential to increase productivity i.e. are in early stages of agricultural transition.

In addition to identifying those crops which have potential to stimulate Indonesia's economy, it is also important to analyze how rural small-landholders can integrate with urbanizing communities to realize growth and equitable economic gain. There exists an opportunity to develop the rural agricultural population, but in order to create sustainable growth of this sector, policy alternatives should be considered carefully. This requires a close study of the value chain, from the producer to marketing the product to consumers. Currently, there are several intermediaries in the process of getting the coffee cherry to the coffeepot, for example, which may or may not have inefficiencies. Additionally, it will be helpful to review past government policies in both the rice sector and cash crop sector, both to provide a context for future development and to avoid past mistakes.

Finally, other models of rural agricultural development may serve as positive examples that could be transferable to Indonesia. In particular, this paper will explore the development of cocoa farming in Sulawesi, and coffee production in Kenya. These models identify policies and systems that helped to

integrate the rural farming sector into the national, and ultimately, the world economy.

Structure of paper

First, this paper will review Indonesia's government policy in agriculture since 1965, a crucial turning point in Indonesia's history marked by the succession of President Suharto. This section will explain the transition of rice production and recent policy towards cash crops. The next section of the paper will examine the role of the smallholder farmer in Indonesia, and the movement of agricultural versus urban labor in Indonesia since 1965. This section will also review the theory surrounding the historical development of the agricultural sector. Third, the cash crops of coffee and spices will be examined to identify their potential for export growth and smallholder development. Coffee production in Kenya will be discussed as an ideal model for smallholder specialty coffee production, and cocoa production in Sulawesi will serve as a second model of smallholder success. Based on the research and predictions of these four sections, the paper will conclude with policy recommendations for sustainable development of smallholder cash crops in Indonesia.

II. Government Policy

A. Agricultural Policy in Indonesia after 1965

Agriculture was a central focus of New Order development strategies and priorities. The New Order was the name given to the government under President Suharto, who succeeded President Sukarno in the aftermath of an attempted communist coup in 1965. Indonesia's nutritional level was among the lowest in Asia when Suharto officially took power in 1967, and the average supply of calories was less than 80% of basic requirements. The first priority was to develop food crops (crops primarily for domestic consumption), and there was less focus on cash crops (crops primarily for export).

Among the food crops given special developmental assistance, rice was primary. Rice was more than a staple in Indonesia; it dominated the political economy of the country. The price and availability of rice had an important bearing on political stability of Suharto's regime. Rice shortages were part of the general economic malaise that contributed to the fall of Sukarno. The meaning of rice in Indonesia goes beyond its status as the nation's principal staple. Most Indonesian's eat it at every meal; in fact, many feel they have not actually eaten a meal if rice is not part of it. An example that demonstrates the population's commitment to rice consumption occurred in 1963, by which time several attempts at rice self-sufficiency had failed. Sukarno launched a personal campaign to urge the population to eat maize and other foods in place of rice, but the public outcry was so great that the idea was dropped.

Additionally, rice plays an important economic role, since it is the main product of the villages of Java. It is the livelihood for a large part of the rural population, which constitutes 65% of the total population. This points to the favoritism that Javanese farmers have received over those in the outer islands. Suharto's government favored the development of Java; the most modern cities and productive farmers are on Java and dominated by the Javanese. Java is the center of business and government, and perceived by those in power as the core of the nation. This perception has caused grievances among the outer islands' inhabitants, as resources are continuously poured into Jakarta. This situation persisted throughout Suharto's rule.

Suharto took action on achieving rice self-sufficiency within months of his takeover of the presidency. The government provided several input subsidies for fertilizer, pesticides, and irrigation, which helped to increase yields and production. Farmers were given easy credit terms, and were assisted with programs such as "mass guidance," which were meant to help farmers implement new technologies and rice varieties developed in the neighboring countries of Philippines, Thailand, and Malaysia. The government invested heavily in rural infrastructure, such as irrigation canals, water supply, bridges, roads, and major highways. Other programs for primary schools, health centers, markets, and reforestation were also established. By 1978, programs to build up the local infrastructure amounted to 12% of the national development budget, a positive repercussion of the importance of rice to political stability. By 1984, production of rice exceeded domestic consumption for the first time.

Events in the international environment also assisted the growth of rice production. Of the new

technologies mentioned above, new rice hybrids developed in the Philippines had the largest impact, since they had the potential of increasing the traditional yields of irrigated land in tropical Asia many times over. This hybrid was the beginning of what became known as the "green revolution." In addition to this, the oil crisis of the early 1970s increased the price of Indonesia's crude oil by 200% in international markets. This new oil money helped to fund the above improvements, and gave top policymakers freedom to attack the rice problem. They also used this opportunity to solidify their control of nearly every aspect of rice production, and in doing so protect the reputation of the regime, which was vulnerable to public outcry and student demonstrations if rice was not available at a fair price.

BULOG

The institution that probably had the biggest impact on rice production was Bulog, an acronym for Badan Urusan Logistik (National Logistics Agency). When it was created in 1967, it had the responsibility of purchasing rice for the provisioning of the armed forces, the civil service, and state corporation employees. The agency reported directly to the president, and was given monopoly control over prices and production of rice. Now, its control has been expanded to other basic commodities, including wheat, wheat and rice flour, poultry, peanuts, mungbeans, garlic, soybeans, sugar, onion, shallots, and leeks. Bulog assisted rice production by setting price floors and ceilings, thus maintaining the stability of the price of rice. As price floors were raised and other subsidies continued, national production went up, and by the 1980s, Indonesia became self-sufficient in rice.

Bulog is considered by some the most powerful food agency in Asia. Its success is partly attributed to the people in the organization; the second head of the agency, Bustanil Arifin, is credited with turning Bulog into a competent organization and putting the public need ahead of personal and bureaucratic interest. Bulog was also staffed with the most educated, elite, well-trained, and well-paid employees of the state corporate sector, who were given maximum benefits and modern facilities in which to do their work. In addition to human resources, Bulog's success can be attributed to favorable terms of credit, with which it could purchase imported rice from the government at subsidized costs (in the earlier years, before self-sufficiency). Bulog's power grew as it set up a reliable information system to disperse information about prices and production around the country, built warehouses to successfully control rice storage, and implemented price supports to protect price stability.

Bulog has come under criticism, however, beginning with its entry into the sugar industry. The government set the price that cane farmers were to be paid at harvest; Bulog bought the cane, contracted with government-owned mills to process it, and managed its trade. Farmers complained that prices were too low, and consumers, that prices were too high. By 1987, the World Bank criticized the entire management of the industry. As was also true in the wheat flour industry (which was also under attack by the World Bank), sugar millers were receiving unusually high profit margins, upwards of 25%. (Bresnan, 1993)

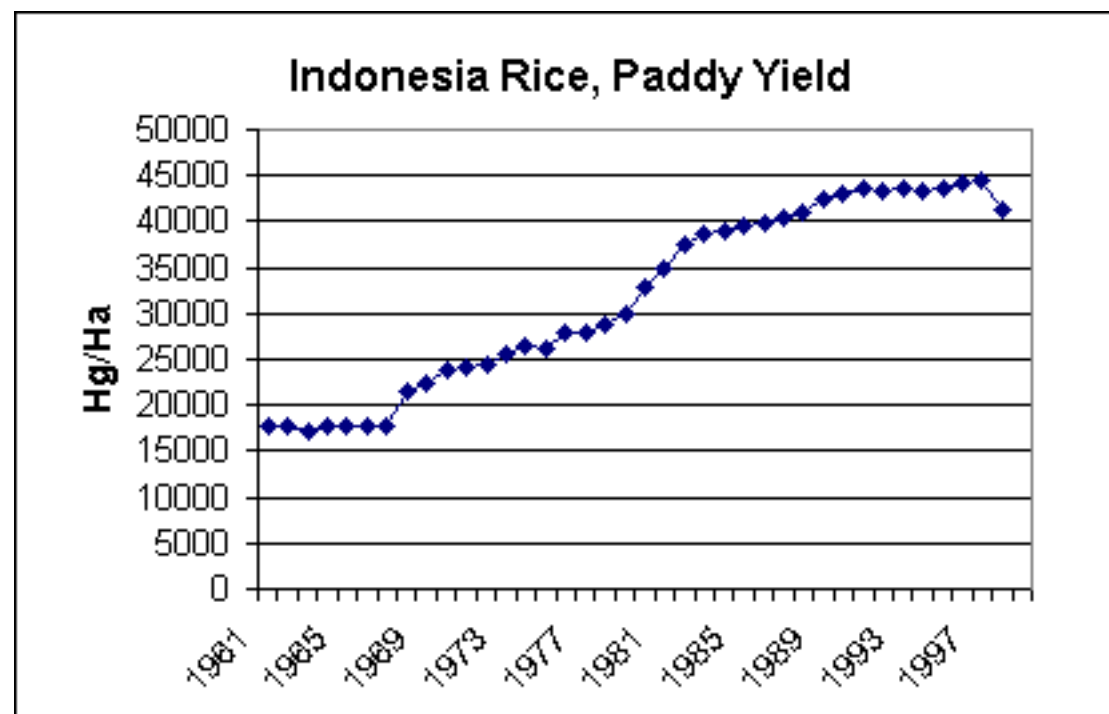
Bulog was given considerable favoritism and never held accountable for its management of substantial

government funds and massive quantities of goods. It appears that as long as Bulog was able to successfully manage rice, Suharto left the agency alone. This led to widespread corruption, financial mismanagement, inefficiencies, and pricing that underpaid farmers and overcharged consumers. Since then, the World Bank has urged Bulog to pare back its monopoly control over commodities, criticizing it for regulations which distort prices and business opportunities, thereby increasing costs and causing losses in efficiency as resources become attracted to protected activities.

The recent currency crisis in Asia may be the final straw for Bulog. Indonesia has received economic aid from the IMF, which gives the IMF and World Bank leverage to pressure Indonesia to dismantle monopolies such as Bulog. In response to this pressure, the government of Indonesia has stated that it plans to remove the Bulog monopoly, allowing consumers to buy commodities at market prices. (Jakarta Post, 8/21/97) However, the Indonesian government has vacillated on this declaration, since the destabilizing effects of the currency crisis and severe drought conditions (brought about by El Nino) have driven up prices of basic food commodities that Bulog typically regulates. Bulog is surely a drain on government fiscal resources, but keeping it alive to stabilize prices may be necessary in the short term to maintain domestic peace.

Transition in Rice Production

Due to the above factors, including a massive government assistance program and the introduction of new higher yielding varieties, an agricultural transition has occurred in rice production since 1965. From 1965 to 1988, there were significant gains in yields of rice, but from this point onward, gains in productivity have been slow. The following graph depicts this transition:



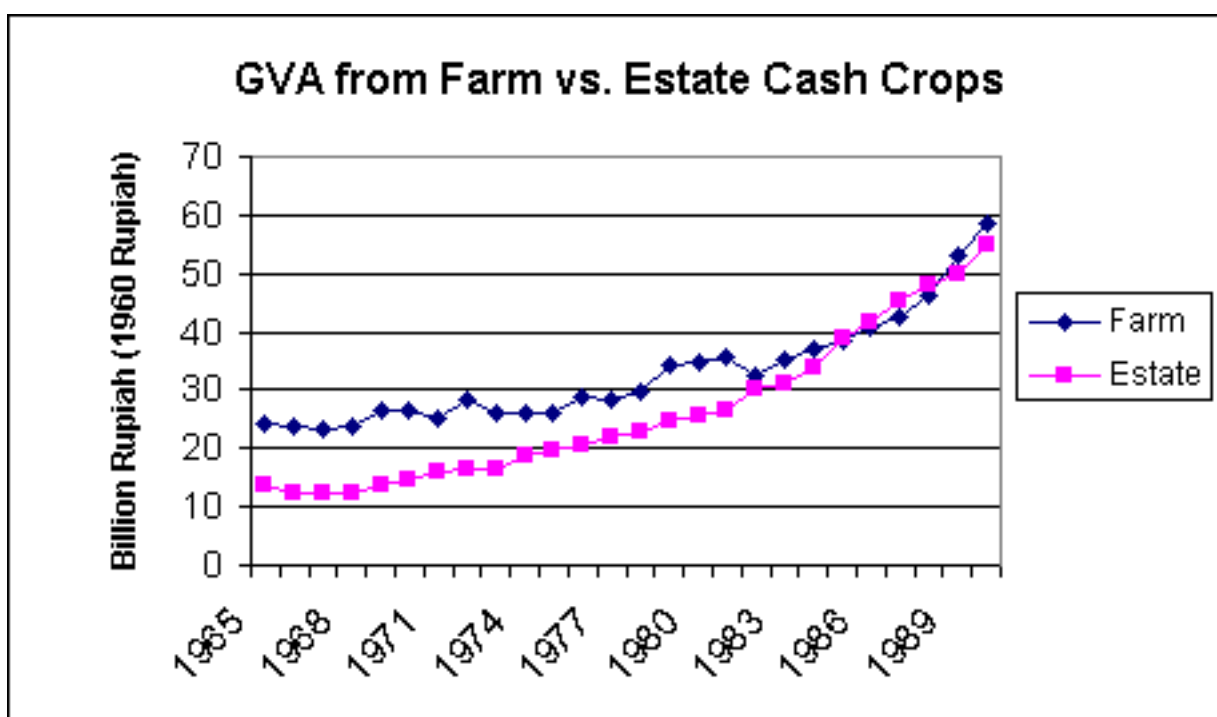
Source: *FAO Statistical Database*

According to Drake (1993), increases in production in agriculture are a result of two factors, 1) the extension of land under cultivation and 2) improvement in land productivity. The agricultural transition begins as the principal source of increase in production shifts from extension of land to improvement in productivity per hectare. It continues through the period of a dramatic increase in productivity due to new grain varieties and heavy application of fertilizers and pesticides and stabilizes when diminishing returns in yield per hectare are experienced.

Due to the government policy implemented by Suharto, the green revolution, and the revenue generated through oil exports, the production of rice has experienced this transition. This means that rice can no longer be treated as a prime commodity to increase employment, income and economic growth of the rural economy. Alternative crops need to be identified and resources allocated to their production if the agricultural sector is to generate employment, income, and economic growth of rural areas.

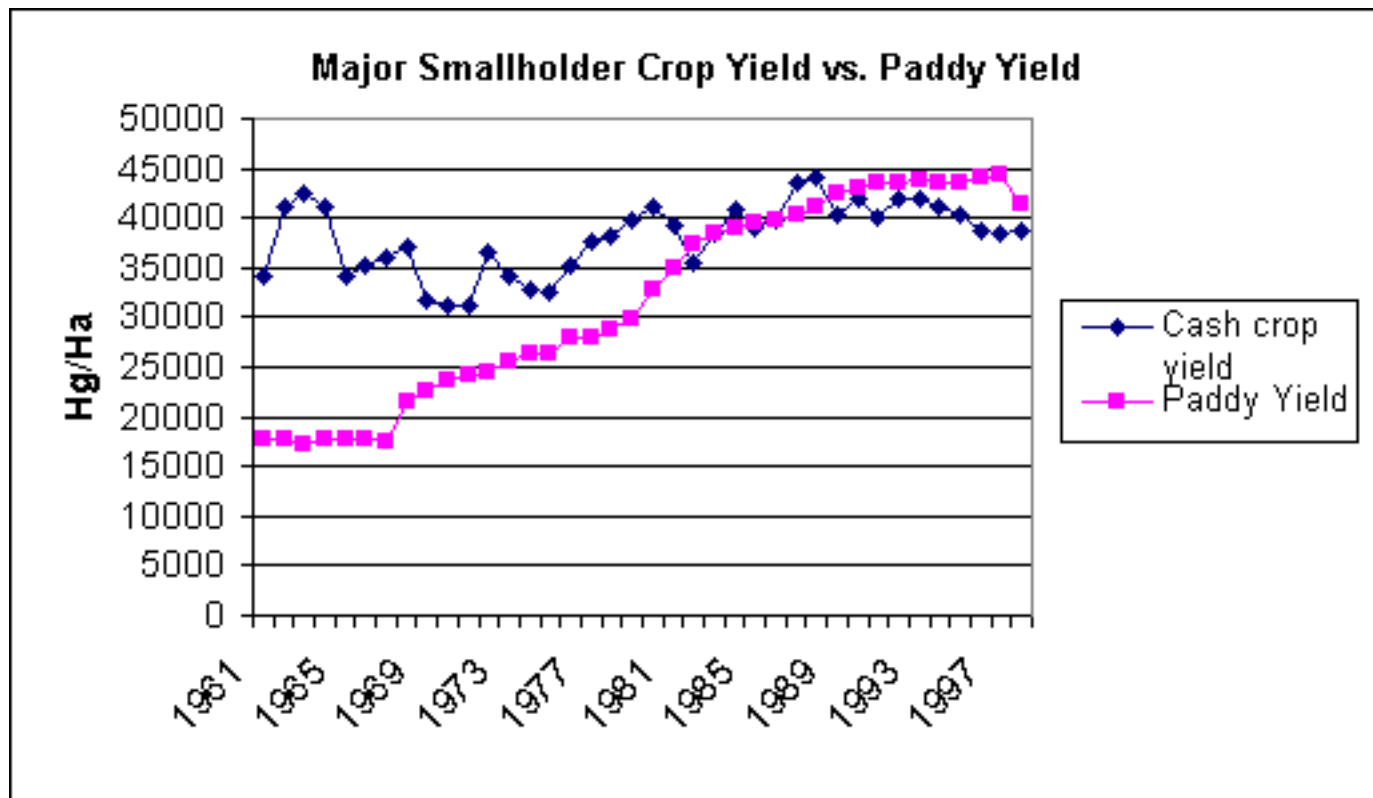
B. Cash Crops

Cash crops have been a part of Indonesia's economy for most of its history. The resource-rich nation has attracted foreign involvement, and securing the spice trade was the underlying purpose of Dutch colonization of Indonesia at the end of the 17th century. Furthermore, smallholders have been the dominant producers of these crops, particularly outside the island of Java. The following graph shows the gross value added (GVA) from farm cash crops as opposed to estate crops, GVA being production multiplied by price. Price has been adjusted for transport and trade margins in order to reflect producer price.



Source: Agricultural Growth in Indonesia Since 1880

Although cash crop production has increased, it probably has not fared as well as it could have due to the government's focus on food crop production, particularly rice (during Replita I, 1968-1973, "food policy was rice policy" (Bresnan, Mears, and Moelijono, 1981)). Especially for the smallholder sector, crop performance was poor, due to neglect, discrimination in favor of plantations, and inappropriate policies. This resulted in slow output growth and virtually stagnant yields. The following graph shows the yields of main smallholder agricultural export crops (cinnamon, coffee, natural rubber, pepper, nutmeg, vanilla, and tobacco) versus rice:



Source: FAO Statistical Database

The yields of cash crops experienced slow or no growth a result of technologically stagnant farming techniques and lack of fertilizer. Estates, which received government subsidies (especially state-owned plantations) have had higher yields and have commanded a higher price due to higher quality produce. Still, both estate and smallholder yields remain low by international standards, a consequence of Suharto's neglect of cash crops throughout the 1960s, 70s, and 80s.

In the 90s, however, the Suharto government turned its attention towards cash crops as food crop production reached self-sufficiency and stabilized at adequate levels. To be internationally competitive and gain foreign exchange reserves, much needed to be done to improve cash crop performance. Some of these domestic policies are described below.

Recent Policies and Programs

Since the late 1980s, the government and export groups such as AEKI (Indonesian Coffee Exporters

Association) have implemented a countrywide program of "intensification" aimed at improving existing crops. This includes policies that encourage rehabilitation and intensification efforts to increase yield and improve crop quality, and discourage expansion of planted area. For example, AEKI, together with village cooperatives and the Department of Agriculture, offer extension services to coffee farmers to improve coffee quality and provide high-yield arabica seedlings to replace robusta at appropriate elevations, as well as providing high-yield robusta varieties.

The government has also made fertilizers and pesticides, which help improve both yields and quality, available at Village Unit Cooperatives throughout the country. However, they are not heavily used by smallholders, probably due to the added cost. These additives have been subsidized in the past, but the government has been increasing price ceilings and gradually dropping these subsidies since the mid-1990s. Thus, it is primarily large private and government owned plantation that can afford to apply fertilizer and pesticides on a regular basis. This increases production levels and exportable quality of produce for these large minority growers, but has not benefited smallholders.

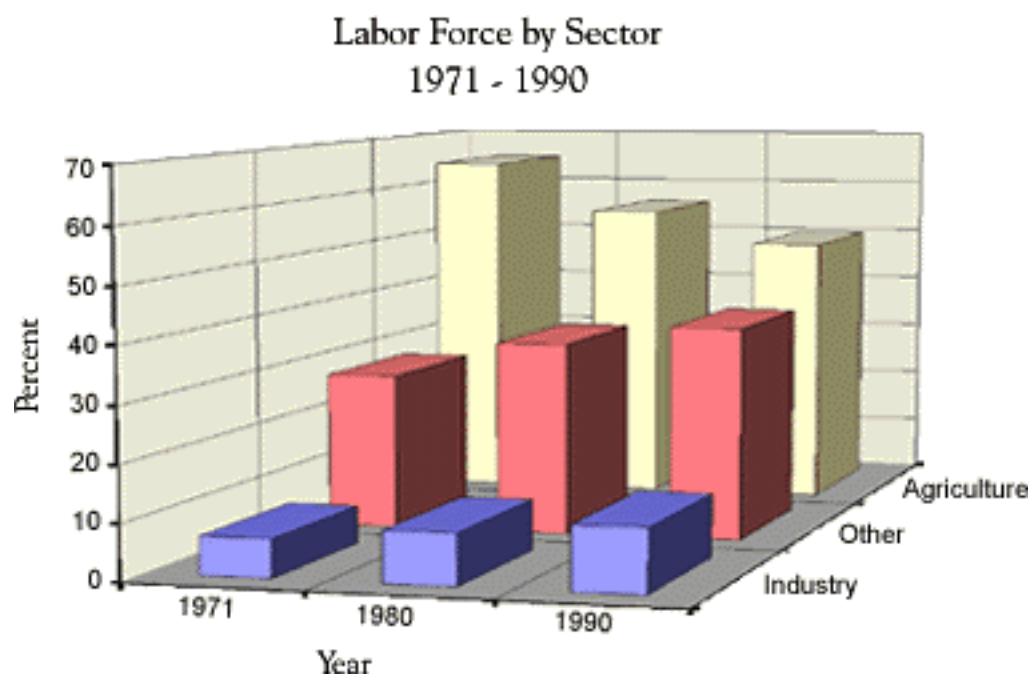
Other reforms do seem aimed at helping the smallholder; the government acknowledges that commercial cash crops provide one method to lift rural incomes and slow labor migration to the cities. Agronomists say there is great potential for cash crops to reduce poverty because of the large investments already made in these crops and because of the large pool of experienced farmers in Indonesia. (Schwarz, 1990) H.S. Dillon, an advisor to Agriculture Minister Wardoyo, sees the success of the rice industry as hope for future improvements in cash crops. "Going by our experiences with rice, we have found that organizing farms is possible; they are quite open to new technology and respond to incentives." (Schwarz, 1990) One scheme to address this potential development aims to bring smallholders into working relationships with bigger, more sophisticated farmers. This program, called NES, requires an investor to sell 80% of his land to smallholders while developing the remaining land in the center. The center becomes a production area to process the crop, which the investor guarantees to buy from the smallholders. The government planned to finance the smallholders' purchase of these plots, but budget austerity in the 90s has severely limited the government's reach.

Another development that may hold more promise is Agrobank, opened in February 1990. One major obstacle to improving planting techniques has been the cost of capital. This bank offers agro-management services, marketing advice, foreign exchange facilities, and supplies credit to smallholder projects.

III. Smallholder farming in Indonesia

The Indonesian Farmer

Smallholder Indonesian farmers dominate the agriculture sector, and cash crop production in particular. Although the number of people employed in the agricultural sector has declined in the past 30 years, this form of employment still dominates the economy. The following graph shows the relative decline in the agricultural labor force and incline in industrial labor. However, the agricultural sector is still dominates the labor force with a near 50% share.



Despite the relative decline in the agricultural labor force, according to Indonesia's Central Bureau of Statistics 1993 Agricultural Census, the number of agricultural households has increased from 12.2 million in 1963 to 21.5 million in 1993, a 76% increase. The increase was significantly higher in the outer islands (128%) compared to Java (47%), due to a higher initial base in Java, limits of arable land in Java, and transmigration programs that relocated Javanese from Java to the outer islands. The land controlled by agricultural households also increased 42.4% from 1963 to 1983, but decreased 0.68 million hectares, or 3.7% from 1983 to 1993. In accordance with this trend, the average land controlled by agricultural households has declined both in Java and the outer islands, reaching an average of 0.9 hectares and 1.2 hectares, respectively. Thus, it appears that while urban migration was a significant factor in the past three decades, there is a trend of more agricultural households being created through a division of land into smaller plots.

Structure of Distribution

The structure of distribution and the problems presented to the smallholder farmer vary for different crops. The generalizations described below are meant to give an overall picture, while the sections on

coffee and spices present specific cases from which more realizable recommendations can be given.

Typically, the smallholder farmer in Indonesia must sell his crop to an agent or processor, who then either adds value to the produce before selling it to an exporter, or acts as a middleman to gather a large enough quantity of a given crop to sell it to an agent in a town or city. Although the steps vary from crop to crop and location to location, in most cases the farmers are in a geographically isolated situation and it is most feasible for them to sell their raw produce to a middleman. There may be several middlemen in the process of getting the crop to the exporter, and eventually to the manufacturer in the importing country. Since there are many links in the chain, each one adding a margin, and the price is determined by world supply and demand, the farmer may end up receiving a low price for his crops. This price may or may not cover his costs. Also, even if there is a high demand for a certain crop, the farmer may be isolated from this information and not know whether he is getting a fair price for his produce.

This problem is exacerbated if the farmer is in a relationship with a money lender, of which there are many in rural Indonesia, to whom he has given his immature crop as collateral. If the farmer is not able to repay the loan, as is often the case with the high interest rates charged by the lenders, he must sacrifice his crop to the lender and begin the borrowing cycle again.

Another issue of concern for the farmer is that the majority of the time he is selling his crop as a non-value-added commodity. Since he does not have the technology, finances, or know-how to add value to his produce, he is not able to charge a premium above the market price. He may try to compete for a higher price with a higher quality crop, but the price differential is sometimes not high enough to compensate for the extra effort required. (McStocker, 1987)

Due to the fragmented nature and inadequate infrastructure of smallholder agriculture, it is easy to identify potential problems. The long supply chain also seems susceptible to monopolistic practices, through middlemen and a higher concentration of players at the top. To understand the reality of the situation, however, a review of the theory and case studies regarding this sector will be helpful.

A Review of Theory

The capacity of the peasant farmer to take advantage of market opportunities and integrate with an urbanizing society has generated several studies and corresponding theories. Reviewing these studies will help provide a rationale for the structure of distribution, the marketing of agricultural products, and the effects of policy intervention in this sector.

One highly acclaimed account of Indonesian rural agriculture is given by Clifford Geertz, who has written several books on the effects of colonization on Indonesian society. One of his better known works, *Agricultural Involution* (1963), makes the argument that agriculture in Indonesia, particularly Java, has experienced what he terms *involution*. This is a process in which increasing population is absorbed into the agriculture sector, as yields increase but production per worker does not increase. It describes a pattern that involves intricate dissection of the farming system (particularly rice) into a

complex, complicated web that requires more and more labor. Under the Dutch plantation system (including the Culture System and the Corporate Plantation System), the whole rural economy was pervaded with "tenure systems that grew more intricate, tenancy relationships more complicated, cooperative labor arrangements more complex -- all in an effort to provide everyone with some niche, however small, in the over-all system." Because of this phenomenon, Geertz argues, Indonesian rural villagers were not able to connect with growing urban communities, which were dominated by foreigners, Chinese middlemen, and the wealthier classes who ran international trading operations.

Geertz's theory is connected to that of another Indonesianist, Julius Boeke, whose theory of social dualism was also formed based on the colonial era of Dutch rule. This theory states that during the colonial era, there were two societies, two economies, working side by side in Indonesia -- the bumiputra Indonesian farming villages and the worldly urbanizing export community. The Dutch kept these two societies separate from one another, reasoning that this would preserve the Indonesian way of life and thus fulfill a certain "moral" obligation.

The combination of these two phenomena, involution and social dualism, made a smooth transition to modernism more difficult than if the rural and urban sectors were allowed to integrate, such as was the case in Japan. Japan, often used as a comparative case study for the late 19th century to early 20th century phase of Indonesia's development, had many similarities to Java: both were heavily populated, both had labor-intensive, small-farm, multicrop cultivation regimes centering on wet rice, and both managed to maintain a significant degree of social and cultural traditionalism in the face of profound interaction with the West. However, excess labor in Indonesia was used by the Dutch to build plantations for export or was absorbed into rice production; in Japan it was used to build a capital-intensive manufacturing sector. The Dutch may have built an infrastructure -- they created better irrigation, improved communications, increased availability of foreign manufacturers -- but they did not build human capital or a modern business class. The Javanese peasant did not need to leave his rice terrace, whereas the Japanese peasant had to become an active member of a manufacturing system, no matter how small scale it may have been.

Geertz conceived this theory in the early 1960s, while Sukarno was still president. This was a dismal time for Indonesia's economy, and the picture he paints for Indonesia's future is of a society imbedded in the trap of involution, unable to effectively industrialize. This inability is mostly rooted in an isolated rural majority that has not developed an economic mentality to think or act entrepreneurially.

A contrasting viewpoint is presented much later in a study done by Yujiro Hayami and Toshihiko Kawagoe. Although their study admits that Geertz theory of involution may have been an adequate description at the time in which he wrote, they found in their field research a situation quite the opposite.

Hayami and Kawagoe (1993), in *The Agrarian Origins of Commerce*, postulate that smallholder farmers in Indonesia are entrepreneurial, and the government can play a positive role in developing this trait through the following: fostering easy entry into trading by improving rural infrastructure, providing marketing information as widely as possible, developing reliable and appropriate property rights and

contract mechanisms with grades and standards, and by staying out of the business themselves.

Between May 1986 and August 1990, Hayami and Kawagoe conducted studies in two Indonesian villages, one in Java and one in South Sumatra. They found that the peasant marketing of agricultural products was efficient and profitable with little government intervention and regulations. The trade hierarchy included a large number of self-employed marketing agents. The bottom of the hierarchy consisted of small traders specializing in the collection of small marketable surpluses from village farmers. At the top, there were large traders specializing in the shipment of the assembled commodities. The larger traders were usually more educated and of a wealthier class than the village collectors, and were able to receive credit from large lending institutions. They in turn extended this credit to the villager collectors and farmers, neither of which had the collateral to make these loans directly. This created a bond between the small and large traders, and guaranteed a delivery of produce upstream. Since charging interest is not permissible in Muslim law (approximately 80% of Indonesians are Muslim), the large traders indirectly lowered their credit costs through charging a premium for fertilizer and supplies, and "cheating" on weights and measures (i.e. underpaying).

According to Hayami and Kawagoe, this decentralized hierarchy stemmed from the following characteristics of Indonesian smallholder farming: 1) a small marketable surplus per farm in the peasant farming system, 2) scale economies in transportation and processing, 3) differences in labor's opportunity costs, and 4) differences in financial positions. The nature of agricultural production in Indonesia is largely fragmented, and the village collectors need to gather farm products in sufficiently large lots to exploit scale economies in long-distance transportation and processing. The large traders and factory owners have higher education and higher entrepreneurial/ management ability, so it is economical to let small traders (village collectors), who have lower employment opportunity costs, assemble small farm surpluses from farmers. Also, the large-scale traders and processors are able to mobilize less expensive credits on behalf of small collectors and farmers based on good collateral values of their real assets.

This decentralized system is akin to a sub-contracting system in which large firms contract out the supply of parts and materials to smaller firms. The large and small traders create long-term relationships based on ethnicity (discussed below) and extension of credit. This may appear to present ample opportunity for the larger traders to exploit small traders and farmers. However, it was found in these case studies that there was sufficient competition among large traders to temper this possibility. Although there is a time lag to communicate price information to villagers, they do eventually receive this information (usually via word-of-mouth, radio broadcasts), and this prevents large traders from exercising this monopolistic practice for very long. If they continued to use it, the villagers would be likely to shift their supply to other produce collectors in the future.

Another characteristic of the Indonesian village community that plays an important role in binding village collectors to farmers is social pressure. Due to the tight gossip network in a village community, any misconduct is quickly spread. Anyone who violates a contract with a fellow villager is subject to losing the benefits of the present contract as well as a bad reputation, which may prevent him from gaining future contracts. This social pressure mechanism should not be understated, and should be

considered a crucial element to maintain as marketing becomes more institutionalized and formal.

The village traders and farmers are almost all *bumiputra* (indigenous Indonesians), which also creates a social bond and responsibility. The larger town-based traders are predominately ethnic Chinese, and do not have the same community mechanism to enforce contracts. Most transactions between large and small traders are done on the spot in cash, and farmers "tend to admit that these ethnic Chinese are trustworthy in the sense that they are largely accurate in offering the prices prevailing in the market -- no favors are given but no cheating." The ethnic Chinese, however, have ethnic ties to other interregional Chinese traders, which gives them an advantage in collecting information and enforcing contracts at a higher level of trade (i.e. across regions and for export).

In sum, Hayami and Kawagoe have found evidence of a smoothly operating farmer-to-market system in two rural villages of Indonesia. They found that these systems work efficiently in economizing the use of scarce capital and management input, while making intensive use of local inputs, especially labor which has a low opportunity cost.

It is interesting to note that at least one of Geertz's comments remains relevant today: "Smallholder cultivation of export crops remains a source of succor for the hard-pressed Indonesian economy, but it is hardly even approaching the status of a driving force." Perhaps it is time to develop this sector into a driving force to help rebuild the Indonesian economy, quite literally, from the ground up.

IV. A. Coffee

Specialty coffee is one crop that meets the criteria set forth for this study: it is dominated by smallholders, has potential to go through an agricultural transition, and it has experienced growing demand in developed countries. A review of the history, production, structure of distribution, and markets for Indonesian coffee will be used to analyze this crop's potential. The influence of the international environment, perspectives from three U.S. companies, and a model of coffee production in Kenya will also be taken into account to form recommendations for the production and marketing of this important crop.

History

Coffee was one of the original crops produced in Indonesia for export. The coffee plant was imported to Indonesia from Malabar in 1699, and by 1725 coffee had become a commodity of major importance in Dutch East Indies trade. Over 1200 tons of coffee was exported to Amsterdam in 1725, an amount produced mainly by villagers who were required to grow it as a form of tax. Coffee became a dominant government-controlled crop under the Dutch Cultivation System, which required that coffee be grown in all suitable areas. With the introduction of estates, production grew to approximately 94,000 tons by 1885. After this peak, a combination of disease, pests, and unsuitable cultivation techniques led to a decline in coffee output. Production subsequently fell 60% over the next twenty-five years, and did not pick up again until introduction of the Robusta variety at the turn of the century. Robusta was a hardier, disease-resistant, high-yielding species, as opposed to the premium Arabica that was grown earlier. The world demand for Robusta was growing at this time, providing a market for increased Indonesian production. By the late 1920s, production surpassed the 19th century peak at 114,000 tons. During this time the present structure of the industry emerged, with smallholder farmers dominating production, and Sumatra's output exceeding Java's. The Sumatran smallholder has been the engine of growth in coffee production henceforth.

Throughout the 1930's production increased as a result of expansion of area under cultivation. This happened despite a decline in coffee prices; because of the smallholders low fixed and variable costs and abundant family labor, it was more beneficial for them to increase the area under production to compensate for the fall in price than to cut back. At the same time, the estate reaction to a fall in prices was to reduce the area under cultivation because of high fixed costs and reliance on wage labor.

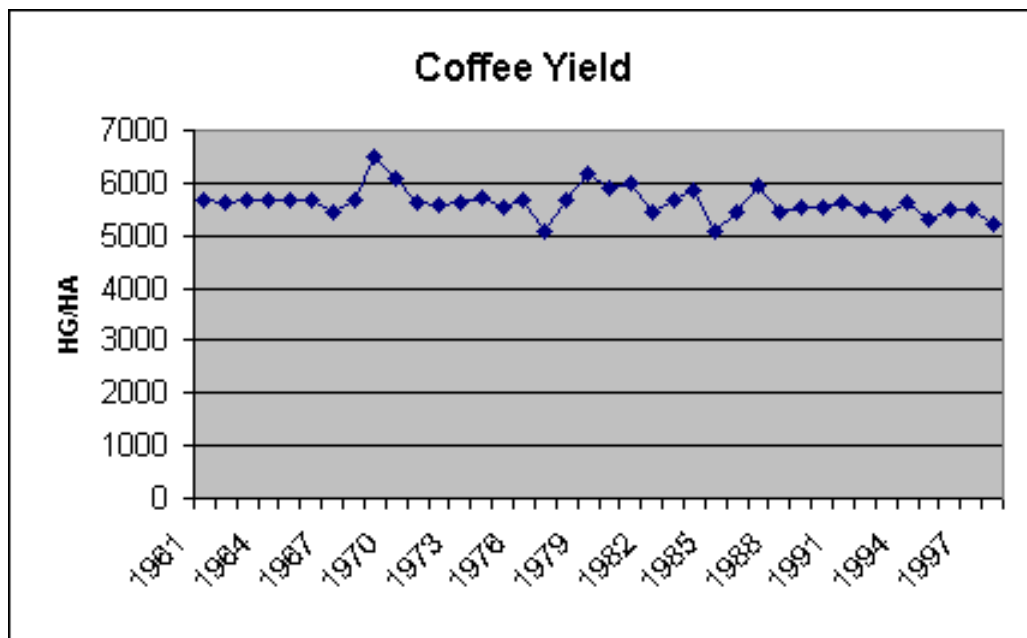
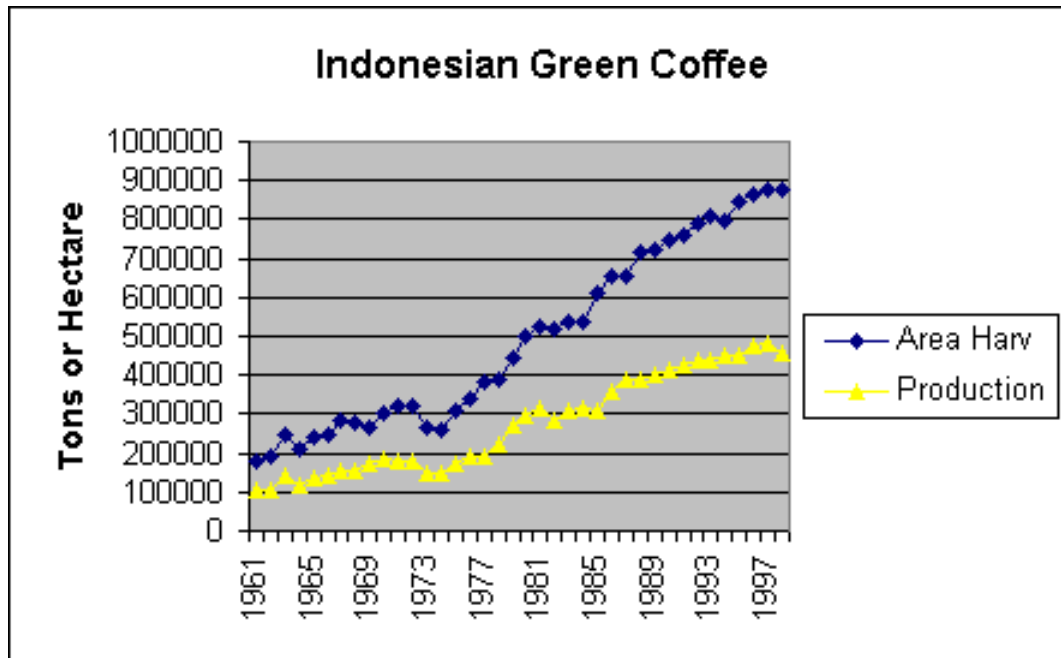
During the Second World War, all traditional export markets collapsed and farmers returned to subsistence farming. After Indonesian independence in 1945, the nationalist regime neglected export industries and coffee recovered very slowly. Land under smallholder control increased gradually in the following decades, and beginning in 1970 growth accelerated on an average of 8%. This was due to both transmigration, a government program which relocated Javanese to the outer islands, and the favorable returns to coffee cultivation. Throughout the 1980s and 1990s, coffee production has remained in the hands of smallholders, and production of Arabica has seen resurgence due to the increased demand by the U.S. and other developed countries for high quality coffee.

Production

Though estates play a part, coffee production is largely based on the labor of about one million smallholder households that cultivate coffee on an average of 1.44 hectares per household. These smallholders generate 93% of total production, and the balance is made up by private estates in Eastern Java and government estates in Java. Coffee is rarely the sole crop grown, but provides the main cash income for about 5 million people.

In contrast to the rice sector, coffee yields have remained steady or gradually declined since 1965. This implies that

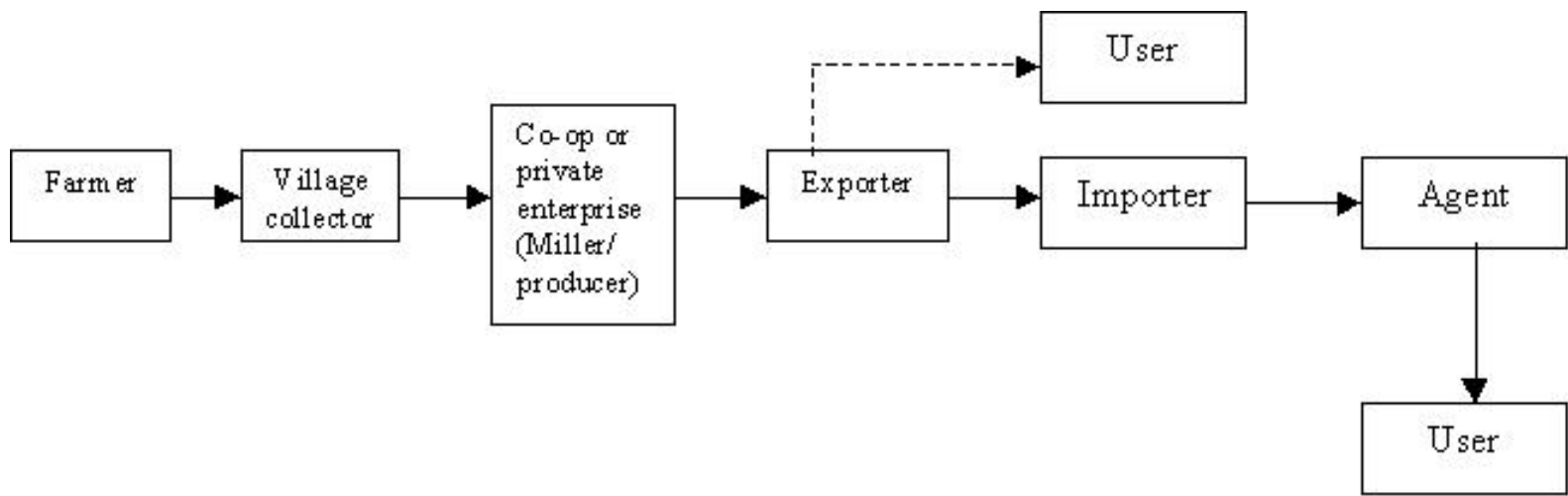
increases in production have come largely from land expansion, and that intensification of production through use of fertilizer, pesticides, and efficient, sustainable farming has been limited. The following graphs verify that while production has increased in the last 25 years, it is largely due to land expansion:



Source: FAO Statistical Database

The Structure of Distribution

The structure of distribution in the coffee industry is outlined in the diagram below:

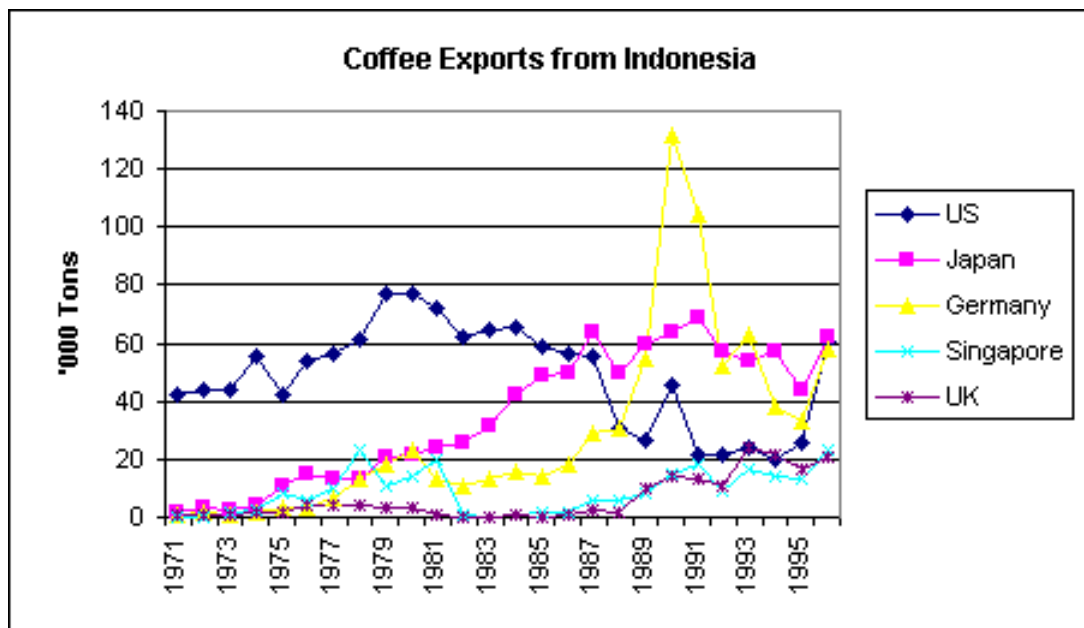


This diagram is a very rough approximation of distribution; in fact it may involve many more steps. For example, there may be several importers or "dealers" on the import side of the chain. The farmer usually sells the coffee cherry, unflushed, to a co-op or private enterprise, which prepares it for export. He may do some intermediate backyard processing, such as drying the cherry in the sun and hulling (separation of the bean from the shell). In spite of the damage to the bean, hulling may be done by the traditional mortar and pestle, or by spreading the cherries on the road and allowing the wheels of passing vehicles to do the job, or, preferably, by the means of a village huller. Then, the "green bean" (raw, unroasted bean) is sold to a local trader or exporter, which is usually a private organization. All exports of coffee are made by registered government-approved exporters. The trader or exporter reprocesses the coffee to bring it to export requirements in accordance with the government provisions of the "A" quality standard for export coffee. This measure has been in force for approximately 10 years, and has led to significant improvement in the grades of coffee offered for export. The exporter mixes the beans and prepares them in large enough quantities for export. Finally, the beans reach the user through an agent, who connects the importer and user.

Markets

The coffee industry has remained an important generator of foreign exchange for Indonesia since the 1970s, and makes up over 10% of non-oil exports. The importance of coffee as an export has diminished as petroleum and manufactured goods exports have increased, but the crop has still contributed an average of \$0.5 billion annually to export earnings since the mid 1980s. Typically, it accounts for over one-fifth of receipts obtained from the exports of agricultural produce.

Currently, Indonesia is the 3rd largest producer of coffee in the world, after Brazil and Colombia. More than 80% of Indonesia's coffee is exported to over 50 countries, the principal consumers being Japan, Western and Eastern Europe, the United States, North Africa, and the Middle East. The following graph shows the countries of destination for the majority of coffee exports since 1971.



Source: FAO Statistical Database

The nature of demand for coffee in the importing countries has changed over the past 20 years. In the U.S., total consumption, averaging 2.4 billion pounds annually, is down 15% from 20 years ago. A factor in the changing tastes of coffee consumers is a shift toward higher quality but lower total volume. This translates to a higher demand for Arabica as opposed to Robusta coffee. For example, in the U.S., only 15-20% of imports are Robusta. The premium quality of Arabica is reflected in its price on the world market, which is more than twice that of Robusta. For example, the weighted average indicator price of a pound of Arabica from 1996 to 1998 was \$1.89, and for Robusta it was \$0.79.

Although imports of coffee have declined as a whole, higher demand for Arabica coffee is reflected in the growing presence of specialty coffee shops around the U.S. The number of small coffee roasters has jumped tenfold in the last 18 years, and there are more than 20 times as many coffee shops in 1997 as there were in 1980. Furthermore, that number is expected to double by the year 2000. This growth presents an opportunity for Indonesia to expand Arabica production. Now, Arabica is only 10% of production, and Indonesia is thus known primarily as the largest global producer of Robusta coffee. However, specialty coffee companies in the United States such as Allegro and Starbucks have recognized several Arabica coffees from Sumatra, Bali, and Sulawesi.

International Impact on Coffee

As a commodity with wide international demand, coffee markets and prices are directly dependent on international supply and demand. Thus, periods of growth and decline in Indonesia have been largely attributed to the situation of crops in other coffee exporting countries, rather than to any specific assistance given to coffee farmers or improvements made in the local industry. For example, in the 1980s, world coffee prices were high due to droughts and disease in Brazil, the world's largest exporter of coffee. This caused a surge in coffee export revenue in Indonesia, as world supply was down and demand for Indonesian coffee was driven higher. For the 1998/99 harvest, Brazil's coffee output is expected to be unusually high due to excellent weather, recovery from a 1994 freeze, and strong prices in the last couple of years that led growers to increase area and improve orchard care. The surge in Brazilian supply will cause other countries to cut prices, which will adversely cut into export earnings for countries like Indonesia.

For more than 25 years, global coffee trade was governed by the International Coffee Organization (ICO) in London,

an organization made up of both the coffee producing and consuming nations of the world. The ICO attempted to regulate global coffee supply and demand in order to keep coffee prices steady. Many coffee exporters grow coffee as a cash crop and rely heavily on coffee revenues for foreign exchange. If supply and demand is allowed to float in a free-market system, price fluctuations of coffee could severely impact these countries economies. Additionally, for several coffee-producing countries, there is no viable alternative to coffee, and thus they have no backup source of revenue if a price drop occurs. Under the quota system, ICO producer countries exported set amounts to ICO consumer countries, stabilizing both supply and demand and keeping prices within a predictable band. In general, quotas were set according to producing countries shares of world production.

By 1989, however, the ICO failed to implement quotas and price stability effectively. Coffee producing countries produced more than they were allowed according to the quotas, mainly in response to an increase in world demand. These countries found a market for their over-quota coffee in non-traditional markets, non-ICO members, and in whomever would buy outside of the quotas. This increase in supply led to a decrease in prices and consequently the demise of the ICO. The ICO no longer tries to regulate coffee trade, but functions as an information center for the coffee industry. It hopes to help stabilize prices by giving the market a clear picture of the coffee market through newsletters and publications. Without good, reliable information, prices are often based on rumors and speculation which can cause distortions in the market.

The breakdown of the ICO began with a two-year suspension of coffee quotas after a failure to modify the quota system in June of 1989. Indonesia was a contributor to the breakdown, since it contested the ICO's quota proposals, arguing that they did not fairly reflect Indonesia's potential. (For example, production in 1988 was 385,000 tons, and the proposed quota was only 220,000 tons.) Prior to the breakdown, Indonesia's allotment was only 5.2%, against the 7% it feels is commensurate with its output. The board of the ICO argued this lower allotment was partially due to Indonesia's reputation for selling poor quality coffee, and the lower demand for Robusta beans on the world market. Conversely, Indonesian officials claim discrimination is the root cause of the lower quotas, as the ICO is a Latin American-dominated organization that Indonesia contends is biased against Asian producers.

Additionally, the ICO's 1989 proposals attempted to apply quotas to non-ICO members, primary markets for coffee produced above quota. This is evidenced by Indonesia's export statistics in 1988, one year prior to the breakdown: 135,000 tons of coffee was exported to ICO member countries, and another 135,000 tons was exported to non-members. Although it was acknowledged that suspension of quotas would drive prices and export revenue down in the short term, Indonesian officials welcomed the suspension. "It's better to get a suspension of quotas than to get a bad agreement," said Daryono Kertosastro, chairman of the AEKI. (Schwarz, 1989) Without the quotas, it was believed that Indonesia would be able to gain more of the world market share.

However, the realities of a free market system have led to oversupply and a substantial decline in prices, hurting farmers, processors, and exporters. In 1991, approximately 85% of Indonesia's coffee exporters faced bankruptcy, mostly due to the fact that coffee prices on the international market dropped to their lowest point since the early 1960s, \$0.84/kg. When the quotas were suspended in 1989, Daryono seemed to believe that despite foreign exchange earnings declines, Indonesia could "survive lower prices because coffee production from our farmers is quite cost efficient." (Schwarz, 1989) Apparently, the drop in coffee proceeds was more than Indonesia's coffee producers could take – by 1991 AEKI and the Indonesian government were lobbying for a revival of the quota system.

The quota system has not been reinstated to date, and coffee prices have been volatile, varying from \$0.50/lb. to a record high of \$3.18/lb. From 1989-1994, coffee prices were relatively stable, varying from \$0.50-\$1.00/ lb. This low price caused a shakeout in the industry, as many coffee producers lost money at this level and either neglected

their coffee farms, or if possible stopped growing coffee and started growing more profitable crops. Since 1994, however, prices have been volatile, due to adverse weather conditions, new inventory management systems of roasters, fear of shortages, stock market speculators, and the increased demand for specialty coffee in the U.S. and Europe.

Indonesia has not escaped this price volatility; in fact, because of its reputation for lower quality coffee it has had a more difficult time establishing its place in the free-market system. The Indonesian government has acknowledged this problem, as indicated by Minister of Agriculture, Sjarifudin Baharsyah. "We had best start to think about ways to become independent of prices on the international market. Because the marketing of coffee in the world is not always smooth and stable. Whatever the impact of international coffee price fluctuations will be detrimental to the farmers." (MacDougall, 1997)

Indonesian Policy

Both AEKI and the Indonesian government have also recognized the need to improve quality to international standards. Beginning in 1984, the government implemented a quality standard for export coffee which classifies coffee beans into six grades based on defects. The adoption of these quality standards has significantly improved the composition of exported coffee, as indicated in the chart below:

Composition of Exports by Coffee Grade
(percentage of total)

Period	Higher grades (1 & 2)	Medium grades (3 & 4)	Lower grades (5 & 6)
1984/85-1987/88	6	69	25
1988/89-1991/92	8	72	20
1992/93-1995/96	11	75	14

Source: ICO Profile, Indonesia

Additionally, extension services and technical assistance have been in place since 1980 to encourage intensification, increase yields, and improve bean quality. An effort has been made to provide high-yield Arabica seedlings to replace Robusta at appropriate elevations, as well as providing high-yield Robusta varieties for replanting.

Despite these efforts, the above graph on Coffee Yields indicates that that yield improvement has been gradual and inconsistent. This is not entirely surprising, since the government has put more resources into programs to improve coffee quality rather than productivity. Work on Arabica breeding is intensively pursued by institutions such as the Indonesian Coffee and Cocoa Research Institute. Recently, a sub-station of this institute was established to manage a research program for Arabica at the Gayo Highlands in the Aceh province, where cultivation of specialty Arabica is very promising. The government has also discouraged expansion of Robusta coffee in recent years through restricting publicly-owned bank loans to finance rehabilitation (and not expansion) of Robusta plantings. The higher price of Arabica, combined with government efforts, have resulted in an increase in Arabica production and exports. While Arabica coffee still comprises only 10% of exports, it is a marked improvement from 10 years ago, when this higher quality coffee made up only 5% of total exports. During the same period, Robusta exports increased only 24%.

The quality improvement programs are partially a reaction to the fact that internationally, Indonesia has a reputation for producing lower quality coffee. This is one reason for Indonesia's loss in market share in countries where coffee prices are high and demand is growing for quality coffee. The lower quality of Indonesia's coffee has been attributed to the concentration of production by smallholders, who lack sophisticated farming techniques, and who use only rudimentary processing facilities. Also, beans are often picked too early due to lack of knowledge by farmers, a rush to pick beans before leaf rust sets in, and a desire to sell crops and raise money as soon as possible.

To address this problem, coffee auctions are becoming more common to encourage farmers to improve the quality of their coffee beans. These auctions, when done fairly, give smallholders a better bargaining position and indirectly encourage them to pick only red (mature) beans. Also, farmers are encouraged to apply for short-term loans from the publicly- owned rural banks to assist their cash flow. This would prevent them from harvesting immature and unripened coffee. This, however does not always solve the problem, since interest rates make borrowing unattractive.

U.S. Retailer and Importer Perspective

According to three U.S. players in the coffee industry, Starbucks, Allegro, and Royal Coffee, Indonesia has a big opportunity at hand to increase revenue from sales of high quality Arabica coffee because of the weak rupiah and increasing demand for specialty coffee. Most of the Indonesian coffee these retailers (Starbucks and Allegro) and importer (Royal Coffee) purchase is from Sumatra, Sulawesi, Java, and Timor. The basic structure of distribution for these companies reflects that described above, and they all mentioned that the middleman plays an important role in the supply chain.

Scott McMartin, Green Coffee Buyer for Starbucks stated, "Depending on which island, the middleman or collector plays an important role in bringing remote coffee from producers to larger towns. The collector will typically represent a small or large network of small holding farmers. This role will likely stay constant for the near future."

Coffee buyers from these companies also all stated that the farmer receives prices based on world market and New York C market fluctuations. (The reference point for coffee pricing is typically the New York "C" market indicator price. Fine coffees command a premium above "C," while lower quality ones are sold at a discount to "C.")

According to Bob Fulmer of Royal Coffee, although the farmers keep track of the market and price changes, "the level of education is low, so they are probably being taken advantage of." He commented that farmers usually get prices over the radio, but he was uncertain if or how the farmers reacted to the information. According to the International Coffee Organization's 1998 report on Indonesian coffee growing (ICO, 1998), the real (inflation adjusted) price paid to growers largely reflects global price conditions. However, in view of the extensive nature of production, with family time being the major input and some constraints on the use of fertilizers and chemicals, it would not be expected that price changes would have a very marked effect on output. According to the ICO, previous studies have indicated that the response to price is low. This reaction is further supported by the response to price reductions in the 1930s, when farmers *increased* production to compensate for the lower prices.

According to Kevin Knox, Senior Vice President and Coffee Buyer for Allegro Coffee, one of the problems with the fragmented structure of coffee-growing in Indonesia is that the farmers engage in "backyard processing," which adds little if any value to the coffee. Because they lack the infrastructure, skills, and capital to adequately process coffee for export, the farmers use very rudimentary techniques for washing, sorting, and hulling their coffee. The coffee must be re-processed by the exporters, and this gives them the ultimate control over the quality and value of the coffee.

Furthermore, Knox commented, there are powerful economic forces working against development of the smallholder coffee farmer. The control of the coffee industry falls into the hands of those that can add value to the coffee and prepare it for export. In Indonesia, this is most often the small group of exporters and large-scale millers. Because it takes hundreds of farmers to create a quantity of coffee large enough for export, it would be difficult to transfer this power to them. Such a large mass of farmers would need to be educated, mobilized, and empowered. "Farmers have no idea of what goes into making good coffee," said Knox. "The control of adding value is not with the farmer."

The Kenya Model

Kenya has developed a system to grow and market its coffees with very different methods from other countries, which has helped to make it "the producing country with the highest overall quality." (Knox, 1998) Much like Indonesia, Kenya has a fast-growing population and limited arable land. Given these circumstances, the Kenyans realized that they needed a high return on each pound of coffee, one of their leading exports. Farmers wanted to ensure that their coffee demanded a consistently high price, which could only be done by creating a high enough quality coffee that consuming countries would compete with each other for access to each harvest. The slopes of Mount Kenya provided fertile ground and an ideal microclimate for cultivating Arabica coffee that generated this kind of demand. In addition to this, Kenya has some of the most sophisticated scientific research into coffee quality anywhere in the world.

Like Indonesia, Kenya's coffee is grown by small farmers with tiny plots of land. But while Indonesian smallholders inadvertently compromise the quality of their harvests through unskillful backyard washing and drying, Kenya's small farmers have organized themselves into cooperatives, each of which has a centralized wet processing facility with skilled operators. These co-ops produce small quantities of coffee, from 20 to 100 bags at a time, which are then auctioned off to buyers.

The auction system allows farmers to be directly rewarded for quality. Normally, importers, exporters, and buyers in consuming countries control the price of coffee, with the actual growers reaping only a tiny fraction of the final price. In the Kenyan system, each parcel of coffee produced is delivered to a centralized mill in Nairobi where samples are drawn and tasted. Expert tasters rate each sample on a 1-10 scale for flavor, acidity, and body, and growers (but not prospective buyers) receive a copy of these results. Prospective buyers are then sent samples of each coffee to taste and evaluate prior to the next week's auction. At the auction, the bidding sorts out the lower from the higher quality coffees. Sometimes, the better lots go for two or three times the price of average offerings. The money goes directly to farmers, who run small but excellent operations. They all contribute to the Kenya Coffee Board and Mill, which conducts research and grading, but they still receive 86% of the total price obtained by their coffee.

The possibilities for implementing this model in Indonesia would be limited by the expanse and geographical separation of the Indonesian coffee-producing areas (North Sumatra, South Sumatra, Sulawesi, Bali, Java, Timor, Irian Jaya) which are on different islands or do not have an easily accessible central location such as Nairobi. Also, Indonesia is subject to a high degree of corruption, which may interfere with the grading system if bribing occurred between graders, farmers, and buyers. One solution to mitigate these problems is to implement this type of program on a smaller scale. In fact, farmers in East Timor have organized into cooperatives similar to those in Kenya. According to Sam Filiaci, of the National Cooperative Business Association of Indonesia (NCBA), all farmers in East Timor (13,000 families at this time) are organized into 16 primary and one secondary cooperative. They do all of the procurement, processing, and export of the coffee. The secondary cooperative federation in Dili has the export license and receives the export payment proceeds. These small farmers use wet-processing, which is more

appropriate for Arabica coffee. This technology was brought to the small farmers through the NCBA. According to Filiaci, the farmers do not need to utilize credit because it is a low input/ low output farming system. About 75% of the coffee produced is Arabica, and 60% of the demand is the U.S. specialty market. The other major importers are in the main European, North American, and Japanese markets, and the co-op farmers market their coffee directly to the importers.

It appears that the cooperative nature of the Timor system is similar to that in Kenya. However, it lacks the tasting/rating and auctioning processes. The benefit of the tasting/rating system is that it allows farmers to understand more about what is required for a "quality" cup of coffee. Also, they know the value of their coffee before it is auctioned off, so they are not undersold. Since Timor coffee has gained a good reputation internationally, it commands a higher price, but the farmers do not know on what elements their coffee is being rated. Also, prices are not differentiated through an auction, so the prices are determined by importers and exporters. In short, the Kenyan system gives more control to the farmers by educating them about the quality of their coffee through objective and market forces (tasting/rating and auctioning.)

The Timor case may be an excellent opportunity to implement a "pilot" of the Kenyan model since it has the cooperative structure already in place. To implement the model, the cooperatives would need to have a tasting/research facility, which could be administered by the NCBA and AEKI. By involving the AEKI, several exporters could learn the process of the model so that it could be adapted and implemented in other areas. The AEKI would be an ideal partner since it has 12 provincial offices in major producing or exporting centers throughout Indonesia, and it already does extensive work on improving productivity, quality, and marketing of smallholder coffee. It also is an important counterpart for the Government in dealing with coffee trade and development.

The benefits of implementing this model include a higher priced coffee and higher returns to farmers, elevated international reputation of Indonesian coffee, more highly educated farmers, incentives for farmers to grow the highest quality coffee, improved processing methods, and a more stable income for farmers (i.e. incomes would not be as influenced by coffee prices on the world market).

Although recent cost information was not available, the benefits of converting from Robusta to Arabica coffee growing indicate a substantial revenue increase. The annual average price of a kilogram of Arabica from 1996 to 1998 was \$4.16, versus \$1.74 for Robusta. Currently, there are approximately 78,000 hectares of land under Arabica cultivation, and over 1 million hectares of land under Robusta cultivation. Although yields of Arabica are generally lower than Robusta (due to intercropping, fragility of crop versus Robusta, and stricter quality specifications), the economic gain of growing Arabica is substantial. Using a yield rate of 300/kg per hectare for Arabica and 400/kg per hectare for Robusta (ICO, 1998), if 25% of Robusta crops were converted to Arabica, the increase in total revenues for Indonesia would be approximately \$151 million, or an 18% increase. On the individual farmer level, the increase would be even greater, as indicated below:

	<u>Arabica</u>	<u>Robusta</u>
Land Held	1.4 ha	1.4 ha
Yield	420 kg	560 kg
fob price per kg	\$4.16 * 77%=\$3.20	\$1.74*92%=\$1.60
Total revenue	\$1344	\$896
Rupiah (Rp7500=\$1.00)	Rp 10,080,000	Rp 6,720,000

Difference

33% increase

(Note: fob percentage is based on "1995 Farmers' Share of fob Prices" from South Sulawesi, Dinas Perkebunan (Provincial Estates Office). Percentages will vary by region, depending on transportation costs and number of middlemen.)

In order to understand the real advantages of Arabica production, a cost structure would have to be determined as well as the feasibility of converting Robusta to Arabica, since Arabica must be grown at higher elevations. It is probable that the upfront costs of conversion are high, which would include replanting costs, new seedlings, and wet processing facilities. Wet processing is not necessarily a large investment, however. For example, Sumatran smallholder Arabica coffee farmers apply the wet process using simple hand pulpers for pulping cherries and wooden or bamboo boxes for the fermentation and washing of the parchment coffee. The coffee beans are totally sundried. More capital intensive wet processing includes the use of mechanical pulpers, washers, and dryers.

Solutions and Obstacles

There are both internal and external forces that have influenced smallholder coffee farmers. Externally, world supply and demand and price volatility make coffee growing a risky crop to depend on. On the positive side, the increase in demand for specialty coffee has created an opportunity for Indonesian farmers to increase production of high quality Arabica coffee, and receive higher returns for it than for Robusta.

Internally, the smallholder has been neglected, first by the Dutch who focused on plantation production, then by Indonesia's first president, Sukarno, whose primary focus was on nation-building rather than the economy, and finally by Suharto, whose agricultural priorities were in rice self-sufficiency rather than cash crops. Understandably, in the early stages of his presidency, Suharto was pressured to focus on rice in the name of political stability. However, this inattention was detrimental to smallholder farmers, who fell behind in technology and whose yields declined steadily. The combination of both the external and internal situations has put the smallholder coffee grower at a disadvantage, with outdated farming techniques, lack of capital, and an international reputation for lower grade coffee production.

Since the 1980s, however, it appears there has been some improvement with policies geared towards coffee growing. Suharto's attention turned to external markets and exportable crops, particularly since self-sufficiency in rice was achieved. The recent rise in demand for specialty coffee, (particularly Arabica) has encouraged the government to assist in the development of exportable quality beans to become a more viable contender in this type of coffee trade. Most of the policies have been more beneficial to plantation growers than smallholders, as they have the capability to produce higher quality beans. However, smallholders have received some efforts at assistance, particularly subsequent to the lifting of international quotas that hurt smallholder revenues. This assistance was likely due to the domination of smallholders in Indonesia's coffee production, which were too great to be ignored if Suharto truly wanted to improve the reputation of Indonesia's coffee on the world market. Assisting in the development of these crops also served other goals of Suharto, such as stemming urban migration.

Despite efforts to improve the lot of coffee farmers, there are some aspects of the coffee industry that cannot easily be changed. Supply and demand on the world market, the economies of scale required by large importers, and unpredictability of weather patterns will remain features of the system that are somewhat unalterable. The chain of distribution is also a difficult structure to change, although from Indonesia's perspective, the smallholder could potentially increase both his power and coffee quality by implementing a system modeled after Kenya's.

The trend towards smaller roasters in the U.S. provides a market for smaller quantities of coffee, ideal for

cooperatives of small farmers. By vertically integrating through some of the middle links in the chain, as in the cooperative structure, farmers can add value to their coffee, have closer access to markets, and understand what price their coffee deserves. However, this can only be successful if farmers have the ability to increase crop yields, quality, and production.

One alternative to accomplish this is for smallholders to work closely with millers and processors in order to understand what goes into ensuring a consistently high quality coffee crop. This initiative would be facilitated if designed by an authority, such as AEKI or Agrobank, which could assist in building relationships between the two parties. Once smallholders increase the quality of their coffee and learn processing techniques from millers, groups of smallholders could cooperatively become millers and processors themselves, and sell directly to the roaster in the consuming country. This second initiative would take a great deal of coordination, skill, and initiative by smallholders, and of course would depend on the demand for smaller batches of high quality coffee on the world market.

Since smallholders dominate coffee production, it seems that they are the most likely targets for raising standards and quality. Some of the government's initiatives, mentioned above, do seem to be geared towards improving the quality of smallholders' coffee, such as replacing low yielding varieties with high ones, but they do not give a sustainable advantage to smallholders. In order for smallholders to survive, they need to have the technology and farming techniques to compete on the world market. They also would be in a better position if they had more power in the distribution chain. Both of these improvements could be achieved through a cooperative/miller relationship described above.

A remaining obstacle is access to capital for smallholders. This is where either private lending institutions or government banks would need to step in. If government statements about re-investing in the cash crop sector are valid, government financing is a possibility. The IMF and World Bank have also encouraged a re-focus on agriculture. The IMF's \$33 billion rescue program abolished restrictions on the import and export of agricultural commodities. The World Bank has offered a \$400 million loan to rejuvenate agriculture. The concern, according to Dennis de Tray, the bank's country director, is the willingness of the government to try new ideas (Far Eastern Economic Review, 6/4/98). De Tray says that the government needs to free up fertilizer and seed distribution, now still largely in state hands; accelerate the process of handing over irrigation systems to local water-use associations; and encourage universities to become more active agricultural research and training schemes.

Other national projects are aimed at boosting the rural agricultural sector, such as a \$400 million investment by the Agency for Technology Application and Study (BPPT). This money is to be used to introduce technology into Indonesian villages for three to six months. In nearby Singapore, Rabobank International is offering an export funding scheme for agricultural commodities from Indonesia to abroad. The bank is also planning to act as an intermediary with overseas buyers. Through a partnership with PT Sucofindo, the bank would ensure inspection of the quality and quantity of export commodities. This would help convince buyers to place orders, since the products have been duly inspected by a trusted institution. Foreign investors are also eyeing the agricultural sector. After an agribusiness exposition in Jakarta held in July of 1998, at least 15 domestic and foreign investors expressed interest in investing in Indonesia's agriculture sector. (Asia Pulse, 8/20/98). The Head of Agribusiness in Indonesia's Ministry of Agriculture, Ato Suprapoto, stated that the future prospects of investments in agribusiness will be bright in 1998, because this sector has potential for national development and is insufficiently affected by the economic crisis compared with other sectors. Investments thus far include development of cassava in Sumatra by Netherlands investors, and investment in Abaka banana plantations by other foreign investors. Specialty coffee would also be an ideal crop for investors to develop given its potential for highly valued exports.

A final unique opportunity for Indonesian smallholders is production of organic coffee. Most of the country's coffee can be classified as organic because smallholders rarely use chemical fertilizers and controls. This is a growing segment in developed countries, and may provide a unique positioning for smallholder to market their coffee. Allegro, being the U.S' largest organic coffee company, has found Indonesia as a good source of organic coffee. An obstacle to marketing the coffee as organic is obtaining organic certification. This is a costly and cumbersome process, and is happening mostly with the assistance of U.S. importers such as Holland Coffee Company and Forest Trade. Farmers have not grown organic coffee as a reaction to increased Western demand; it is an outcome of prohibitive prices and lack of access to pesticides and fertilizers. Thus, the concept of marketing coffee with an organic benefit, including the regulations involved, is and area unfamiliar to coffee farmers. Continued education from Western companies as well as assistance from AEKI and ICCRI could help farmers more fully capitalize on this opportunity.

IV. B. The Case of Spices

Brief History Spice Trade

Spices were some of the first items sought after in Europe from abroad, and were an impetus for the beginnings of international trade. During the Middle Ages in Europe, a pound of ginger was worth the price of a sheep; a pound of mace would buy three sheep or half cow; cloves cost the equivalent of about \$20 a pound. Pepper, always the greatest prize, was counted out peppercorn by peppercorn. In the 11th Century, many towns kept their accounts in pepper and taxes and rents were assessed and paid in this spice. Many of these spices were found on the islands of what is now Indonesia. Marco Polo, who voyaged across Asia in the late 13th century, wrote of Java, "from thence also is obtained the greatest part of the spices that are distributed throughout the world."

Portugal remained dominant in the Far Eastern spice lands until the end of the 16th Century, when the Dutch entered the competition in earnest. Van Houtman and Van Neck, each in command of expeditions to the Indies, made friends with native sultans, and organized trading posts which eventually gave their country a monopoly in the early 17th Century. With the Dutch conquest of Malacca in 1641 the Malay Peninsula and northern Sumatra came under their control.

In 1650 the Dutch took over the cinnamon trade in Ceylon, and by 1663 the best pepper ports of the Malabar Coast were theirs. Before the end of the 17th Century, Macassar on the Island of Celebes and Bantam in Java were added to make the Dutch complete masters of the immensely profitable spice trade. The Dutch ruled the market with a rod of iron. If the price of cinnamon fell too low in Amsterdam, they burned the spice. They soaked their nutmegs in milk of lime, a process which did not affect flavor, but supposedly killed the germ of the nut. This was to prevent nutmegs from being planted elsewhere. France's role in spice trading was generally a minor one, not backed by its government. However, they helped destroy the century-old Dutch spice monopoly when, in 1770, the French contrived to "kidnap" enough cloves, cinnamon and nutmeg plants from Dutch possessions to begin spice-growing in the French islands of Reunion, Mauritius and Seychelles in the Indian Ocean and in French Guiana on the north coast of South America.

Meanwhile, the sea-faring English were not idle. They, too, were looking for routes to the riches of the East. Throughout the 1500s, the British searched for a passage to India and the Indies by way of a Northern route, but had little success. Yet, the extensive exploration and navigation of the seas made England a power at sea. In 1600 the British East India Company was chartered by Queen Elizabeth, with spice cargoes as its big objective. Where the Dutch controlled the East Indies, the English were gaining supremacy on the mainland of India itself. In 1780, the Dutch and the English fought a war, which was to be ruinously costly to the Dutch East India Company. In 1795 the English took Malacca and a year later all Dutch property and trading centers except Java. The Dutch East India Company had to be dissolved in 1799.

It was not until the mid-1700s that America entered the spice trade in a big way. The leader of the

American spice trade was a sea captain named Jonathan Carnes. Sailing on one of the early American trading voyages out of Salem in 1778, he discovered places in the Orient, principally in Sumatra, where he could deal directly with the natives, thus circumventing the Dutch monopoly. Financially backed by a wealthy Salem family, he made a voyage in 1795 which yielded 700% profit in spices. This sent America into the spice competition so actively that between 1784 and 1873, about a thousand vessels made the 24,000 mile-long trip to Sumatra and back. In 1818, when the pepper trade was particularly intense, 35 vessels made the long and dangerous trip. Pepper trade furnished a great part of the import duties collected in Salem (which at one point were enough to pay 5% of expenses of the entire U.S. government). Pirates finally put America out of the oriental trade. American merchant ships were raided and destroyed time and again, and the United States government decided against backing the spice trade with naval protection in foreign waters.

Throughout history, the country that has controlled the spice trade has been the richest and most powerful in the world. Fortunately, these aromatic plants are not so costly today as they once were. In the 19th Century Great Britain's maritime prowess gradually established her as the leader of the spice trade, and London's Mincing Lane became the spice-trading center of the world. Since then, dominance in this ancient trade has once again changed hands. The United States is now the prime figure in world spice buying and New York is its center. Most U.S. spices are imported, although there is approximately 190 million pounds produced domestically on an annual basis. Imported spices enter the U.S. through the ports of both coasts, but by far the largest volume comes through New York. Spices are first inspected for cleanliness and must pass U.S. Food & Drug Administration and the American Spice Trade Association standards before they are allowed to clear the port. After that, they go to spice grinding plants where they are further inspected, cleaned, processed and packaged. Various types of mills are used in spice grinding because of the wide variety of materials, which must be processed, including leaves, seeds, bark, etc. Today, in addition to ground spices, the spice industry offers extractives of spices in which the essences are concentrated from the raw products. These are available in various forms to meet specific flavoring needs. Included are essential oils, oleoresins and compounds containing these plus natural spices and other ingredients.

Markets

Spice consumption in the United States has been on a steady incline over the past four decades, having risen by 126% in the past 35 years. This translates to an average per capita annual consumption of 3.1 pounds of spice, a number that has grown 45% since the mid-80s. If the steep climb in spice usage continues, the U.S. could be using a billion pounds of spices by the year 2000. These facts make the U.S. the largest importer and consumer of spices used to season food products. In 1994, 285 million pounds of 40 different spices were imported, up from 171 million in 1961. This amounted to \$417.7 million spent on spices in 1994. In terms of volume, the most important spices in 1995 were dehydrated onion and garlic, mustard seed, sesame seed, black pepper, and red pepper. Other big sellers include cinnamon, oregano, poppy seeds, white pepper, cumin seeds, and basil. The countries of European Union are also large importers of spices; in 1994, total imports were 195 million tons, equivalent to \$444.4 million. Germany is the largest single market in Europe for spices, and imports over a third of the total shipments of spices going into west European countries. Next in line are Spain, France, and the United Kingdom.

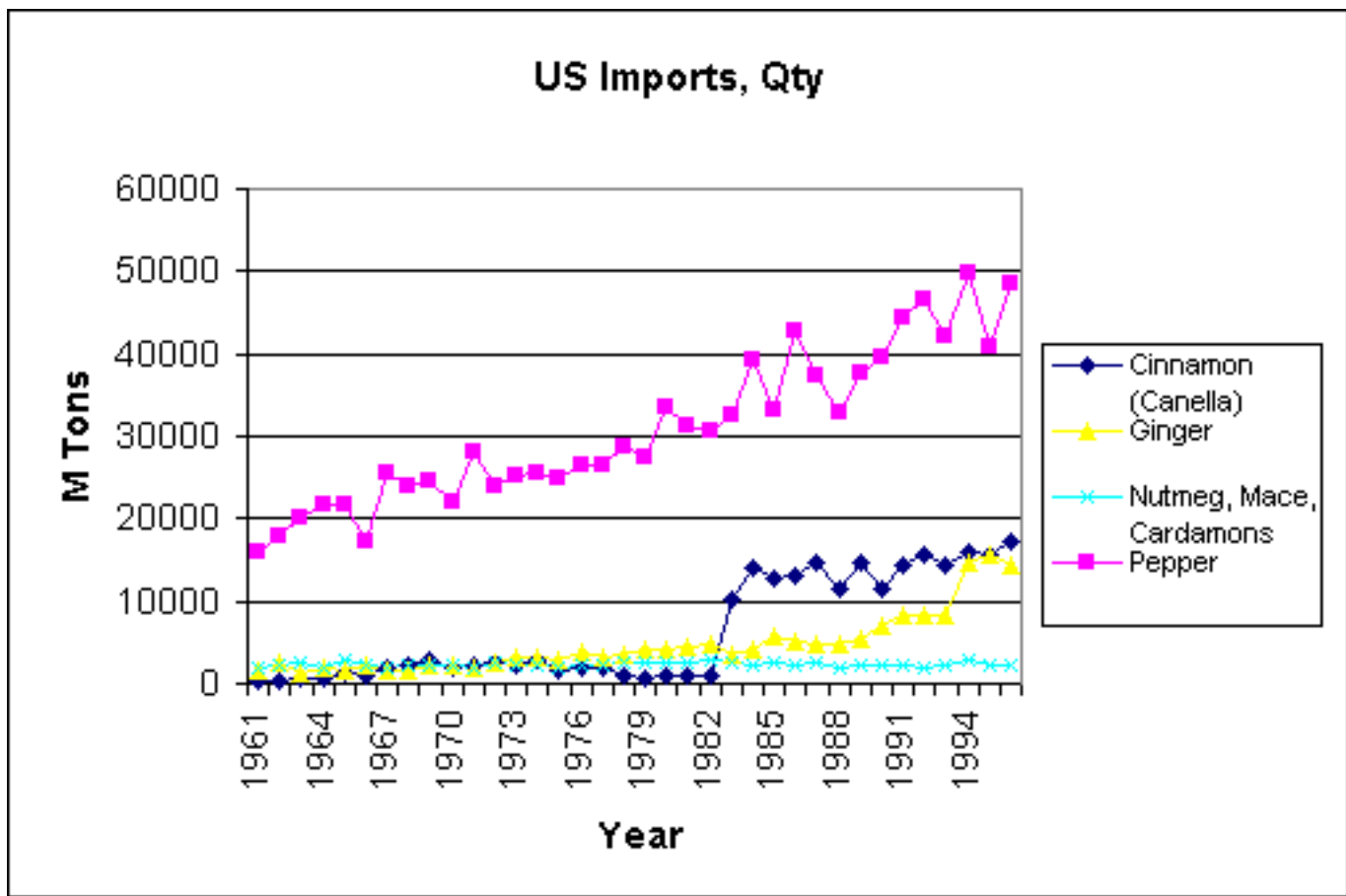
North African countries and the Middle East have accounted for substantial increases in spice imports, and Japan is the major importer in Asia, in addition to being the world's third largest spice market.

This trend in spice consumption is due to several factors, including high-income levels, a growing demand for convenience food items, and changing consumer tastes towards more variety. Also, the rising consumption of dietary foods has added to the demand. Spices can make these foods more palatable for the consumer without adding fat or calories. According to a buyer at Wild Oats, one of the nation's largest natural foods supermarkets, one way to create excitement over existing foods is with different and exotic spices. "Spices provide a way to make the old new," she says. In accordance with these trends, food manufacturer and processors are learning to rely on distinctive spicing to make their products more flavorful than competitive brands. In industrialized countries, about 50% to 60% of the spices sold are used by industry, mainly in food industries. Around 10% are used by the catering sector, and the remainder are consumer packed and sold through retail shops for home use.

Another use of spices that has seen tremendous growth in the United States is essential oils used for aromatherapy and food flavoring. There has been an increasing demand for "all-natural" ingredients in hair, shampoo, skin and cosmetic products in the U.S., which is opening up a sizable market for natural aromatherapy oils. While the demand for such oils originated in smaller natural products companies, large companies such as S.C. Johnson, Clairol, and Estee Lauder have more recently created products that use these oils for their fragrance and medicinal benefits.

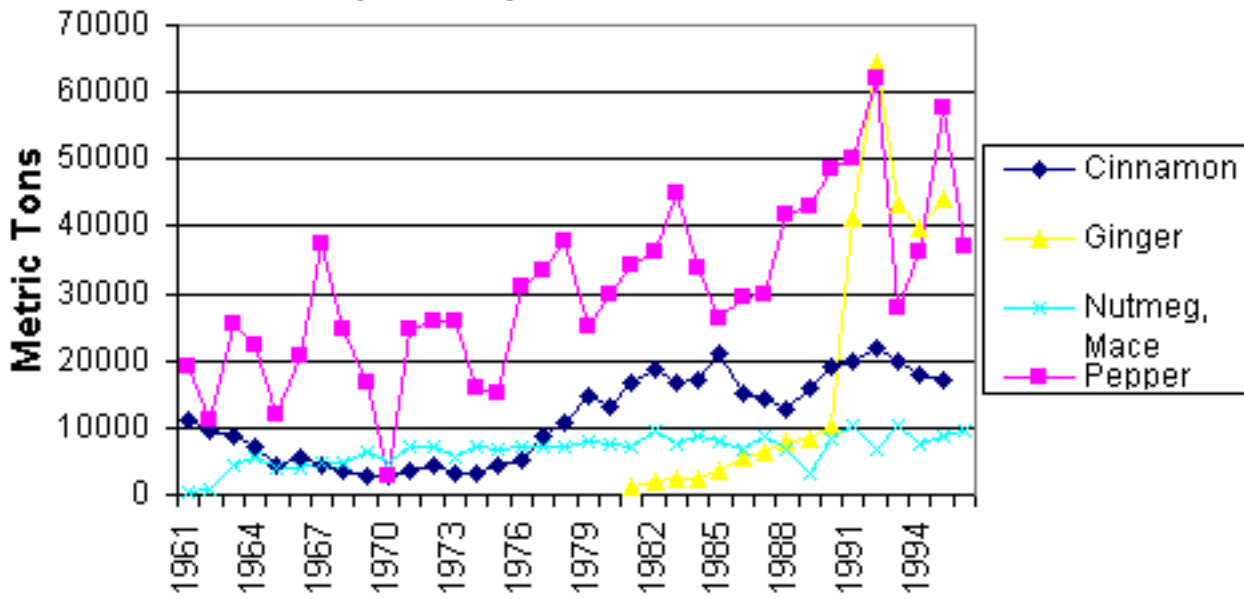
Indonesian Spices in the U.S.

Indonesia is a source of many spices that are popular and growing in demand. To identify which spices in particular have seen a rise in demand, it will be helpful to look at the amounts of specific spices imported to the U.S. in the past several years.

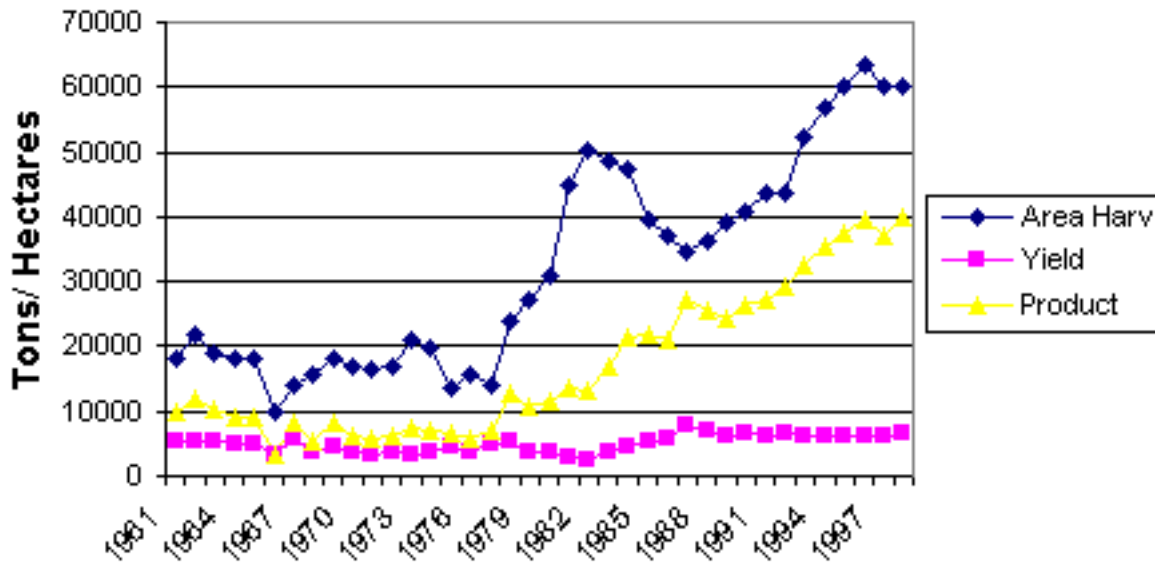


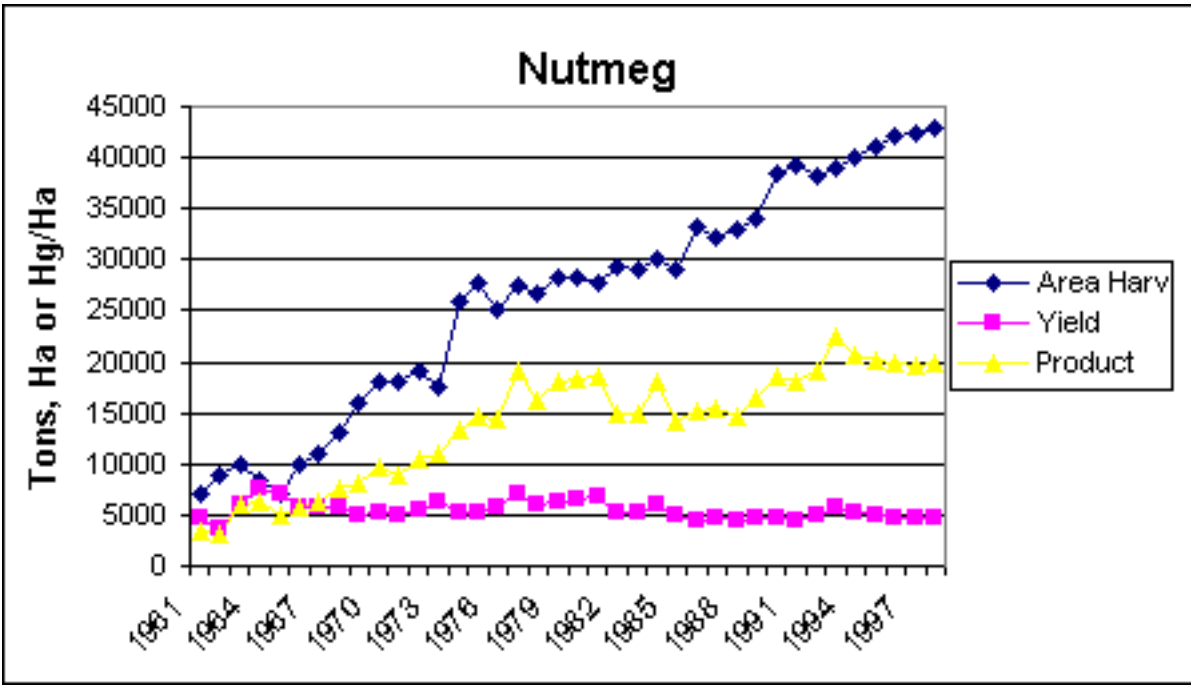
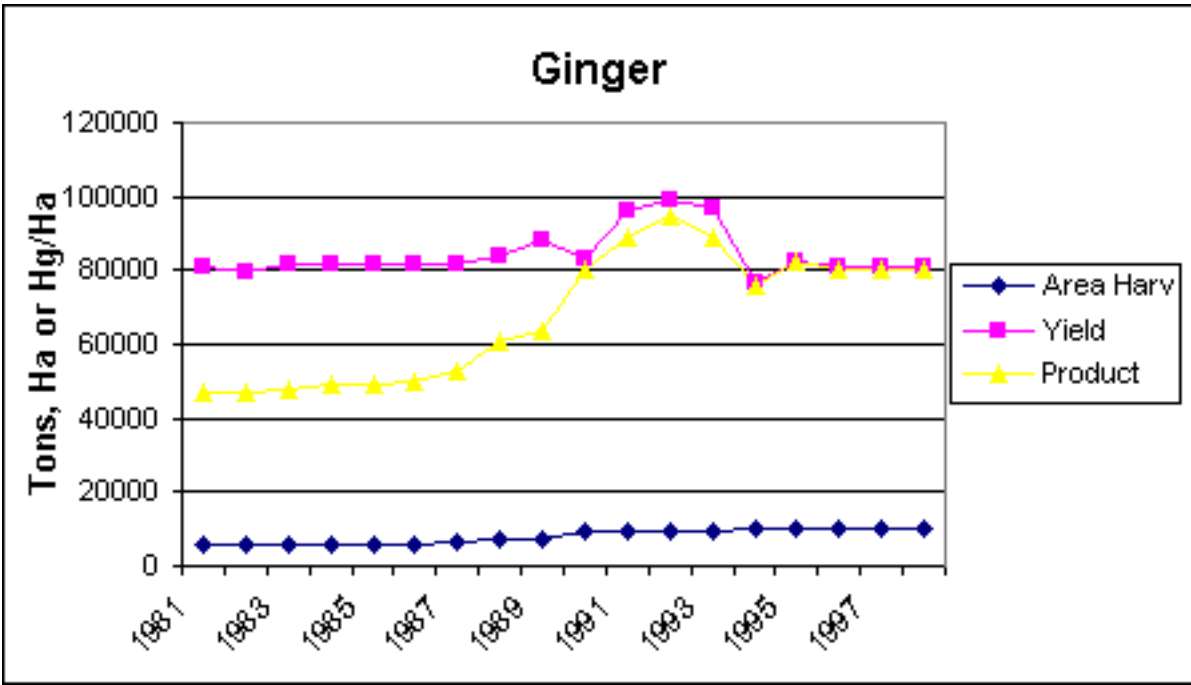
Although data was not available on country of origin for these imports, the purpose of studying the quantities of imports is to discover which spices that are grown in Indonesia have seen a rise in U.S. demand. Clearly, pepper is the largest in terms of sheer quantity, but ginger and cinnamon have seen significant increases as well. Having identified these three spices as potential sources of increased demand in the U.S., looking at the export and yield data for each spice will identify the opportunities for Indonesian production.

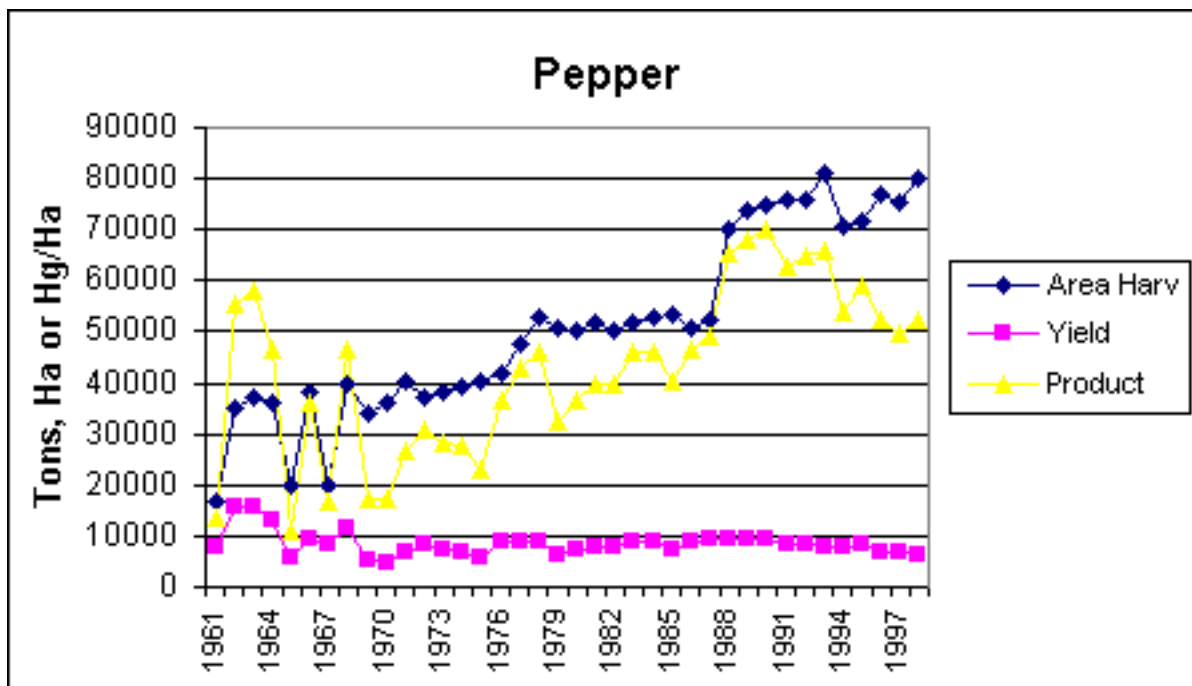
Spice Exports from Indonesia



Cinnamon







Source for all graphs: *FAO Statistical Database*

These graphs indicate that there is potential to increase yields in pepper, nutmeg, and cinnamon. Ginger, on the other hand, has seen yields move generally at the same rate as production, as acreage has remained relatively flat. Thus, for the purposes of this paper, the crops of pepper, nutmeg, and cinnamon will be examined. Ginger may provide an opportunity, and deserves further study, but does not meet the criteria of being at an early stage in agricultural transition. To understand the dynamics and possibilities for each of these spices, it will be helpful to have a brief explanation about where they are grown and some of the history behind their development.

Cinnamon

There are several varieties of trees in what botanists call the "cinnamomum" family. Most of the cinnamon used in the U.S. is derived from trees of the "cinnamolnum cassia" division of the family, which is why cinnamon is sometimes referred to as cassia. Among spice experts, this term is used to distinguish between the cassia types of cinnamon and the Ceylon type of cinnamon. The cassia group is native to China, Indo-China and Indonesia. They produce the product most Americans recognize as cinnamon -- a reddish brown powder with a strong characteristic aroma and flavor. Quite different from these are the Ceylon and Ceylon-types of cinnamon. The products in this case are characteristically tan-colored, with flavor and aroma much milder than that of cassia that the average person in the U.S. would consider them weak or poor cinnamon. Most Ceylon cinnamon brought into the U.S. is re-exported to Mexico, where it is preferred for certain confections. In labeling, however, bark from the cinnamomum family (whether cassia or Ceylon-type) may be called "cinnamon."

The most commonly used cinnamon in the U.S. comes from the cassia type of cinnamon trees, for which there are three main producing areas. Indonesia supplies two types: "Korintje" and "Vera" (or

"Batavia"). China, now that the U.S. has resumed trade with that country, is an increasingly important source. Vietnam is the third producing area, (known for "Saigon" cinnamon).

Indonesian cinnamons (cassia) come from the mountainous areas inland from the port of Padang on the island of Sumatra. The highest concentrations of essential oil in Korintje and Vera are found in the thicker bark on the lower parts of the trees. The grade designations for both cinnamons are "Quality A": (quills must be one meter long, taken from the main trunk), "Quality B": (from the side branches) and "Quality C": (broken pieces). Coming from a higher altitude, the Korintje cinnamon characteristically has a slightly more intensive color and flavor than the Vera and is thus rated the better type. In general, Korintje is deep reddish brown and has a sharp cinnamon flavor; the Vera is lighter in color.

The U.S. is the largest importer of cinnamon, and imports have been rising gradually, especially since 1982. The average annual volume of cinnamon world trade is 35,000 tons. In the wake of the recent financial crisis and adverse weather conditions, cinnamon was an alternative crop that Indonesian farmers turned to when faced with devastated rice crops and the devaluation of the rupiah. This increased production drove export prices to 40 cents per pound in 1997, down from 80 cents per pound in the same period of 1996. This is likely a short-term phenomenon, however, as the effects of El Nino subside and supply of cinnamon returns to levels more commensurate with demand.

Nutmeg and Mace

Nutmeg is the seed of the pala fruit tree, found close to the sea in well-drained areas of some tropical islands. The seed is partially covered by a thin red membrane that when removed and dried becomes the spice called mace. Both are enclosed within a hard shell inside the fruit. Indonesian nutmeg and mace are grown on the islands of Sian and northern Sulawesi, and the processing center is in Manado. Smaller amounts are grown in Maluku, Aceh, West Java, Irian Jaya, and West Sumatra. Most of the East Indian product today arrives in the U.S. cracked and cleaned, ready to be ground (whole nutmegs cannot be fed directly into a grinding system). Indonesian nutmeg is highly aromatic, with a distinctively characteristic bouquet. It tests high in steam volatile oil, but not as high (as the West Indian) in fixed oils, making it an excellent choice for grinding and use in the ground form.

Indonesia produces more than three-quarters of the world's output of nutmeg and mace, and has been the world's dominant source of these spices for hundreds of years. In 1986, the Indonesian government introduced export regulations that facilitated cartelization of the market, and prices of nutmeg and mace on the world market increased dramatically. These regulations allowed exports only by approved traders, who were members of ASPIN (Asosiasi Pala Indonesia), and required exports to be coordinated and restricted by the ASPIN marketing board. Subsequently, a cartel agreement was made with Grenada, which exports 20% of total world nutmeg exports. Problems such as accumulation of unsold stocks and smuggling of nutmeg and mace through Singapore led the Indonesian government to abolish the regulations in 1990. Other goals of the deregulation were to create greater business opportunities, raise farm productivity, and diversify the market.

Since deregulation, prices of nutmeg and mace have dropped drastically, and now Indonesia earns only

about \$7 million in export revenues compared with more than \$42 million in the late 80s. Because of this, there is a temptation to return to regulations like those in effect from 1986-90. Indonesian nutmeg and mace exporters have repeatedly called for reregulation, not surprisingly, since they benefited the most from the controls through increased prices. Although farmers did receive an increase in revenues, from approximately Rp 500 per kilogram in 1985 to a high of nearly Rp 4000 in 1988, exporters and foreign traders earned much more. Exporters' margins went from about Rp 2000 to Rp 9000, while foreign traders' margins increased from just over Rp 2000 to Rp 12,000. Additionally, the control of supply was at the exporter level rather than the farmer level. This created a situation of exporter monopoly power over both foreign buyers and domestic sellers, and farmers continued to accumulate unsold stocks. It was costly to produce output and not sell it, so smuggling became an alternative outlet for excess nutmeg and mace supply. Also, as prices increased on the world market, demand for exports declined, but the decreased demand never influenced farmer production. This is partly due to the nature of nutmeg production, which is highly inelastic. There are only a few crops to substitute for nutmeg, and it is difficult and costly to switch to new crops. Also, limited availability of rural credit makes it difficult for farmers to withhold supplies in response to price falls.

The return to regulated nutmeg trade is not probable, especially in light of the Uruguay Round Agreements in 1997. One part of these agreements was the Agreement on Agriculture, which lays the foundation for reducing distortions in agricultural trade and for the gradual establishment of a fair and market-oriented agricultural trading system. Additionally, according to Article 11 of the Agreement on Safeguards, "spice-producing countries will no longer be able to resort to minimum export prices and voluntary export restraints or to form cartels and associations for the purpose of imposing such measures" (International Trade Forum, 1/12/97). Thus, to ensure positive development of international trade, it is unlikely that the cartel will be reestablished.

About 12,000 tons of nutmeg and mace are traded annually, with the United States as the largest single importing market. Recently, the price of nutmeg has soared from Rp 2500 to Rp 140,000 per kilo, due to a resurgence in global demand for the spice, combined with the weaker rupiah. Consumption is generally steady in the United States, but rises in October through December as seasonal usage comes into play. New uses, such as aromatherapy oils, perfumes, and essential oils used as food flavorings may help to boost demand.

Pepper

In terms of both volume and value, pepper ranks as the main spice in international trade. Historically, pepper has been one of the most sought after spices of the Orient, and the island of Sumatra produced a considerable supply. Pepper was valuable not only for its ability to flavor food, but also for its preservative qualities. In 1805, Indonesian pepper exports reached a level of 7 million pounds; in 1997 the U.S. imported 41,602 tons of whole black peppercorns. Of this, India supplied 44% and Indonesia 41%. The U.S. is the largest market for pepper, accounting for 25% of world trade. Total world trade amounts to \$564 million or 140,000 tons.

Pepper in Indonesia is principally grown on the island of Sumatra, a major producer of fine quality black pepper. Cultivation is centered in the Lampong district of southeastern Sumatra and shipments are made

from the port of Pandjang. This pepper compares with pungency and flavor, testing high in steam volatile oil and non-volatile extract. Pepper is commonly intercropped with other cash crops, such as coffee and tobacco. Although the income per hectare is higher for perennial plants such as pepper, it takes many years before these plants bear fruit. Farmers have to wait five years before they begin to harvest. Pepper also requires a large initial investment in seedlings, supports, and fences, plus the opportunity cost of a perennial crop with delayed yielding.

Pepper demand has experienced steady growth of about 4% in the past several years. Increased purchasing power throughout the 1980s in some Middle East and North African countries gave rise to sharp increases in pepper consumption. The U.S.' demand has also risen, from 60.5 million pounds in 1985 to 78.5 million pounds in 1995. Recently, there has been a surge in prices for pepper due to increased demand, damaged crops caused by El Nino weather conditions, and looting in Indonesia. According to one supplier, "raw material pepper prices have reached levels never before experienced." (Chemical Market Reporter, 7/28/97) According to the International Pepper Community, "world pepper demand will continue to outstrip supply for the next 10-15 years." (The Financial Post, 3/7/97) The 800% increase in prices from 1997 to 1998 forced a shake out of Indonesian pepper exporters, from 42 to 8 companies. The huge working capital needed at the farmer level weakened the purchasing power of exporters, and forced many of them out of business. Those farmers who have maintained production are gaining substantially, earning Rp 43,000 (US\$4.30) per kilogram versus Rp 5000 (US\$2.00) a year ago.

Recommendations

The islands of Indonesia hold a comparative advantage in spices which can be exploited as the demand for spices rises in the U.S. and other developed economies. In addition to their role as a foreign exchange earner, spices can act as a stimulus for rural growth. Spices are generally suitable as a smallholder backyard crop, as is the case for the majority of spices grown in Indonesia. Furthermore, spices can be cultivated on slopes and other marginal lands that are unsuitable for other crops. This makes many spice crops an excellent secondary crop, and perfect for intercropping with crops like coffee. Spices and essential oils offer further advantages of being relatively low volume, long-storage items, important in Indonesia's more remote areas where transportation is limited.

The potential for value-added exports, including grinded spices, essential oils, spice mixtures, and oleoresins is growing for some spices, as shown by the increasing demand from developed countries. By adding value before export, Indonesian farmers could gain a more substantial portion of the end value of the product. Possibilities include development of oil distillation plants, grinding facilities, and seminars to discuss new end-uses for spice products. One example of value-added processing has occurred in Grenada, which has established a nutmeg oil distillery. This made economic sense, in light of the fact that nutmeg oil has experienced increasing demand, while demand for whole raw nutmegs has not grown. The distillery can also be used to make oil from mace, cinnamon, and clove, offering further diversification for Grenada's spice sector.

The possibilities for adding value go beyond simple processing. Production of soaps, lotions, shampoos, and food items with essential oils would integrate the rural and manufacturing sectors, a relationship that has been limited in Indonesia thus far. Further usage of spices downstream into end products could create larger manufacturing opportunities, but would also require more sophisticated marketing and manufacturing facilities than do raw commodities. It should be pointed out that adding value may make sense for some spices and not for others. The value of some spices in their raw state makes it less worthwhile to invest in the processing and manufacturing facilities needed for end products. To determine the possibilities, each spice should be considered individually. Nutmeg oil, for example, is used by many food manufacturers in meat products and bakery goods. It is also used to manufacture perfumes and to an extent in the pharmaceutical industry. In general, the demand for products and scope of usage should be determined prior to investment in value-added processing.

The maintenance of quality and safety of spices is of prime concern to the spice industry. Care must be taken in harvesting and handling of spices so as to prevent microbiological contamination. Especially in the industrial sector, a niche of spice trade that is important for export expansion, the confidence of the user in quality and safety is crucial. Quality assurance needs to commence at the farm and follow through to exports. This can be done through adoption of appropriate post-harvest handling methods, adequate storage facilities, and suitable packaging. India provides an interesting case for improving the quality and marketing of spices. The Spices Board of India assists farmers in meeting quality standards, as well as teaching better methods of harvesting. Training programs have been conducted to educate farmers about quality improvement at the farm level, quality requirements of importing countries, and quality testing before shipment. The Spices Board extends its assistance to exporters as well, by establishing processing and cleaning units and small laboratories for quality testing. Warehouses and sophisticated cleaning plants have also been built near the ports or marketing centers as a common facility. To facilitate spice marketing, the Board has created a logo as a mark of quality assurance for exports of spices in consumer packs. The logo ensures that spices have undergone physical, chemical, and microbial examinations, as well as tests for pesticide residues. Wide publicity is being given abroad to the logo, so as to create a demand for quality-assured Indian spices.

Quality assistance programs such as this would encourage diversification into spice crops by smallholder farmers, especially if they are given information on how to cultivate crops with a higher world market value. Additionally, a combination of subsidized plant material, assistance with fertilizers and pesticides, and ongoing research on more sophisticated farming techniques would help to boost yields. One program instituted by Grenada's Ministry of Agriculture is an agreement to encourage proper farming techniques. The farmer signs a loan agreement for the plant materials, and if he cultivates the land according to instructions, his loan is converted into a grant. Two spice specialists work along with the Ministry's 20 regular agricultural extension officers to help farmers with spice cultivation. Extension services such as these, which work closely with farmers to cultivate desirable crops and to teach them cultivation techniques, would create a supply of highly valued crops while also increasing yields.

A final recommendation includes cooperation and sharing on an international level. Both India and the Caribbean islands have done considerable research on alternative uses for spices. The Indonesian government, through agencies like the Indonesian Pepper Exporters Association (AELI), could work

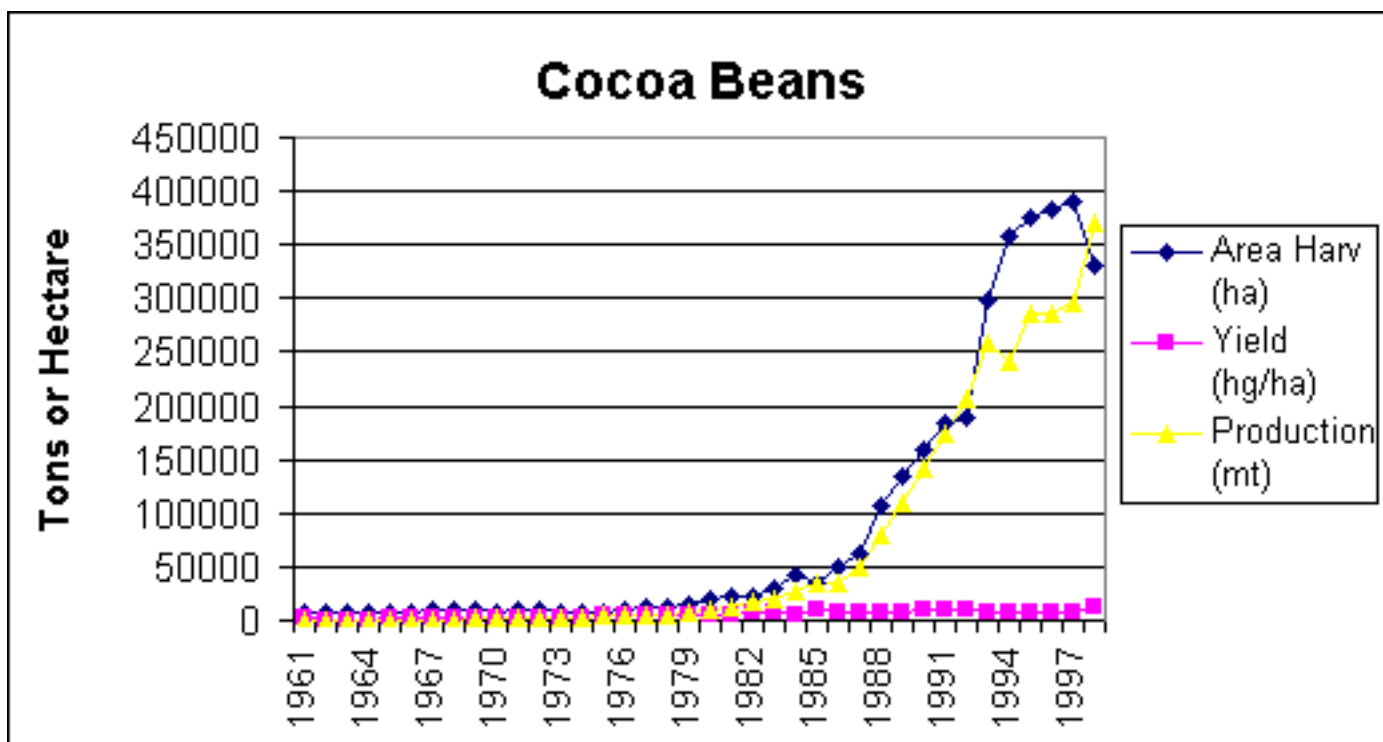
with these countries to understand developments in spice usages, as well as improvements in cultivation techniques and plant material. Although some countries may cultivate competitive products, limited collaboration may help to grow the entire spice category worldwide, thus benefiting all involved.

IV. C. Case study: Cocoa production in Sulawesi

The Indonesian island of Sulawesi has experienced rapid and unusual growth in cocoa production since 1980, surprising the world and making it the world's third largest cocoa producer. It is a major generator of export revenue, bringing in \$166 million in 1993. From 1981 to 1996, the volume of cocoa beans exported has increased from approximately 7000 tons to 275,000 tons. Notable about this expansion is that the engine of growth has been smallholders, and that these farmers have come to enjoy a high proportion of the returns from cocoa exports. This case study, therefore, has the objective of identifying those characteristics of cocoa production and marketing that may be transferable to other smallholder export crops in Indonesia.

The production boom of cocoa in Indonesia was spurred by high world cocoa prices in the late 1970s, prompted by a sharp reduction in output from West Africa and the Dominican Republic. The increase in demand encouraged smallholders to invest in cocoa production, and total smallholder acreage expanded over 30-fold between 1980-1995, from 13,125 ha in 1980 to 418,400 ha in 1995. During the same time period, smallholder production increased from about 1000 tons to over 200,000 tons, and their share of total production (vs. private estates and government-owned estates) increased from 10% to 73%. Reasons for the success of the smallholder farmers include: an abundance of land available for cocoa production in Southeast Sulawesi, knowledge and capital disseminated by farmers who had experience farming in Sabah, Malaysia, government policy that required dissemination of seed from government and private plantations, and adequate transport infrastructure. Additionally, the cost of production for Indonesian cocoa smallholders is among the lowest in the world, due to efficient production methods, inexpensive labor, and a suitable climate and soil. Finally, smallholder entrepreneurship and a highly competitive marketing system with limited government intervention contributed to the expansion of cocoa production since 1980.

The chart below indicates that most of the increase in production has come as a result of land expansion rather than intensification of crop production. Yields have remained constant, while the area harvested has grown rapidly. Cocoa production has not yet reached a transitional stage that would encourage intensification. However, the area harvested began to level off in 1993, and dropped in 1998. Thus, it appears that the time may be appropriate for a focus on intensification efforts, which would increase yields. Issues such as crop quality, research, disease prevention, and deforestation prevention are concerns closely related to a transition by means of crop intensification. These issues are discussed below.



Source: FAO Statistical Database

Marketing and Distribution

Unique to Indonesia's cocoa industry is its free marketing and pricing system. In most African cocoa-producing nations, a government marketing board controls prices, which benefits particular groups of people within a country at the expense of farmers. The administered prices also lead to inefficiencies because they do not transmit market signals correctly. This leads to distortions in resource allocation and an environment in which farmers cannot respond to fluctuations in world supply and demand (i.e. isolation from the market).

The free trade regime in South Sulawesi, on the other hand, has created a competitive environment and low marketing and distribution margins. The world price for cocoa is highly correlated with the fob (freight on board) price at Ujung Pandang (Sulawesi's major port), indicating that the system is transparent and pricing is competitive. Farmers have also benefited from a relatively good transport infrastructure in major producing areas, which has meant relatively low transport costs. Finally, cocoa is not subject to large government levies such as export taxes. These factors have allowed smallholder farmers to receive a high share of the export price for cocoa. A study done in 1995 found that cocoa farmers in South Sulawesi received 90% of fob prices. Some crops, such as cassava, generate only 18% of the fob price for farmers.

Government Policies

As mentioned above, the government of Indonesia has had a mostly hands-off policy with regards to cocoa production. The only tax producers are subject to is a value added tax imposed in 1995. The government food logistics agency, Bulog, has no involvement with cocoa. Export commodities such as

cocoa have also benefited from macroeconomic policies that have created a favorable exchange rate and low inflation. For example, the real devaluation of the rupiah in 1986 meant higher real producer prices for exports. This of course is also true at the present time, in the midst of a financial crisis which has devalued the rupiah considerably. Also, the government has invested in rural infrastructure in the Outer Islands, such as roads and schools, which has helped to keep transportation costs down and encouraged expansion of smallholder cocoa.

Two other government initiatives were a tree crop rehabilitation program and a smallholder plantation development program. The first mainly benefited estate holders, but it did provide smallholders with cocoa seeds. The second initiative was called P2WK (Perkembangan Perkebunan Wilayah Khusus, Plantation Development in Special Areas). It was aimed at smallholders and provided them with modest grants and reimbursement of land preparation, planting costs, and seedlings. Although the program increased planted area by 205,296 ha (of which about 63,000 was cocoa), it was criticized for targeting areas where the infrastructure was not adequate and the soil quality and climate were unsuitable.

Issues

Although the growth in production and exports has been remarkable in the past 18 years, there are several issues which must be addressed to maintain healthy, sustainable growth in the cocoa sector. These include quality, export marketing, oversupply on the world market, and disease and deforestation.

The quality issues involves the processing of cocoa beans, which can be sold either fermented or unfermented. Fermented beans are used for chocolate production and require a longer time to process, and sell at a price premium to unfermented beans. Unfermented beans are lower quality and used primarily for cocoa butter production. They take only 1-2 days of processing, and sell at a price discount of about \$100 per ton, or 7% of the value. Cocoa bean production in Indonesia is primarily unfermented, driven by the decline in production of unfermented cocoa by the Dominican Republic in the early 1980s. The Indonesian Cocoa Association, Askindo, has encouraged farmers to produce fermented beans in order to tap the premium market. However, there is little reliable and concrete information about price premiums passed on to farmers, and currently, there is sufficient demand for unfermented beans.

In order to switch farmers to production of fermented beans, several free market mechanisms will have to operate. First, transparency in price information (through media such as radio broadcasts) is necessary, to let farmers know the potential earnings increase they could gain from fermented bean production. Next, the premium paid for fermented cocoa bean exports needs to be passed back to farmers to reward them for their extra efforts. Exporters, middlemen, and farmers need to make sales and purchases at premium prices at every stage in the marketing chain. If one link does not pass along a premium, then it will never reach the farmer, and he will not be incentivized to produce the higher quality beans. Direct government intervention, such as export controls, would not be as effective as implementing mechanisms to ensure that the market can operate freely.

Another issue is export marketing, which includes a warehouse receipt proposal and risk management. Cocoa exporters, as they become more established and financially well-off, they are becoming more conservative and protective of their gained interests. An example of this is their resistance to a warehouse receipt system proposed by one of the world's largest cocoa brokerage houses. Under this system, any exporter can deliver cocoa to a warehouse in Ujung Pandang, have the quality checked, and obtain receipts which can be used as collateral against loans. The loans are provided by banks and the warehouse operators. The advantages of this system are increased liquidity and greater transparency in price differentials depending on quality. Large, established exporters are resisting this system because it takes away their advantages in providing financing to middlemen and collectors, and it also takes away their control of determining good quality cocoa. The warehouse system would be an objective source of grading cocoa, whereas the current system allows the exporter to gain extra profits by sorting cocoa by grade and selling sorted good quality cocoa at a premium.

The risk management issue involves the ability of smaller exporters and middlemen to use instruments such as futures, options, and forward contracts. Large exporters are able to do this through overseas brokers, which may give them an advantage in securing cash flows. The Ministry of Trade needs to consider how to make these instruments accessible to smaller operators.

A third issue is oversupply on the world market. In commodity markets, the "adding up" problem can occur when the incremental growth in the production of a commodity results in an increase in export revenue proportionally much less than the rise in volume production. This will lead to depressed world cocoa prices, which would undermine the welfare of cocoa producers. This possibility may encourage the government to impose export controls to restrain increases in cocoa production. However, export regulations in the past have led to problems such as smuggling and corruption.

The environmental issues surrounding cocoa production also are cause for concern. The cocoa pod-borer was the main reason for stagnation of Indonesia's cocoa sector in the early 20th century, an insect pest that drastically reduces yield. Measures for controlling this pest include eradication of affected cocoa trees and application of chemicals. Both of these measures are costly and resisted by farmers. Since this insect has the potential of destroying the cocoa subsector, stronger government support is needed to devise better control methods through research, extension, and mobilization of smallholders. Another environmental concern is deforestation. Many of the cocoa fields in Sulawesi were created by opening up forests, which carries the risk of erosion, reduction of watershed areas, and loss of biodiversity. To counter this trend, new plantings of cocoa could be directed towards relatively degraded or underutilized land rather than forest areas. Sulawesi has large grassland and scrub areas, which could be used productively if not severely degraded. Another way to mitigate deforestation is to identify and demarcate the vulnerable and valuable forest areas. This would be most effective if it were paired with economic incentives to encouraged farmers to plant cocoa on non-forest land. Finally, research and development in the area of crop intensification would help to mitigate the problems created by land expansion. As illustrated in the above graph, it appears that there is great opportunity to increase yields, and land expansion may be reaching its limits.

Lessons learned

What can this tell us about policies for other agricultural commodities in Indonesia? It appears that policy which allows free-market mechanisms to work efficiently is more desirable than direct intervention such as marketing boards or export controls. Many crops in Indonesia are subject to government intervention, such as export tariffs, fertilizer and seed monopolies, and state-administered cooperatives. With minimal government intervention, the entrepreneurial attitude of smallholders and a competitive marketing and distribution regime in Sulawesi have been allowed to flourish and have contributed to the success of cocoa exports. Cocoa is now one of Indonesia's main export commodities, which has increased employment and raised incomes in rural areas.

Additionally, this case reflects a similar quality issue as is true for coffee. Fermented cocoa beans, similar to Arabica coffee, is a higher quality and thus more highly valued crop. An obstacle to production of these more highly valued crops is that they require more intensive and longer processing periods. An effective means of improving quality is to provide incentives to producers through transparent price differentials. This could be achieved through an objective grading system, as proposed by the warehouse receipt system and the central coffee tasting/ grading system done by the Kenya Coffee Board and Mill. These bodies could also serve to place a "stamp of approval" on these commodities, ensuring buyers that they have been inspected for quality by an independent body. A challenge would be to keep systems such as these free from corruption, which is particularly widespread in Indonesia. A corrupt environment would damage the free market mechanisms that have worked to create a competitive environment among cocoa traders. Again, minimal government involvement may help to stem the effects of corruption. Higher quality crops could also be achieved through extension programs to educate farmers about more productive farming and processing techniques. Extension services also could help prevent expansion of crops into valuable forest areas.

A final lesson is that cocoa farmers have been able to gain a large share of export prices relative to other crops, helping to generate income for farmers and making it an attractive sector. The three factors that have facilitated this are: 1) low marketing and distribution margins, 2) adequate transport infrastructure, and 3) an absence of government levies. Other crops could generate more income for farmers if distribution and marketing margins were kept at a minimum through intense competition among traders. Lower margins through the value chain could also be developed through improved transportation, which would lower the costs to the collectors and middlemen. An absence of government levies would also make the system more efficient throughout. Finally, a measure which could lower costs for farmers and middlemen in cocoa and other crops is crop intensification. Farmers may incur higher upfront costs to generate higher yields, but over the long run, the crops would require fewer inputs (i.e. labor, materials) for higher output. Higher yields would also be more efficient for collectors, who would be able to collect from fewer farmers to amass the quantity needed to sell to local traders or processors.

While cocoa farmers still have many challenges to face, such as quality issues, intensification versus expansion, and a maturing and increasingly protective export network, the free market system has up to this point helped to create a competitive cocoa subsector which has increased farmer incomes. Of the lessons learned, this is probably the most valuable; Indonesian farmers are entrepreneurial and will react

to worldwide demand if given transparent market information. A free market can create a competitive value chain with low intermediary margins, thus rewarding the farmer according to price fluctuations on a worldwide level. Other cash crops in Indonesia could benefit if the government allowed similar market mechanisms to operate. Policy to improve transportation, support extension services, and strengthen research on improving yields and preventing disease would also assist in sustainable, healthy, and profitable cash crop development.

V. Recommendations

Implications for Policy

Policy intervention in the agriculture sector can be categorized into three major areas: 1) Market mechanisms, 2) Farming production, and 3) Trade controls. Each category has different implications for the development of the agriculture market and of the farmer; some involve more direct intervention while others take a more hands-off approach. In the following paragraphs, each category will be reviewed.

Market Mechanisms

Policy in the "market mechanisms" category is an indirect approach to supporting development in agriculture. As we saw in the cocoa case, by investing in infrastructure and institutions that allow the free market to work efficiently, the agriculture sector can be most productive in terms of returning gains to the farmer and meeting market demand. Specific measures include investment in roads and highways to reduce transportation costs among the widely dispersed smallholder farms. Investment in transportation and communication would also reduce trade risk and transaction costs, and promote entry and competition in marketing.

Beyond physical infrastructure, development of institutions for the service of market information, such as grading, standardization of measures and weights, commodity exchange, crop forecasting, and regular quotation of market prices, can contribute to reductions in trade risks and transaction costs. Another service that would help farmers is timely issuance of title certificates for land. Since land is often used as collateral for bank loans, having title would give farmers easier access to badly needed credit.

Farming Production

Farming production policy is a more direct approach to assisting farmers, and includes extension services, fertilizer subsidies, new farming technologies, and other crop intensification methodologies. Equally if not more important than creating a more efficient marketing system is assisting farmers in increasing their yields. Yields have been steady for all of the crops studied in this paper; coffee, pepper, cinnamon, and nutmeg have all experienced steady or declining yields since the early 1960s. Since scale economies are vital to the activities of traders and processors of agricultural goods (such as searching for supplies, negotiating contracts, and arranging transportation) the unit marketing cost would be reduced significantly if the marketable surplus per farm were increased. This would also benefit farmers, as they would increase their marketable surplus (and therefore income) without expanding harvested land. Thus, government investment in agricultural research and extension geared for increasing crop yield and marketable surplus would reduce marketing costs. The necessary research includes not only methods to increase productivity, but also identification of new profitable crops (such as those that this paper has attempted to identify) and cropping systems. This would increase rural incomes and employment opportunities in farm production and marketing, thus making this sector more attractive.

In several cases, the Suharto-led government has invested in high-tech, capital intensive projects which create global awareness and are meant to impact a large group of people. However, if the government tries to develop the smallholder agricultural sector through a modern system that requires an intensive use of capital, it would reduce the efficiency of the current system and impair equity by

reducing labor income and employment. Higher-tech processing should be delayed until the real wage rate rises sharply and devices that save labor become socially beneficial. At current wage rates, it is more economical to utilize labor-intensive processing, and integrate technology on a smaller scale that includes involvement of the smallholder farmer.

The success of the rice strategy brings to question whether a similar approach would be suitable for development of cash crops. There are several reasons why the rice strategy is not transferable. First, the infrastructure needed for each crop is different. Second, the rice program was a very expensive program. Last, the area to harvest is limited since rice production accounts for 69% of total area harvested under food crops. This land includes the most fertile lowlands of Java, Bali, South Sulawesi, and South Sumatra. This also means that increased productivity (for rice or cash crops) must come from intensification or expansion into marginal lands.

Trade Controls

A final category of policy intervention includes direct intervention in the market, a nearly opposite approach to the market mechanism policy described above. Government market interventions, regulations on trade, price controls, quotas, etc. will not prevent the accumulation of middlemen profits and high marketing margins, but will widen it due to the increased cost of evading the regulations. By reducing competition (i.e. by prohibiting Chinese traders' operating in local towns, as some laws have imposed), the likelihood of monopolistic behavior is increased, contradicting the initial goal of the policy. To effectively counteract the possible monopoly of middlemen, and to increase prices and incomes received by farmers, the government should invest in physical and institutional infrastructures to promote the free market mechanism.

Furthermore, we have seen in both the coffee and nutmeg cases that a cartel structure, while boosting prices in the short terms, is not feasible in the long-term. Accumulation of crops, smuggling, and black market trade are all reactions to a cartel structure that does not let the free market operate. Trade controls are being liberalized by the Uruguay Round Agreement on Agriculture, through tariffication of non-tariff barriers, reduction of tariffs, and the provision of minimum market-access commitments. Since the majority of spice crops are exported, elimination of trade controls and compliance with international standards would place Indonesia in a favorable position internationally.

Alternatives for development of rural cash crop farming

In light of the situation for cash crop farmers, and in particular the cases of coffee and spices, there are several possible alternatives to improve the prospects for the farmer in the value chain. The most favorable alternative would allow the farmer to use rupiah for local capital and investment, and receive foreign exchange for his exportable crops. The following suggestions would help to achieve this goal, while transferring more market power to the farmer:

- **Structure of distribution:** a more vertical system, in which farmers participate in more value-added activity, would increase the returns to the farmer. Currently the structure is a horizontal, decentralized, fragmented system. One way to achieve this is through a cooperative structure, such as that in Kenya for specialty coffee. In such a structure, farmers would know the value of their crops and may be able to export directly to smaller importers in consuming countries.

- Value-added: implementation of simple technology for post-harvest processing to add value to raw material would eliminate middlemen whose role is to process raw material. The Grenadan oil distillery for spices, and the Sumatran method of wet processing are examples of low-tech value-added processing. The potential for the value-added items should be carefully studied to ensure the investment is worthwhile. Another alternative would be for smallholders to produce crops that require minimum post harvest processing. These crops are particularly suitable for farmers who have little capital, or are just starting out in cash crop production. Both pepper and ginger fall into this category.
- Financing: generally speaking, government financing schemes that create transparency and accountability for the farmer, as well as assist him in production methods and crop education are most productive in the long-term. Examples include the package in Grenada, which converts a loan into a grant if proper cultivation methods are followed. To involve private banking, the government could provide incentives for local banks to provide directed credit, which is focused not only on financial assistance but also on assisting farmers implement plans for production, sustainability, processing, and marketing of their crops. A pilot study of this is being done by one private bank in Jakarta, which is comparing this type of financing versus non-directed credit. In this study, farming cooperatives use computers to communicate with banks on their cash flow and production. Through this technology, banks monitor loan repayments, as well as withdrawal and savings/ deposit activity. This allows the bank to detect problems early, minimizing their risk. Under this pilot study, electronic data interchange and cash flow monitoring replaces the usual collateral that farmers have difficulty supplying.
- Access to technology: possibilities in this arena include improvement in radio broadcasts, radio frequencies to access the internet (a project currently being worked on by the Bandung Institute of Technology), telephone lines for telephones or PCs, and cellular telephone access (wireless communication alternatives). This access would allow farmers to easily get information about market prices for different crops. It would also allow for communication between lenders, exporters, and buyers of commercial crops. Technology could also be used for farmers to create a close relationship with lending institutions, as described above. Finally, the internet provides opportunity for farmers to market their crops directly to distributors or end-users, as well as access to market research information. The possibility of displaying product images on the Internet opens up attractive prospects for promoting new products. The UN Trade Point Development Centre in Melbourne has given assistance to developing countries in developing Internet websites through its incubator service, <http://www.unicc.org/untpdc>. Through this program, producers in developing countries, even in remote areas, have been able to provide information about their export capacities and establish communication with many other business partners at very low operational costs and with minimal initial investment. This website, which promotes over 400 products, is aimed at distributors rather than end-users or consumers. Similar websites that are focused on promoting artisanal products from developing countries include: Newstart, <http://ottmall.com/newstart/index.htm>, Oxfam, <http://www.web.net/oxfamgft/index.htm>, and Ten Thousand Villages, <http://www.villages.ca>.

Summary

Indonesia is experiencing a time of crisis and change, which has hurt many sectors of the economy but helped others. The rural agricultural sector is one that has benefited from the rupiah's depreciation, as dollar denominated exports translate into many more rupiah. Additionally, agriculture does not require a large amount of imported inputs; it is a relatively low-input industry. This has resulted in an uneven crisis; while spending in urban areas fell by 10% in the year to August 1998, it actually rose by more than 10% in middle-class rural households (McBeth, 1998). In light of these facts, it is an appropriate time for Indonesia to focus on developing the agriculture sector. This sector is dominated by smallholder farmers; thus, its development serves the dual purposes of stimulating the economy and raising the standard of living for the rural majority.

In order to take advantage of this phenomenon, the government and national organizations can assist farmers. One way is through allowing the free market to operate fluidly, by abolishing trade controls, improving transportation and communication infrastructure, and providing market information. Direct assistance to farmers is also needed to educate farmers on proper cultivation to ensure quality crops, to boost yields, and explore opportunities in value-added processing. New technologies, such as e-banking and the Internet could also assist farmers in financing and marketing their crops to developed countries. Crops identified in this paper that could benefit from all of these initiatives include specialty coffee, pepper, cinnamon, and nutmeg. Further study of these and other crops is warranted, to identify which policies are most appropriate for each crop. Since all of them have the commonality of smallholder production, intercropping, and fragmented distribution, the creation of cooperatives may be a suitable alternative to generate more power and increased returns to farmers. The time is ripe for the Indonesian policy-makers and those with national decision-making authority to re-invest in the agriculture sector. It would be a dramatic reversal from the high-tech and manufacturing developments that the former Suharto-led government, and current Habibie government have been so focused on. But if the government is able to look outside of Java, into the rural farming masses, it will see a great potential for the development of cash crop exports.

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American Spice Trade Association

RELATIONSHIPS AMONG PAPERS IN THIS VOLUME

Martha Masterman

My paper focused on the prospects for developing Indonesia's cash crop sector, particularly in light of the financial crisis of the last two years. The transitional nature of rice as a primary crop has led to the need for crop diversification. Additionally, the increased value of cash crops on the world market with the weakened rupiah has created a boon for rural farmers and exporters of these crops. Many of these crops are early in their transitional stages, and thus are prime candidates for assistance as they have the potential for increased yields and productivity.

Several of the papers presented in this monograph introduced new issues to consider in light of my topic. The diverse needs and appropriateness of local responsiveness for policy in health care, a microcredit banking model, and a country with a similar cash crop to Indonesia brought out issues that should be considered for the development of Indonesia's rural agricultural sector. These are described below.

Taufik Hanafi's paper, *Towards Sustainable Health Care Development in Indonesia*, focuses on the prospects for decentralized policy-making in the health care sector. The paper expresses that because of the diverse nature and subsequent needs of the Indonesian population, different types of health care policy intervention are appropriate i.e. one size does not fit all. This is true of the agricultural sector in Indonesia as well. In order for each of the important cash crops described in my paper to smoothly experience an agricultural transition, each crop needs to be considered individually. The diverse geographical, cultural, and geological environments of the many islands of Indonesia deserve localized attention. While I do recommend government policy intervention to boost the agricultural sector, Taufik's paper drove home the importance of tailoring policy to the unique situations around Indonesia, on the islands of Sulawesi, Sumatra, Java, Irian Jaya, Bali, Timor, and others.

Lewis Garvin's paper, *The Grameen Bank Potential: Two Paths to Alleviating Poverty in Bangladesh*, links the work of the Grameen Bank to poverty alleviation, population stability, and dulling the impact of natural disasters in Bangladesh. Although the Bank focuses on the landless, the model could work well in the rural agricultural sector of Indonesia. Like Bangladesh, Indonesia has a high proportion of people employed in farming activities. These are mostly poor people who hold very little land. The Grameen bank model uses loans to empower people and make them productive members of their communities. It has achieved a payback rate of 98% by using "social capital" to ensure the successful payback of loans. Loans are given in groups, and each group member has an incentive to evaluate proposed loans carefully because the renewal of their own loans depends upon the successful payback of loans by all group members. The groups acts as an effective filter for loan approval and then provides both support and peer pressure to ensure that loans are paid back once extended. Indonesia's culture operates very much in this fashion; the group is more important than the individual, and group social pressure is very strong. If such a model were implemented to create a cooperative farming structure for cash crops, such as coffee and spices, farmers would be more accountable for its success. The Grameen model could improve the productivity and incomes of the rural sectors in both of these countries, and guide the sector through a successful transition.

Christina Welter's paper describes the Ugandan economy as being "stuck in transition." Uganda, like Indonesia, has sectors that are highly dependent on the world economy and particularly on developed markets. Coffee, for example, is the number one export of Uganda, and Indonesia is the world's 3rd largest producer of coffee. Many farmers' livelihoods are dependent on this crop. For that reason, both countries would be well advised to lessen their dependency by increasing the world market value of these crops. With production of specialty coffee, farmers move some distance (although not completely) away from the swings of a commodity market. Additionally, a high percentage of Uganda's population is in the agriculture sector (86%), which has led to environmental overuse and degradation of wetlands. Indonesia, although facing problems related more to urban migration, needs to preserve the sustainability of agricultural production. For example, much of the land in Java is overworked and overpopulated.

Thesis Proposal

Tentative title: "Returning to the Land: Prospects for Agricultural Exports and Rural Development in Indonesia"

The most distant history of Western involvement in Indonesia conjures up visions of opportunistic explorers, traveling long distances on European ships in search of the riches that these precious islands held. Valued as dearly as gold, the exotic spices grown on the Indonesian archipelago were the foundation for conquering and colonizing this part of the world.

Indonesia is now known not for its spice trade, which accounts for a mere 1% of export revenues, but rather for its low-wage labor, fast-growing economy, and corrupted government. Since Indonesia became an independent nation in 1949, the priorities of its leaders have turned to building a nation and an economy based on industrialization. Indonesia has been swept up in a path common to the fast-growing economies of Southeast Asia: import-substitution, followed by export-orientation, attracting foreign investment, utilizing a large, low-wage labor pool to fill up manufacturing plants, and finally a turn towards value-added, technology-driven manufacturing. Indonesia's comparative advantage in agriculture was not seen as the wave of the future, and was not the engine of growth.

This is not to say that the agriculture sector was completely ignored. On the contrary, President Suharto, who ruled the Indonesia from 1965-1998, allocated substantial resources to agricultural development, with a clear bias towards developing rice production. The government spent heavily on fertilizer subsidies, crop intensification programs and farmer training. The decision to focus so strongly on agriculture is probably best explained by Suharto's rural upbringing and his memory of how rice shortages destabilized Sukarno's (his predecessor) regime. Although farmers had no political voice to speak of, they did comparatively well in obtaining subsidized credit. Within a decade, 1974-1984, Indonesia moved from being the world's largest rice importer to self-sufficiency.

The thrust of Suharto's agricultural development was on the island of Java, considered the political and economic center of the nation. Indonesia is a unique nation in its geographical layout. Consisting of 7 major island groups, the population and environment varies widely across the archipelago. Java is the most densely populated and heavily farmed of the islands. On Java, the limits of arable land expansion were reached by 1930, after which increased productivity was due to intensification. On the other islands, the growth of labor-productivity was largely caused by increases in the land-labor ratio, which implies that producers on average expanded the area under their control. Additionally, the other islands have traditionally grown cash crops as opposed to rice, a result of both the appropriateness of the land for these crops as well as government policy.

The growth of other sectors of the economy, such as oil and manufacturing for export, has naturally led

to a relative decline in the contribution of agriculture to GDP. Specifically, rice's contribution to the agriculture sector has declined in the past three decades (from 37% in 1968 to 29% in 1987 -- will get more recent data). It appears that intensification programs and the "green revolution" have been fully expended and led to diminishing returns of rice production. Production per hectare has been leveling off since 1982, implying the need for crop diversification to move up employment, income, and economic growth of the rural economy.

This paper will focus on the diversification of agriculture, specifically cash-crop development for export to Western developed countries (i.e. U.S. and Western Europe). The impetus for this paper is drawn not only from the mentioned need for crop diversification in the rural sector, but also from the recent financial crisis in Asia that has hit Indonesia particularly hard, and resulted in a drastic depreciation of its currency (rupiah). In the midst of this downturn, farming has been one of the only sectors to see economic gain. The rupiah's fall has made dollar-based exports of agricultural produce more valuable, in rupiah, than before. Recently, several individuals have recognized this need to "return to the land:"

"Agriculture, mining, and commodities are basic strengths of these countries," says Indonesian economist Thie Wie at Lipi, the Indonesian Institute of Sciences. "These strengths will remain for a long time. We have to use this crisis to remind us to look again at our fundamentals."

Suharto, at the 1997 National Competition for Agricultural Intensification commented, "In facing the current economic and monetary upheavals, the agricultural sector has become one of our mainstays because it does not need imported raw materials."

This paper will focus on alternative crops that generate demand in developed countries, and possibilities for new business development. Two crops that fit into this category are specialty coffee (i.e. single-estate, arabica) and spices. Spices are a broad category, and depending on the available information, I will focus on those spices that have the most potential for export (such as pepper, cloves, and cinnamon.) This study will most likely expand beyond Java, as many export crops are grown in Sumatra and Sulawesi.

In addition to identifying those crops which have potential to stimulate Indonesia's economy, my objective will also be to analyze how rural small-landholders can integrate with urbanizing communities to realize growth and equitable economic gain. This will involve a close study of the value chain, from the producer to marketing the product to consumers. Currently, there are several intermediaries in the process of getting the coffee cherry to the coffeepot, for example, which may or may not have inefficiencies. My objective will be to study this value chain and identify how to maximize the economic gain to the producer/ farmer.

In order to find efficiencies, it will be necessary to understand the degree to which farmers are isolated from the market. In a perfect and transparent market, producers have access to information about pricing, technologies, and resources from which they can make decisions about export opportunities and can react to fluctuations of supply and demand. However, the Indonesian market is imperfect, partially due to lack of adequate infrastructure and communication systems. Thus, farmers may be constrained in achieving optimal use of available resources. This topic will require further research to understand the extent of isolation in the rural sector, and how government policy has had a positive or negative impact.

Finally, other models of rural agricultural development may serve as positive examples that could be transferable to Indonesia. In particular, I will explore Thailand and perhaps Costa Rica (and others, depending on the success of their models), to identify policies and systems that helped to integrate the rural farming sector into the national, and ultimately, the world economy.

Thesis Proposal

Outline

I. Theoretical framework for thesis

- A. The agricultural sector will be a means for recovery and stability in Indonesia's financial crisis
- B. Analysis of value chain of specific agricultural exports: are there crops that are more suitable for rural farmers? How is the value chain structured? Are there ways to make it more efficient? Are there opportunities to deliver more value back to the grower?

I. History of cash crops

- A. Coffee
- B. Spices (TBD: perhaps cloves, cinnamon, pepper)

I. Government policy

- A. In agriculture sector
- B. Towards cash crops, specifically coffee and spices

I. Value-chain: grower to consumer

A. Case studies

1. Starbucks -- coffee
2. Frontier -- spices

I. Models in other developing countries

A. Thailand, Costa Rica, others (?)

II. Recommendations

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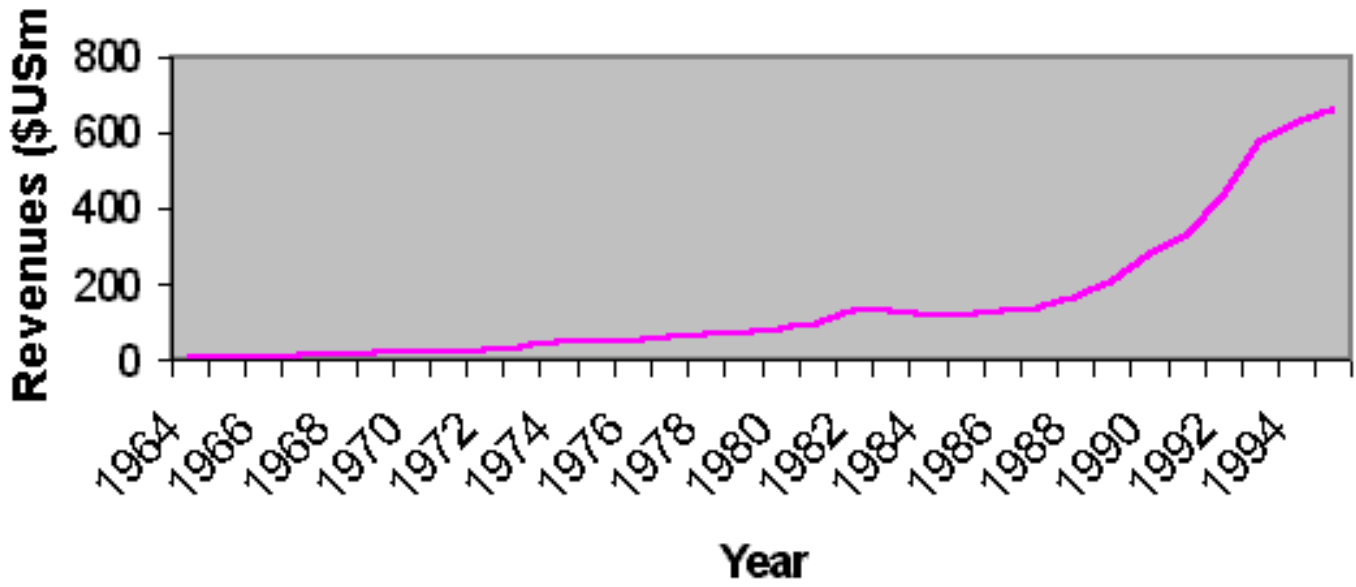
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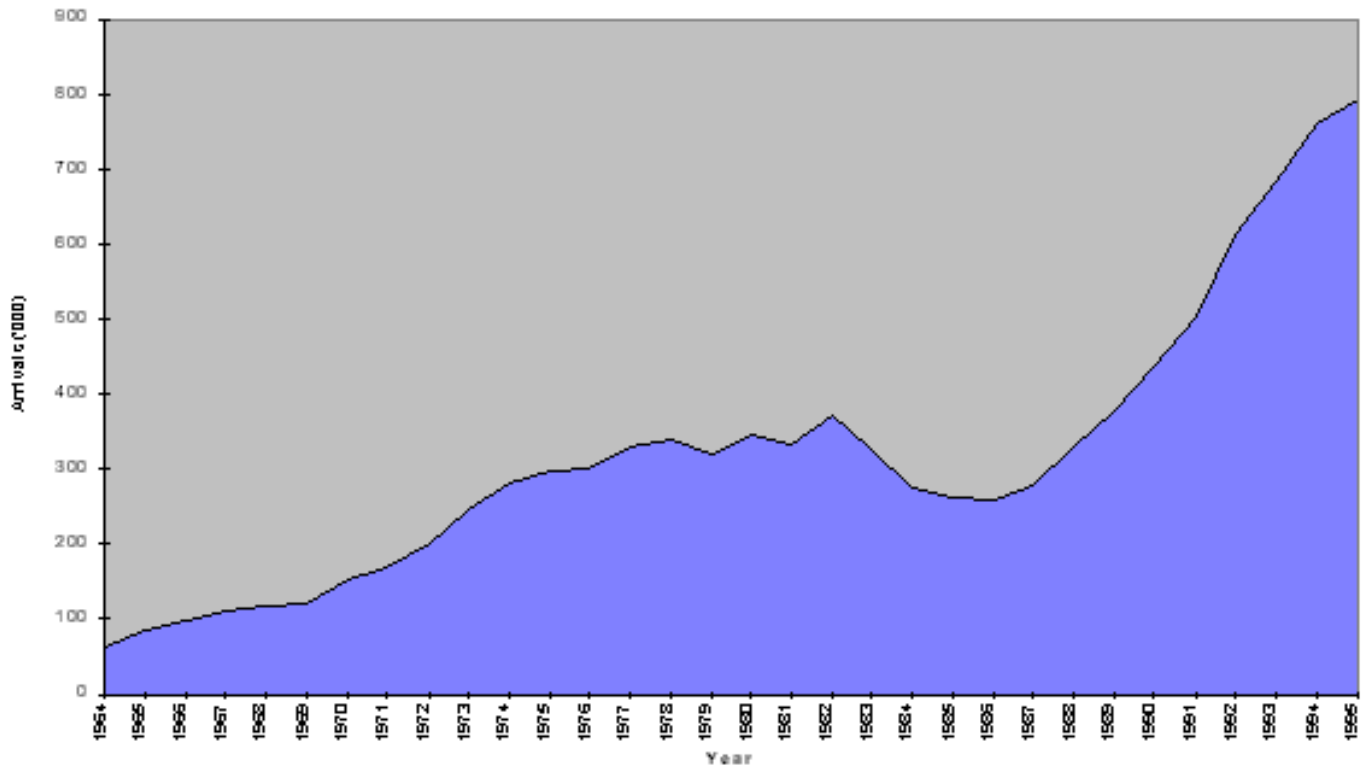
Indonesia's Central Bureau for Statistics (BPS) webpage.



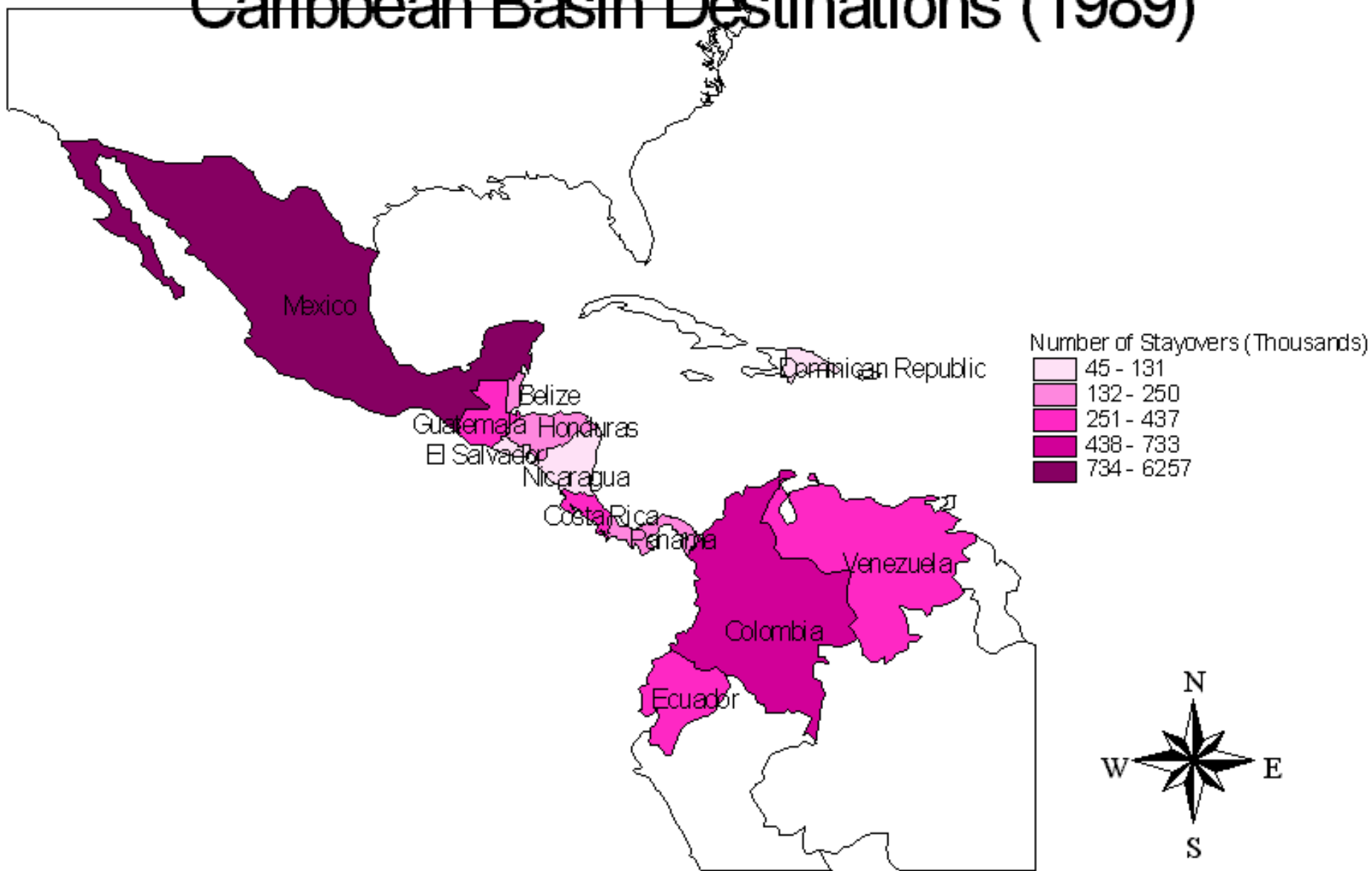
Tourism Transition in Costa Rica (1964-1995) International Receipts



Tourism Transition in Costa Rica (1965-1995) International Stayover Arrivals

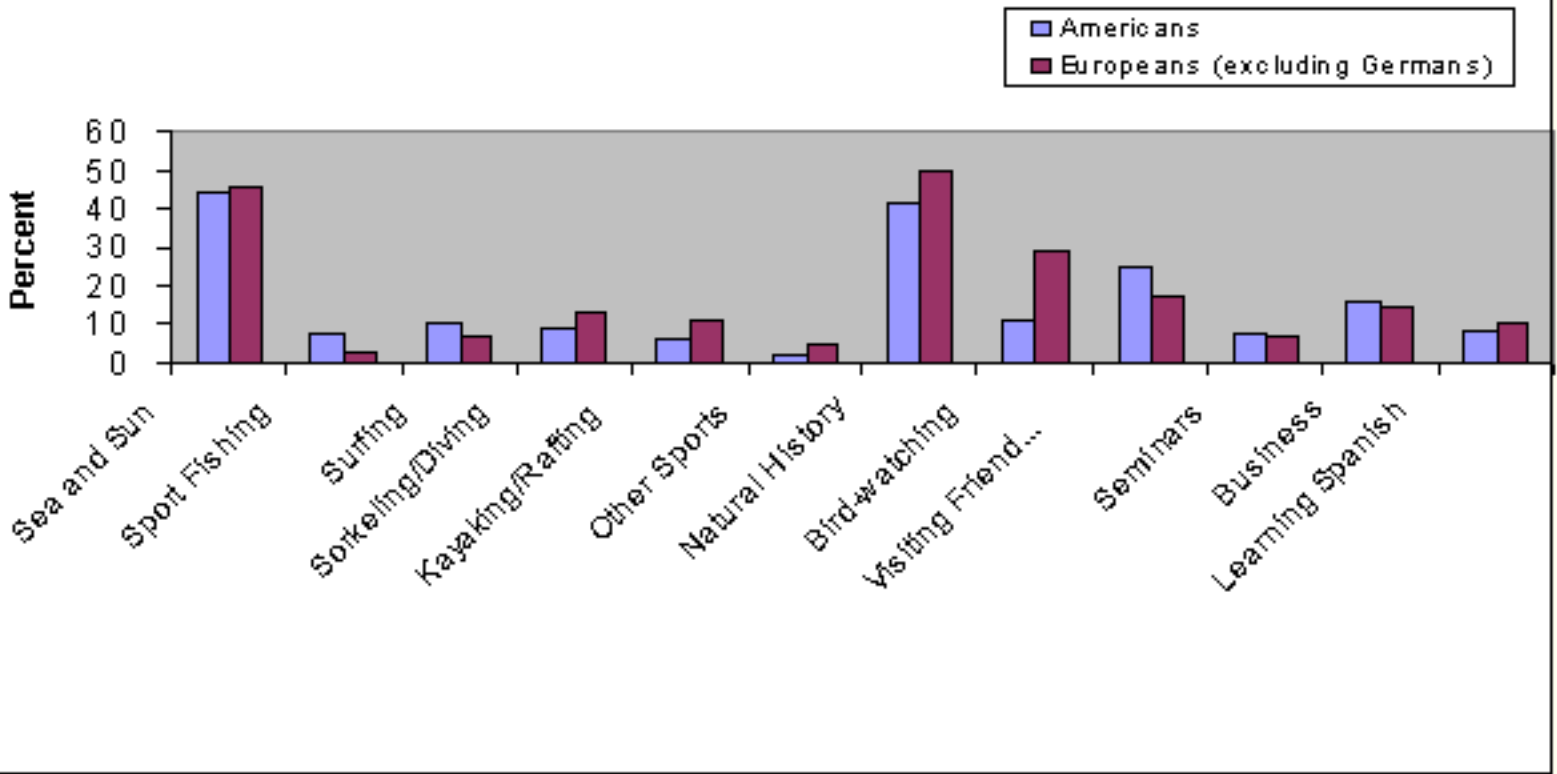


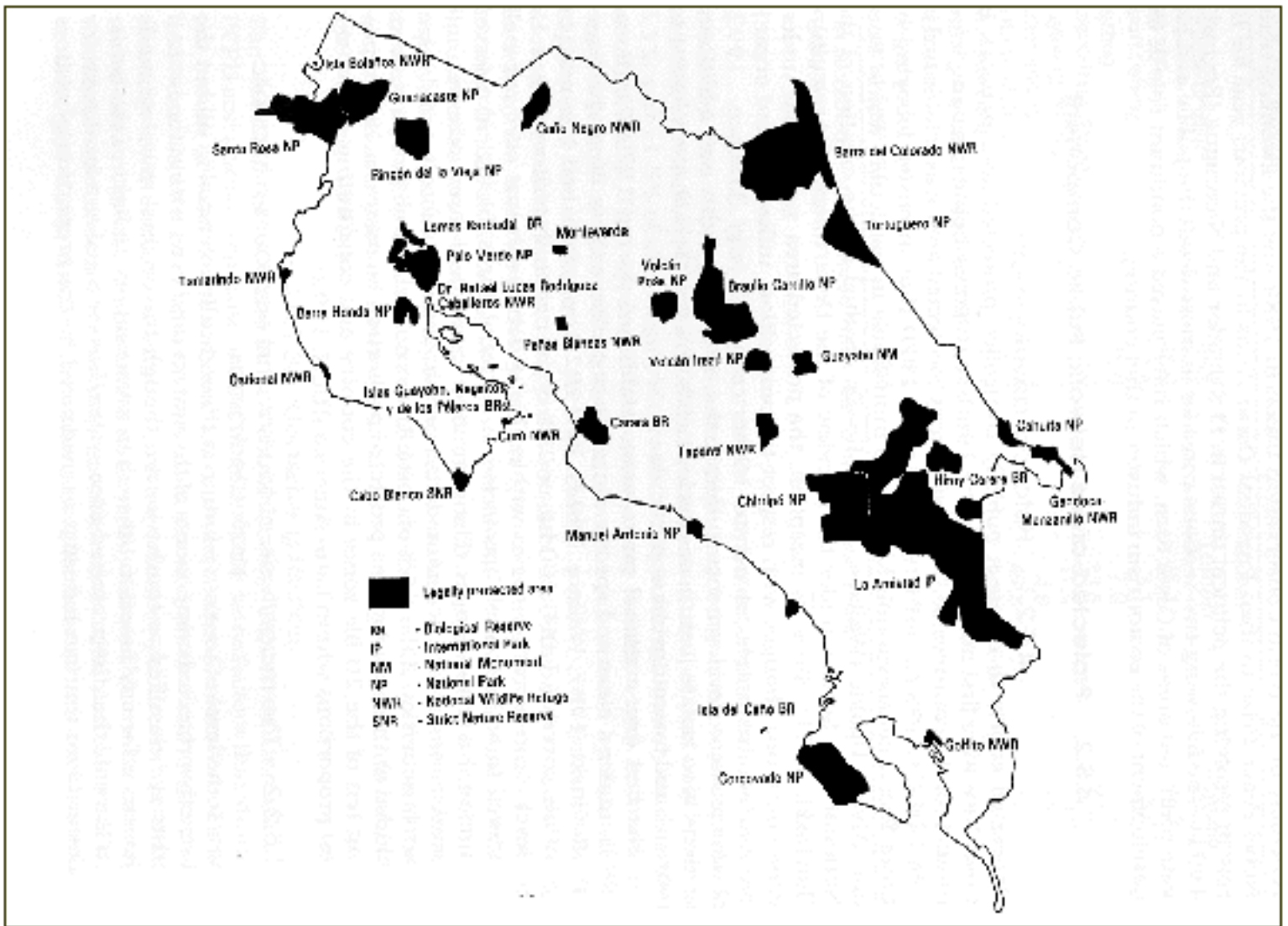
Tourist Stayovers in Select Caribbean Basin Destinations (1989)



Source: World Tourism Organization 1990

Purpose of Visit to Costa Rica: Selected Results of 1995 Visitor Survey





**MINISTERIO DEL AMBIENTE Y ENERGIA
SISTEMA NACIONAL DE AREAS DE CONSERVACION**

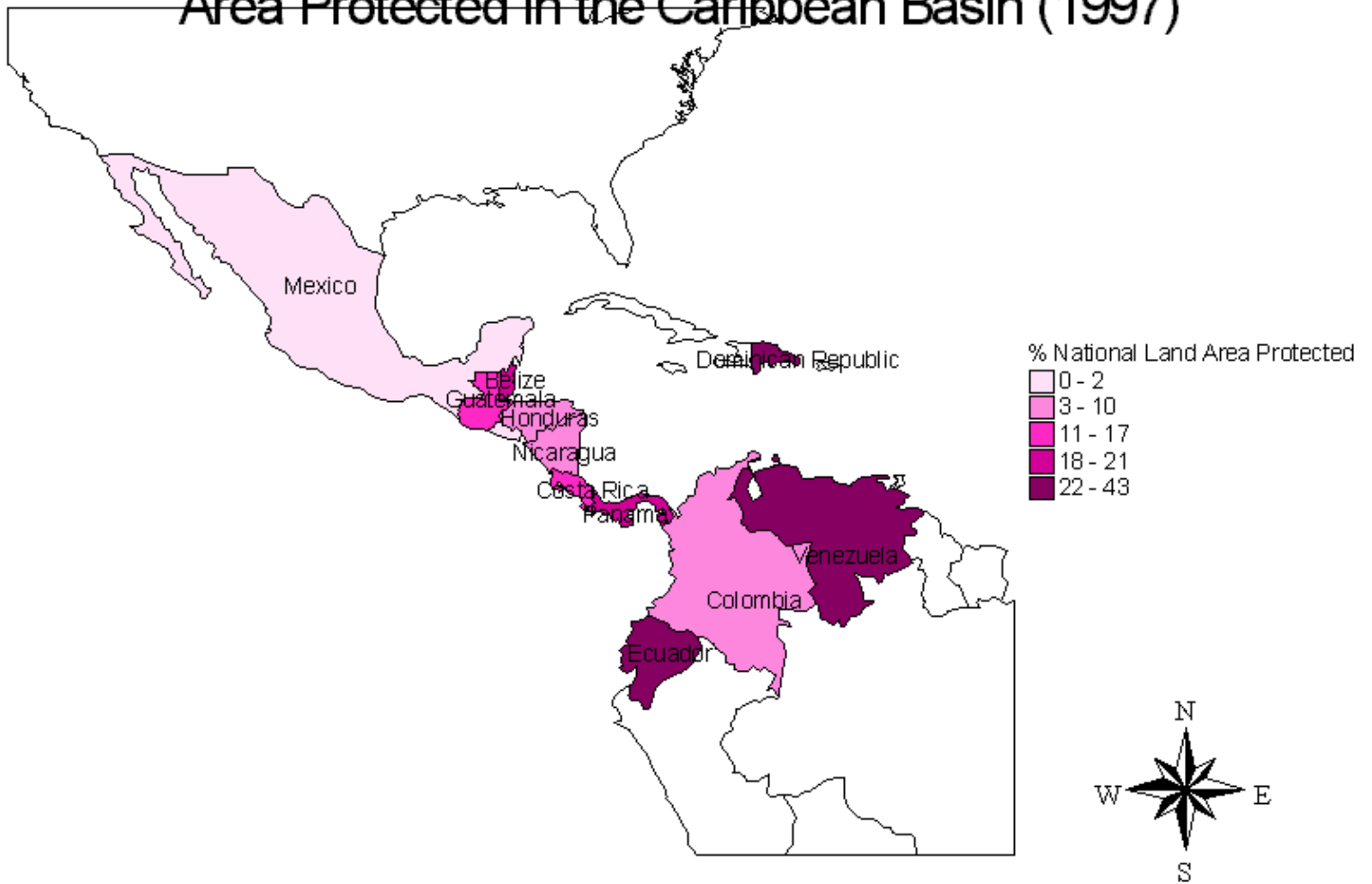


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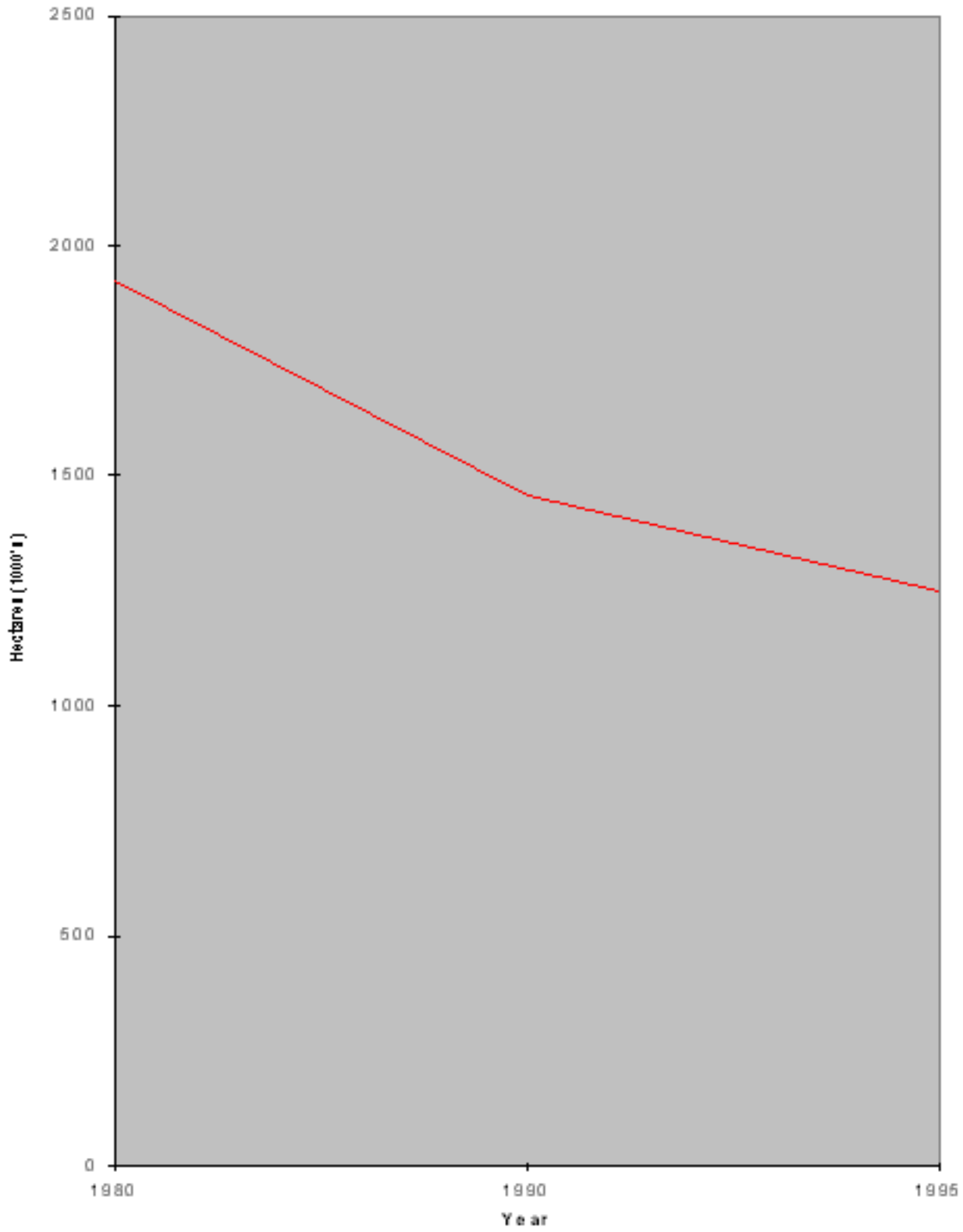


Comparative Perspective on % of National Land Area Protected in the Caribbean Basin (1997)

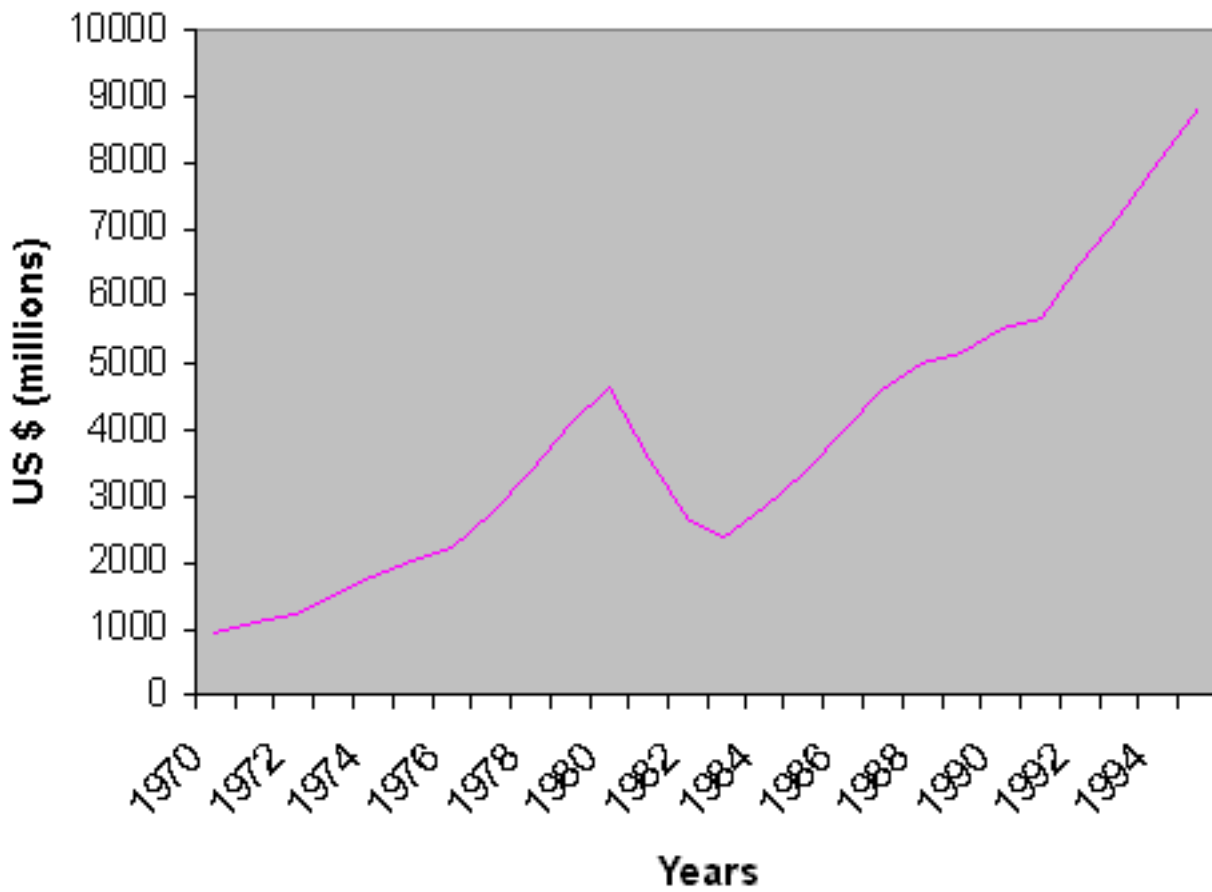


Source: World Resources Institute 1997-1998

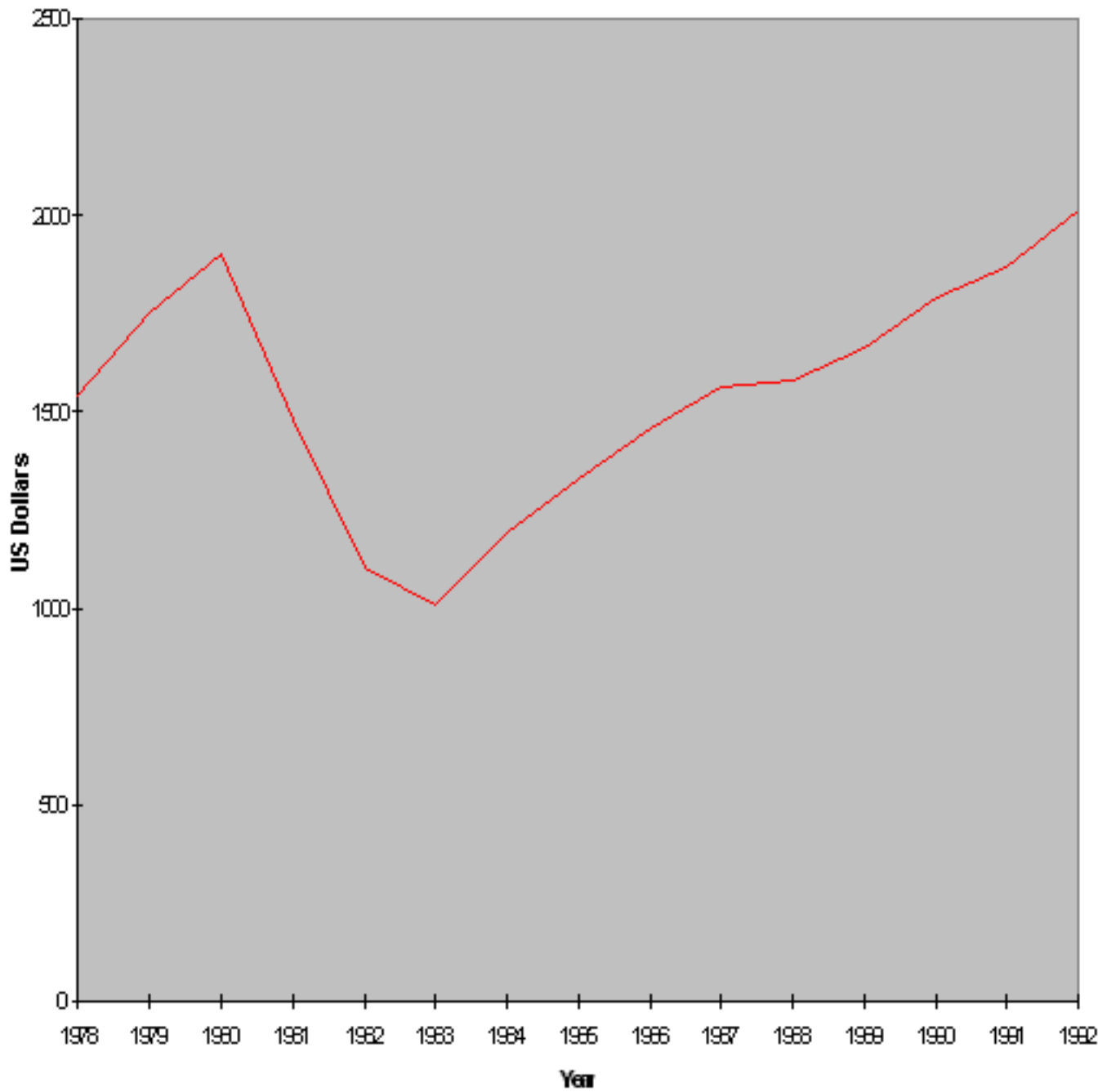
Total Forest Deforestation in Costa Rica (1980-1995)



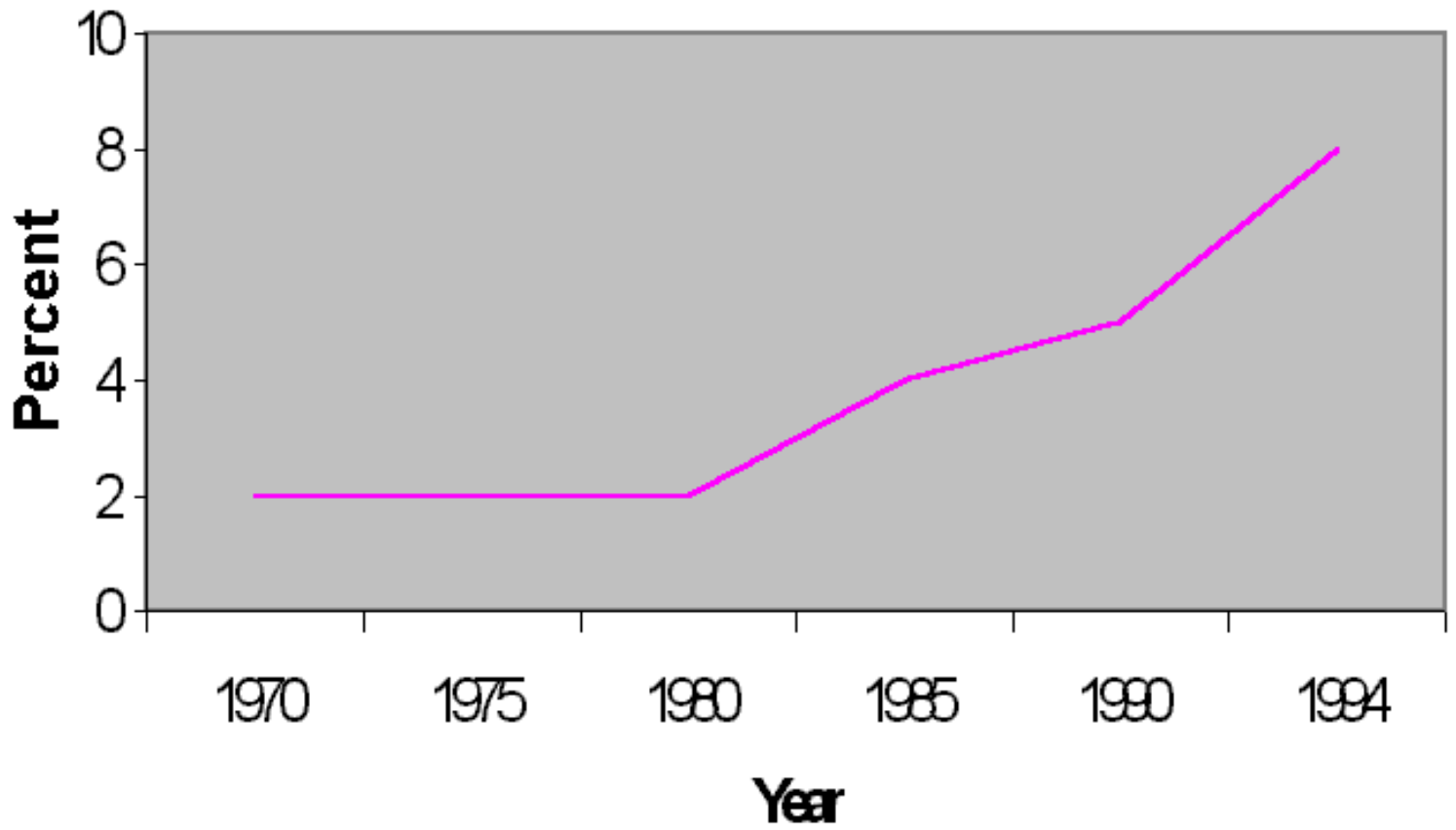
Costa Rica's Gross National Product in US \$ (1970-1995)

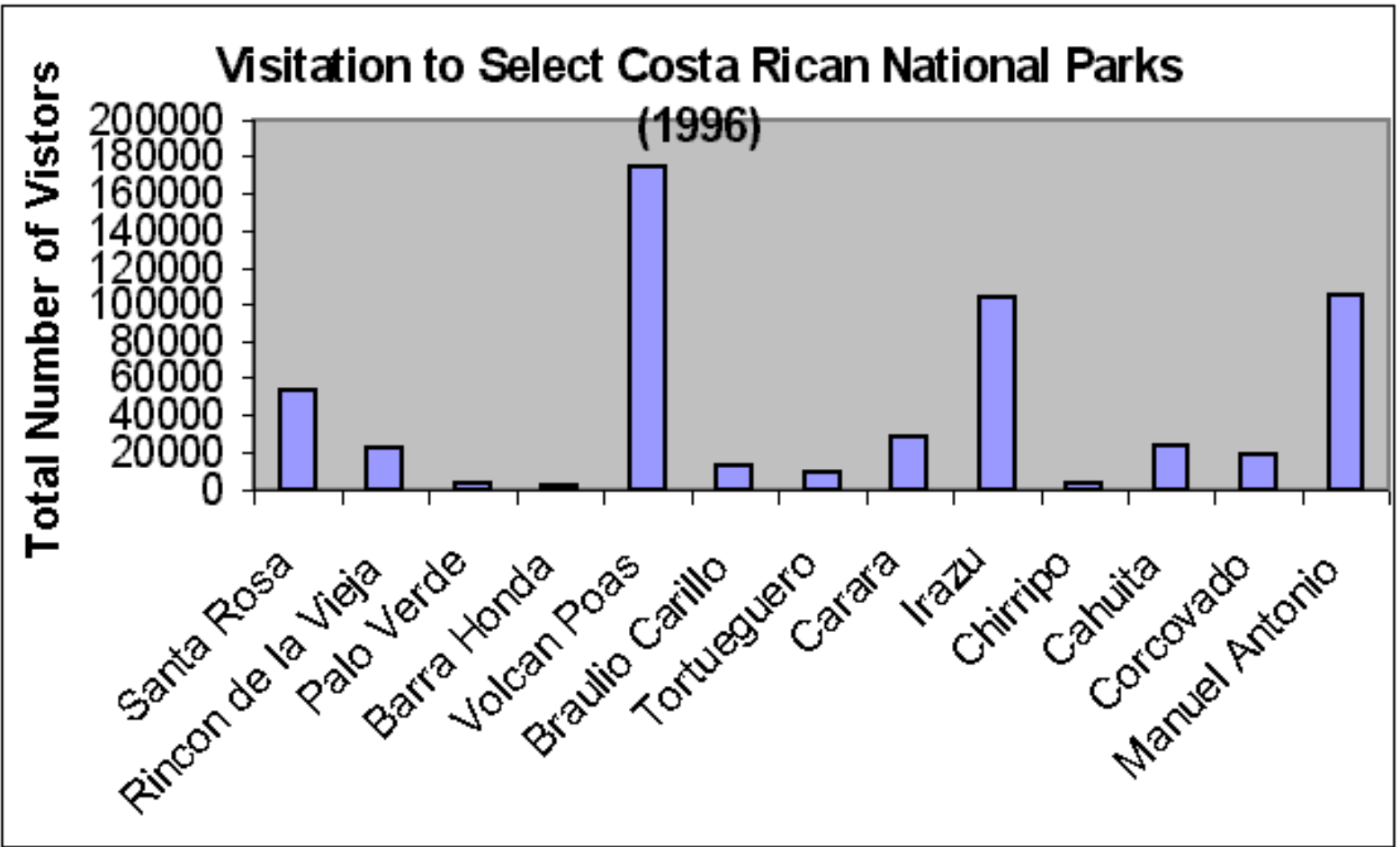


Costa Rica's GNP per Capita (US\$): 1978-1992

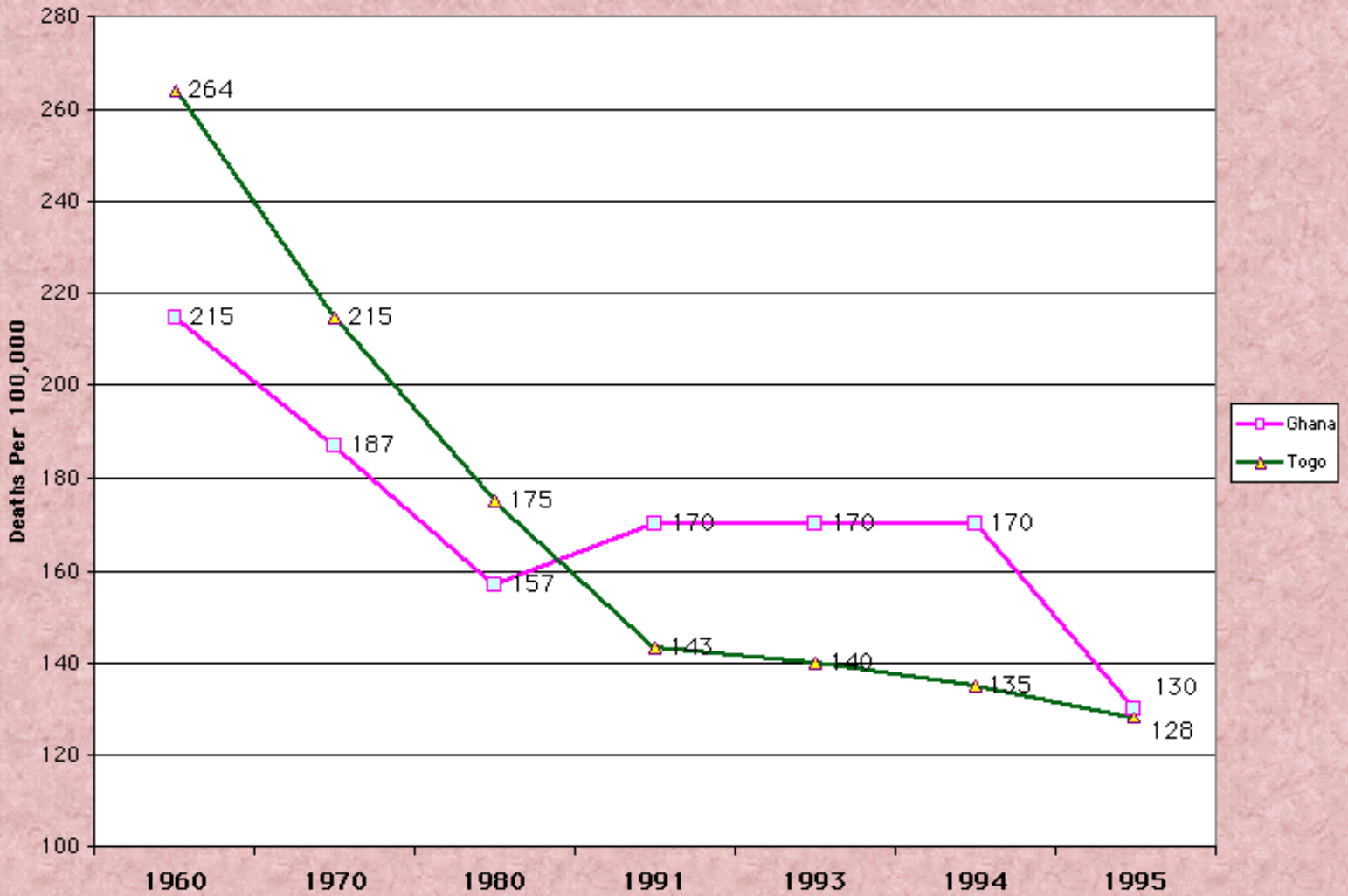


Tourism Revenues as Percent of GNP in Costa Rica





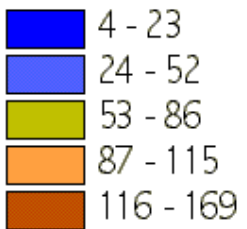
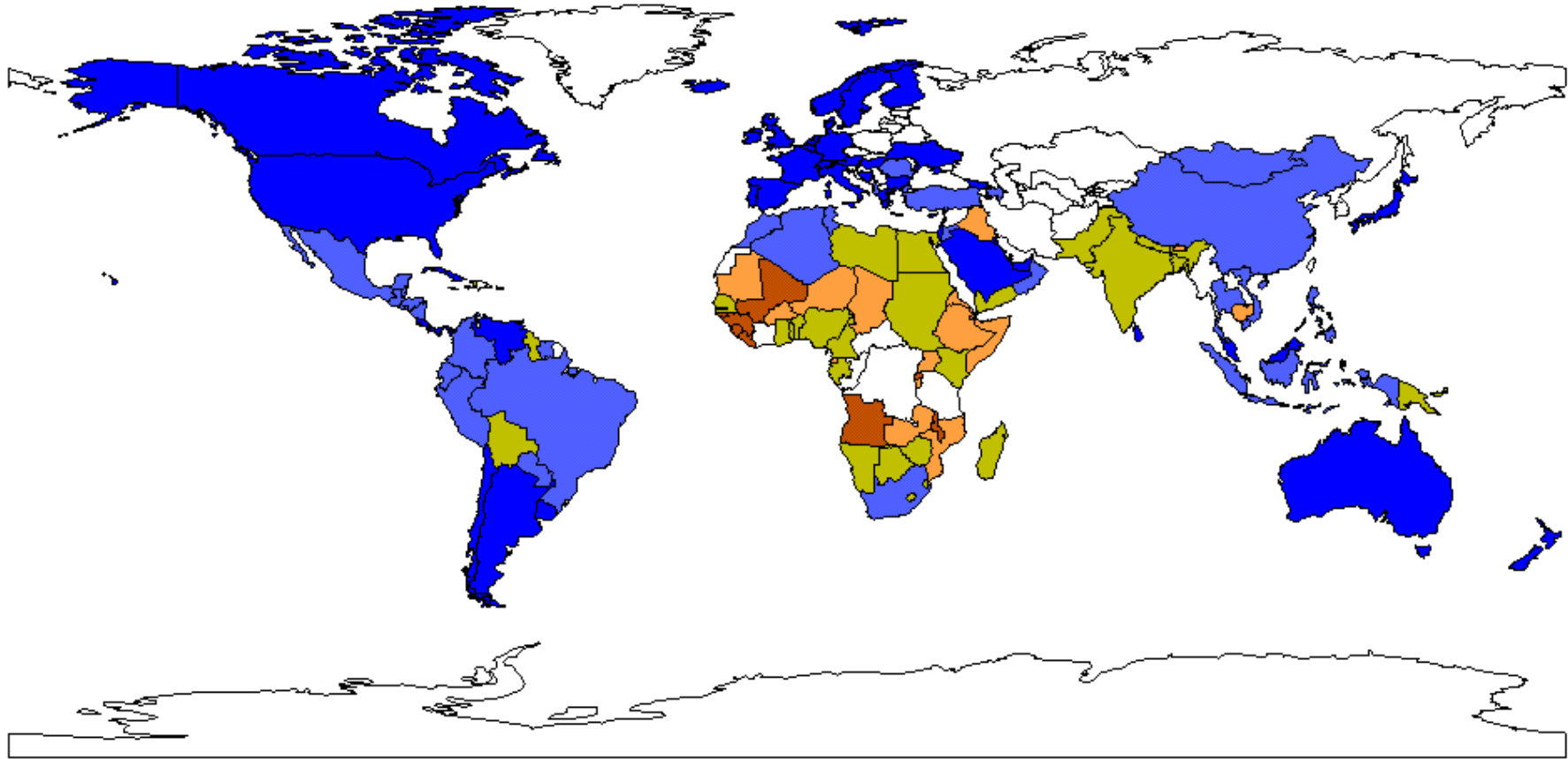
Under-Five Mortality Rates From 1960 through 1995 For Ghana and Togo



First Previous [Next](#) [Last](#) [Index](#) [Text](#)

Slide 1 of 5

Infant Mortality



Legend shows rate of infant mortality per 1000 births

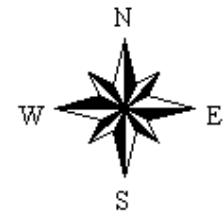
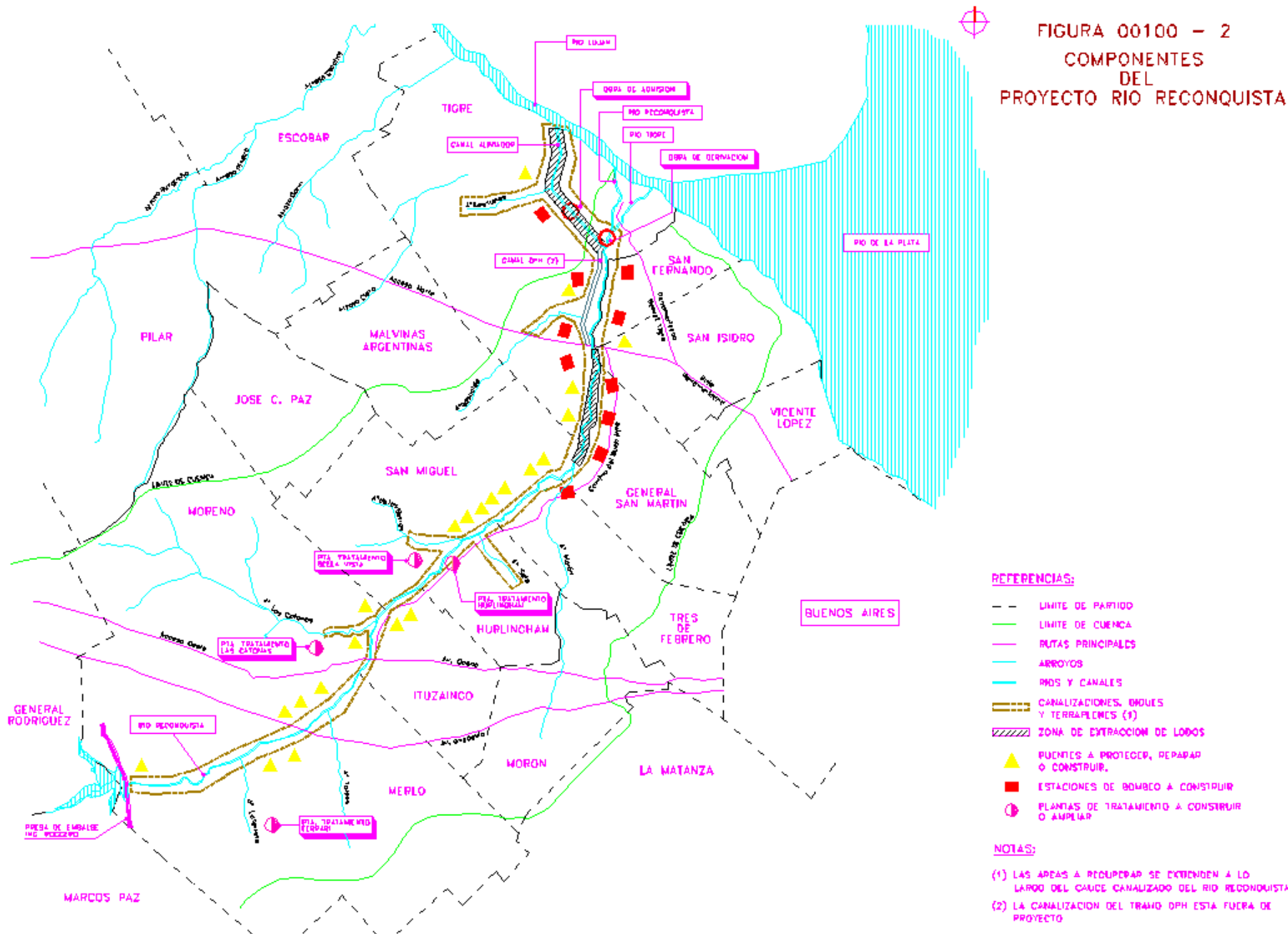




FIGURA 00100 - 2
 COMPONENTES
 DEL
 PROYECTO RIO RECONQUISTA



CHARACTERISTICS OF THE RECONQUISTA RIVER BASIN

The Reconquista River basin extends towards the north and northwest of the Metropolitan Area of Buenos Aires (MABA), with a total area of 1.670 km² and a population of approximately 10% of the country's population (Black&Veatch Int. Co. et al., 1996). The basin covers almost the whole of the municipalities of San Fernando (100%), Morón (96%) and Moreno (91 %), y partially Luján (19%), Gral. Rodríguez (81%), Gral. Sarmiento (54 %), Tigre (15%), Gral. Las Heras (39%), Merlo (59%), Tres de Febrero (63%), San Martín (70%), San Isidro (73%), Vicente López (10%) and Marcos Paz (29%).

Down-river of the Ingeniero Rogger dam, the Reconquista's main affluents are the creeks Sauce, Torres, Las Catonas, Los Berros, Morón y Basualdo. It finally divides in the Canal Aliviador and the Tigre River, discharging later to the Luján River.

The [Reconquista River](#) is a natural limit between two sub-regions with different land-use and service infrastructure. On the right margin of the river, and in radial direction towards the City of Buenos Aires (the Federal District, and the core of the MABA), we find the highest population densities, with consolidated urbanization and service infrastructure. On the left margin, concentrates the low-income population, and the service infrastructure is scarce and discontinuous. Along the river, the Ingeniero Roggero dam marks the limit between the higher basin and the medium and lower basin. In the higher basin rural activities are predominant, population densities are lower and there is reduced industrial activity. In the medium and lower basin, rural activity decreases until disappearing in the lower basin. In this section, industrial activity is predominant and population density is high, especially near the mouth of the Morón creek (Black&Veatch Int. Co. et al., 1996).

The location of this water course, in addition to the radial structure of road and rail networks centered in the Federal District, has favored the installation of big industries in the last few decades. Urbanization and smaller industries followed. A generalized reduction of around 11% of industrial activity in the Province of Buenos Aires is observed from the data provided by the National Economic Census of 1985 and 1994. In the area, this is seen especially affecting the smaller industries, and the textile and metallurgic activities. On the other hand, there is a proliferation of industries that require a low initial investment, like the chemical and pharmaceutical industries (Black&Veatch Int. Co. et al., 1996).

The basin also counts with big open areas of national jurisdiction, such as military facilities (in Gral. Sarmiento and Morón) and landfills. There are other areas with low population densities in Morón and Gral. Sarmiento as well (Black&Veatch Int. Co. et al., 1996).

The area is served by sewage systems provided by the Province (AGOSBA) and by the firm Aguas Argentinas, operator of the concession of the federal service. This company serves the municipalities of Morón, Tres de Febrero, Gral. San Martín, San Isidro, Tigre and San Fernando, while AGOSBA serves Merlo, Moreno and Gral. Sarmiento. The average level of service is only 21,2% of the total area of these municipalities (Black&Veatch Int. Co. et al., 1996).

The Puelche Aquifer

The provincial's main water supply is a multiple aquifer formed by various productive layers. The main aquifer is the Puelche Formation, at variable depths in all the MABA. Above this formation, there is a series of productive levels, which are generally called the Epipelche, of which the most superficial is the water table. Below the Puelche, there is the Hipopuelche, with high salinity, for which is only used for recreational purposes in most cases and for industrial use in the most stressed areas (Black&Veatch Int. Co. et al., 1996).

Some characteristics of the Puelche aquifer were described by Santa Cruz et al (1997):

- Exploitation flow: 20 to 150 m³/hour
- Specific flows: around 4m³/h/m
- Average annual precipitation: 1020 mm
- Average real evapotranspiration: 780 mm
- Average annual excess: 240 mm
- Average annual infiltration: 180 mm
- Average annual runoff: 60 mm
- Transmissivity: 500 m²/day
- Storage coefficient: 10⁻³

The Puelche covers 75,000 km² only in the Province of Buenos Aires (Jorge Santa Cruz, 1997). The renewable reserves, based on the annual recharge from precipitation, are 9,000Hm³/year. The semi-confined reserves that result from the storage coefficient of the aquifer is 1,500 Hm³/year, indicating a total reserve of 10,500 Hm³/year. The geologic reserves, according to a 10% of effective porosity, would amount to 100,000 Hm³. This leads to a theoretical total of 110,500 Hm³ of water. The upper limit of the aquifer fluctuates between -36 to -46 m, and the floor is at -55 to -65 m. The total width is of approximately 20 m.

This aquifer is lens-shaped, 50 km wide, extending next to the Paraná river, and probably circulating along the axis of some ancient similar basin or parallel to the Paraná. Maximum extraction rates can be 150 m³/h, and usually range between 20 and 100 m³/h in industrial areas with good specific flow, if well casing is in good condition (Jorge Santa Cruz, 1997). Water is potable. Recently, normal nitrate values have increased, due to contamination originated in deficient well construction and sanitary systems. The direction of flow of the water table generally migrates perpendicular to the Paraná river following the course of the creeks that derive to the Plata-Paraná system, whereas the Puelche apparently migrates parallel or subparallel to the Paraná, ending in this river.

Main Environmental Problems Affecting Water Use in the Reconquista River Basin

Water Quality of the Reconquista River

The concentration of human activity has produced the pollution of surface water in the middle and lower areas of the river, deteriorating its self-depuration capacity and making it inept for almost all its possible uses. There is also a synergistic effect of environmental degradation with the combined action of flooding,

which exposes pollution to a broad sector of the population not normally suffering from it (Black&Veatch Int. Co. et al, 1996).

Water quality decreases towards the lower areas of the basin, starting from the Ingeniero Roggero dam, as it flows through the metropolitan area. The greatest levels of pollution are found at the mouth of the Morón creek. The levels of pollution decrease once again at the river's mouth, due to tides causing a reverse flow from the Luján River, which enhances water oxygenation. Pollutants present in the surface water are bacteriological, heavy metals, detergents, phenols, BOD, and fats (Black&Veatch Int. Co. et al, 1996).

Groundwater Quality in the Reconquista River Basin

The productive aquifer in the MABA has always been the Puelche, constituted by sands of fluvial origin, excellent water quality and good extractive flows. Nevertheless, since the great population and industrial expansion, beginning in the 1940s, the volumes extracted have greatly increased to over-exploitation, causing a destabilization of the hydrological system in a wide area. This destabilization can be summarized in the following way (Black&Veatch Int. Co. et al, 1996):

- Regional depression cones, and other minor depressions of different magnitude.
- Inversion of hydraulic natural gradients of the underground flow.
- Modification of the original natural behavior of surface/underground water.
- Modification of the original natural behavior between aquifers (recharge/discharge relationship), caused by differences in the hydraulic charge between productive levels.
- Affluence of foreign hydrologic masses of high saline content, from marginal positions or gravitational filtration of contaminated water.
- Partial or locally total collapse of aquifers due to over-exploitation.
- Loss of semi-confinement of the Puelche, coinciding with regional depressions due to abatement of the Epipelche aquifer.

The Hipopuelche has an almost constant saline content and can be exploited due to local partial depletion and/or salination of the Puelche from over-exploitation. In polluted areas, the saline content of the Puelche doubles and even triples that of the Hipopuelche. The latter has good extraction flows.

Sources of pollution

The Reconquista river presents high levels of pollution, originated in the various activities and land uses of the different parts of the basin, in most part due to domestic and industrial discharges. Discharges to the river are asymmetrical, and are much higher on the right margin of the river than on the left. This is mainly because of the greater urban and industrial development on that margin, with the exception of the industrial area of Bella Vista (Gral. Sarmiento) on the left margin. There are also illegal industrial and sewer connections to storm-water systems that discharge untreated effluents to the river (Black&Veatch Int. Co. et al, 1996).

The problems with sanitary service

Services have not expanded at the same rate that population (Brunstein, 1988). Population with no piped water obtains the water through perforations, usually to extract water from the Puelche. Nevertheless, it would seem that the poorest population would only reach the water table, given that it is nearest the surface and less expensive to exploit. This water table is almost completely contaminated throughout all the region of Buenos Aires, and the population does not always know this. In addition the low-income population tends to settle in areas subject to flooding, where the water table is very near the surface, and easier to exploit. When the low-income population does manage to access the Puelche, it cannot adequately control the contact with the water table, contaminating both the water extracted and the aquifer. Other populations, in a much lesser degree, are connected to communal water systems for water supply. In the area of the Reconquista River Basin, these cooperatives usually supply water from the Puelche. Daily drinking water consumption is estimated in 300 liters/hab.day (Brunstein, 1988).

The Puelche is also contaminated for other reasons, particularly by the existence of a great number of septic systems. In highly populated areas, these are very dense, and pollute the underground with nitrates, where the Puelche is semi-confined. In areas with no sewage systems, the answer is septic systems. These are frequently constructed in a precarious way, affecting the quality of the underground water. There are cases of self-contamination within a family, which has a septic tank and a well on the same lot (Brunstein, 1988). Besides the defective operation of these septic tanks, the cleaning up is very expensive, encouraging illegal dumping to storm-water sewers, streets, surface water bodies or the ground. This aspect will be addressed in greater detail in the following section.

In addition, in heavily industrialized areas, the over-exploitation of the aquifer has lead to constant and significant descents in the last 30 to 40 years. In some areas, this means a depression velocity of over 1m per year. This not only makes extraction more expensive, but also uses up the resource and causes an increase of concentration of salts. This, in turn, favors the salination occurring near the river margins, which are already progressing at the speed of 100m per year (Brunstein, 1988).

Domestic Discharges

The most serious problems from domestic discharges occur in densely populated areas with no sewage systems. The waste water discharged either on the land or in improperly sealed septic tanks, generally built above the water table, can cause pollution of the highest layer of the aquifer or of the saturation area (Black&Veatch Int. Co. et al, 1996).

Rural areas (Gral. Rodríguez, Gral. Las Heras, Luján, and Marcos Paz) are characterized by having small percentage coverage of sewage service. Usually, population is dispersed within the municipality, making the connection of the entire population unfeasible. Some of these areas have municipal treatment plants, but in many cases, these do not work well or at all, due to financial problems, low volumes to justify operation or lack of technical staff to correctly operate them. These plants generally discharge to local rivers and creeks. Trucks collect the sludge from the individual users, and fees for this service are usually high.

In more rural/urban municipalities there are some municipal plants that also are working at partial capacity. There is still little sewer infrastructure and little control of illegal discharges.

Urban municipalities still have an important part of the population relying on septic systems. Some neighborhoods have built their own treatment plant. Most discharges end up on the storm-water system or the river, especially in areas with an important low-income population, and there are numerous illegal connections to the sewage provided by Aguas Argentinas. In the municipalities nearer the Rio de la Plata, water table is very near the surface, and contamination from saturated septic tanks is common. Municipal sewage and treatment is not effective, and usually discharge untreated effluents to the river directly or indirectly, and some pollution may also originate in heavy storms, from the reliefs of Aguas Argentinas. Sludge collection is also expensive, encouraging illegal discharges. Aguas Argentinas has expansion plans for most of these areas. Some municipal authorities stress the need for a sanitary infrastructure, especially due to the impact of current discharge on the quality of the Puelche aquifer. Many industries use this aquifer in their production, especially in the manufacture of beverage products. If the aquifer is contaminated, these industries (the municipality's main source of income) might move to other municipalities.

Industrial Discharges

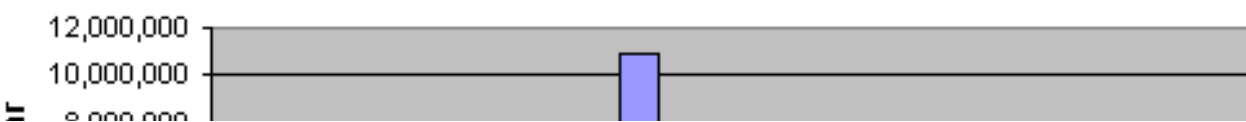
A characteristic of the industrial activity in the basin is that, even within the service area of Aguas Argentinas, the extraction and discharge of water and wastewater is made outside the company's system. This is especially the case for big industries. Given the dispersion of activities and locations, this makes the quantification and qualification of effluents, and consequent treatment control, difficult. Historic information is discontinuous and incomplete (Black&Veatch Int. Co. et al, 1996).

According to the 1985 Economic Census, there are 14,891 industries in the municipalities included in the basin. Most industries correspond to the manufacturing of metallic products, machinery and equipment. Following in number are the food products, beverage and tobacco industries; the textile, clothing and leather industry, and the wood industry and wood products industry, including furniture. Chemical manufacturing industries are also important in the basin.

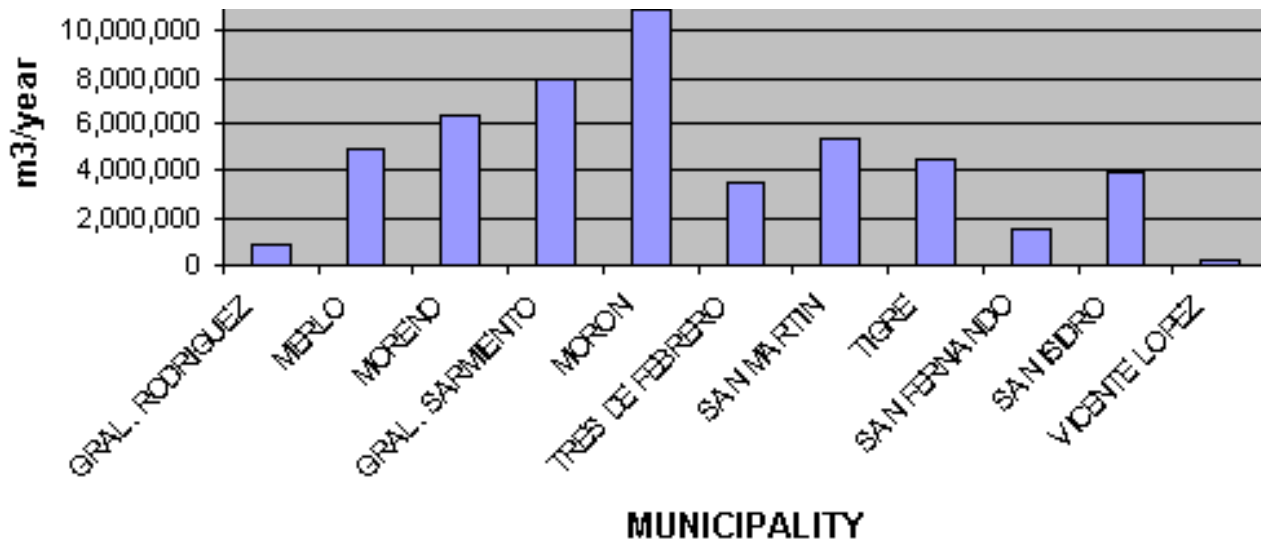
A more recent study states that there are 12,000 industries in the basin. There is no precise data on the amount of industries affecting the base, or on what their discharges and water consumption might be, in terms of quantity and quality. Generally, effluents from these industries directly discharge to the Reconquista River, its tributaries and to the underground (Black&Veatch Int. Co. et al, 1996).

Industrialization generally accompanies urbanization. The higher areas of the basin are not heavily industrialized. There are a few agroindustrial plants, which consume high volumes of water, mainly from groundwater sources. Some of these municipalities are considering the construction of industrial parks, to attract industrial activity. The middle and lower areas of the basin are more industrialized, and the greatest impact is received by the Morón creek (Black&Veatch Int. Co. et al, 1996). Figure 1 shows the amount of discharge per municipality, where Morón greatly exceeds the volumes discharged in other communities. The amount discharged also indicates how much water is extracted.

Figure 1. Annual Industrial Discharge



In areas with important proportion of low-income



population, some dangerous processes in industrial production are hired from smaller industries. These industries do not meet health and

safety

regulations, and wastes are illegally dumped in waterways, in solid waste dumps and to the storm-water system. Being their main source of income, it is politically unfeasible to close these activities (Black&Veatch Int. Co. et al, 1996).

Industrial activity has changed with time, mainly due to economic development. There has been a shift in the predominance of certain types of activity, the size of industry and the processes. Where industries produce exportable products, their processes must meet certain international standards that include environmental quality. Some other industries, though, were established in previous decades, and still have the same processes.

Industries can be grouped by type of effluent discharged. The groups of slaughter-houses, chemical industries and tanneries discharge the greatest flows in the basin. The slaughter-houses, dairy industry and tanneries are the activities that potentially contribute the most with conventional (organic) contaminants. Chemical industries and tanneries, are important in the generation of heavy-metal pollution and in toxic substances (Black&Veatch Int. Co. et al, 1996).

Solid and semisolid wastes

This is another source of pollution, especially originated in the illegal dumping of sludge from septic systems and treatment plants. Percolation from landfills might also be contributing to pollution of underground water resources. Other solid waste may be discharged by industries, causing the embankment of water, increases of the BOD levels and reduction of oxygen diffusion (Black&Veatch Int. Co. et al, 1996).

The illegal dumping of wastes produced by effluent treatment plants is favored by legislation. CEAMSE is the state company covering the collection and disposal of wastes in the area of Greater Buenos Aires. The service only covers reception of stabilized and non-toxic wastes. Furthermore, ashes produced by waste incineration are not accepted. Even though regulation exists, there is not yet the adequate infrastructure for landfilling of this type of wastes. Illegal dumping then causes the same pollution that the treatment plants are trying to avoid (Black&Veatch Int. Co. et al, 1996).

TRANSITIONS

Economic Transitions

Once among the world's most prosperous economies, Argentina experienced slow economic growth from the 1940s until the start of the Convertibility Plan in 1991 (World Bank, 1998). By the mid-1970s long-term growth had declined noticeably, and in the last half of the 1980s, Argentina suffered its longest period of stagnation in the century. Savings and investment rates fell precipitously from the mid-1970s until 1989. Argentines, responding to the unstable macroeconomic environment, increasingly saved and invested abroad. Labor productivity fell and poverty worsened.

Even though in a substantive part of the gross product and employment of the country concentrates in the MABA (Brunstein, 1988), industrial activity has decreased significantly since the mid-1970s. In the same period, nevertheless, commercial activity and services have increased. As was mentioned before, in the Province of Buenos Aires, the decrease in industrial activity has been of 11% in the number of industrial plants in the 1985-1994 period (Black & Veatch et al, 1996).

Demographic Transitions

Population data was obtained for every municipality forming the basin, from Randle (1981). Pilar is also included in the analysis, even though it does not belong to the Reconquista River basin. Nevertheless, its policies for promoting industrial and housing developments might have a significant impact on the groundwater supply.

Figure 2 shows population growth for the communities listed above. The biggest populations are those of Gral. Sarmiento and Morón (around 650,000 inhabitants) (see Table 1 for detailed data). In those municipalities located near the Federal District, a transition phase of population growth started at the beginning of this century. As distance increases away from the Federal District, this transition phase occurs later in time, typically in the 1940s. The rural municipalities (Luján, Gral. Rodríguez, Marcos Paz and Gral. Las Heras) experienced a more gradual population growth until the 1970s, when growth rates increased.

Figure 2 - Demographic Transitions in the Reconquista River Basin

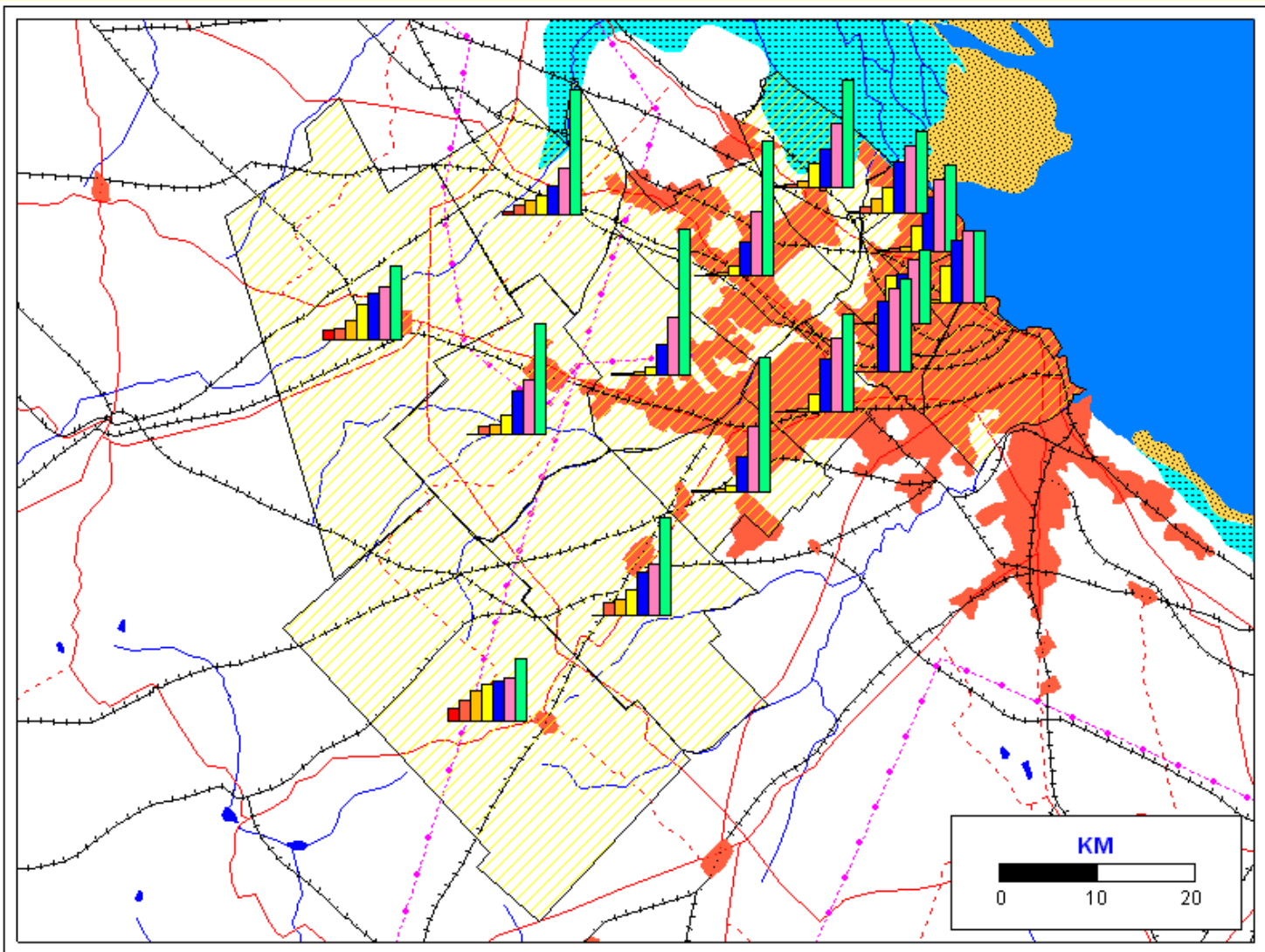
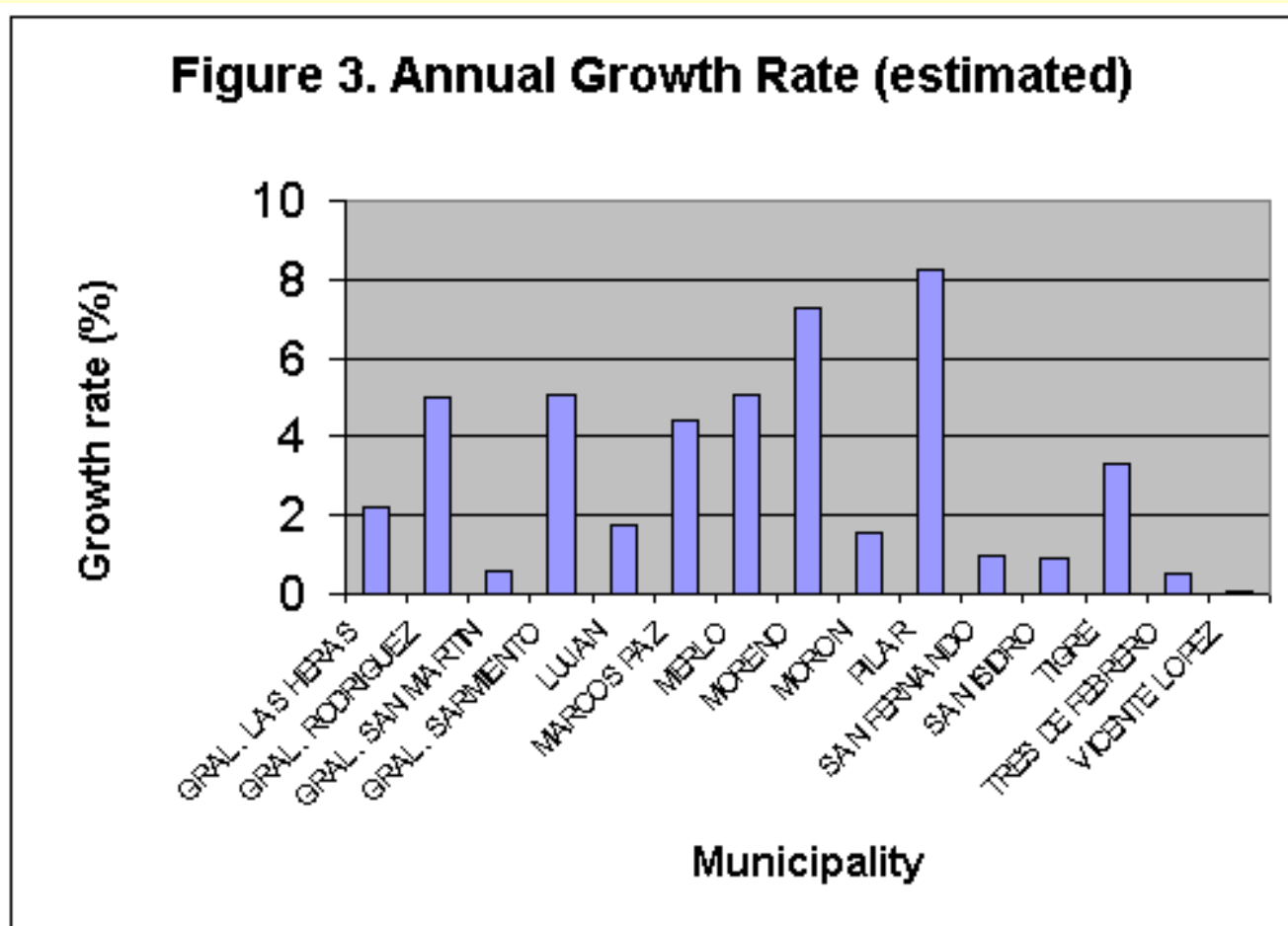


Table 1 - Population Growth in the Reconquista River Basin

	1869	1895	1914	1947	1960	1970	1991
GRAL. LAS HERAS	2,303	3,711	5,342	6,311	6,855	7,480	10,987
GRAL. RODRIGUEZ		3,591	4,492	8,518	19,013	23,596	48,383
GRAL. SAN MARTIN	2,867	7,047	50,852	269,514	278,751	360,573	406,809
GRAL. SARMIENTO		5,168	12,726	46,413	167,160	315,457	652,969
LUJAN	10,256	12,416	20,813	38,183	51,197	58,909	80,645
MARCOS PAZ		3,659	4,896	7,783	12,604	15,070	29,104
MERLO	2,469	3,595	6,990	19,865	100,146	188,868	390,858
MORENO	2,329	3,278	4,836	15,101	59,338	114,041	287,715
MORON	3,488	7,880	24,624	110,344	341,920	485,983	643,553
PILAR	3,708	9,920	14,508	19,854	30,836	47,739	130,187

SAN FERNANDO	4,154	11,324	24,660	44,666	92,302	119,565	144,763
SAN ISIDRO	3,955	9,912	19,092	90,086	188,065	250,008	299,023
TIGRE	3,329	8,978	16,691	58,348	91,725	152,335	257,922
TRES DE FEBRERO					263,391	313,460	349,376
VICENTE LOPEZ			12,100	149,958	247,656	285,178	289,505

Figure 3 shows the estimated values for percentage growth rate in 1991, obtained from the difference in population in the last two censuses (1970 and 1991) for which data was available, and then calculating an average annual percent increase. In terms of growth rate, Pilar and Moreno show the highest values, around 8% and 6%, respectively. Gral. Sarmiento, Gral. Rodríguez, Marcos Paz and Merlo follow, with growth rates of around 5%. Of the remaining communities, only Vicente López, Tres de Febrero, San Fernando, San Isidro, and Gral. San Martín have growth rates of 1% or lower. These values are indicative of the populations' stage of transition. A general trend can be seen of increasing population stabilization towards the Federal District, i.e. the center of the MABA.



Between 1945 and 1960, there was an immigration period towards the MABA. This movement was lower in volume and had other characteristics than the immigration of Spanish and Italians before the Great Depression (Jofre, 1993). In this case, the predominance was of immigrants from neighboring countries. They first settled on the frontier provinces, and in a second stage, arrived in Buenos Aires, together with other internal migration flows which had been going to the city since 1938. This movement was caused by

the concentration of economic, social and political functions in the area. According to data from the 1980 Census, 25% living in the Federal District was born in the provinces. In the province of Buenos Aires, almost 35% of the population came from other provinces. Torres (1994) explains that between 1940 and 1960, the context was of metropolitan growth based on internal migrations, of substitutive industrialization of importation, and of policies tending to redistribution of income. In this period, there was an important expansion of the periphery. This expansion exceeds the central nucleus and the first ring, already consolidated surrounding the nucleus. In addition, there was an important process of central densification (building in height). The urban workers moved to peripheral areas and a wide range of medium strata moved to the central buildings. The slums, marginal to the market, find vacant land, some central, but mainly in the extensive ring that follows the flood areas of the rivers Matanza-Riachuelo and Reconquista.

During 1960s and 1970s, the metropolitan growth rate decreased, reducing the relative weight of migrations (Torres, 1994). Several of the Federal Policies that affected the processes of urban structuring changed or disappeared (subsidies for homes and transport, rent law). The expansive development of economic lots in the periphery stopped and the submarket of apartments was selective for the medium to high-income levels. During the 1980s, several important changes regarding the central-peripheral tension appeared. On one hand, trends towards deterioration of central areas reappeared, and on the other, in extreme periphery -in areas made accessible by two main highways- developments showed a trend towards suburbanization of the groups of highest socio-economic level. The process of migration from other provinces and countries has slowed down, and migration flows occur between rural areas and capital cities within the provinces (Jofre, 1993).

In Buenos Aires, urban policies were implicit or, when explicit, were not applied in an effective manner (Torres, 1994). The processes of urban expansion were produced in conditions of *laissez-faire*. This resulted in the consolidation of a discontinuous and unarticulated peripheral urban network, with no provision of services, and generally occupying interstitial areas away from the main axes of transportation, in some cases even in flood plains of the rivers Matanza and Reconquista. There were important urban plans formulated during the 1960s that were not applied effectively. During the military regime, controls were established in 1977 over urban expansion. These conflicted with promoting activities and economic interests, which made implementation almost impossible. Finally, after restoring the democratic government, the effort of constituting a formal entity to act as coordinating authority for the planning of the metropolitan area were not successful, due to the diverging politic and economic interests of the different parts of the region.

URBAN GROUNDWATER USE

Underground water extraction levels were calculated for domestic use, for some municipalities for which data was available of inhabitants not connected to the water supply network; this data was obtained from Black & Veatch et al (1996). Table 2 shows this information, together with the estimation of annual overexploitation volumes.

Table 2. Water extraction and deficit from domestic use (m³/year)

	Area (km²)	Renewable water	Water extraction	Deficit
MERLO	170.00	23,800,000	38,649,996.00	-14,849,996.00
MORENO	180.00	25,200,000	27,142,203.00	-1,942,203.00
GRAL. SARMIENTO	196.00	27,440,000	65,847,825.00	-38,407,825.00
MORON	131.00	18,340,000	51,699,001.50	-33,359,001.50
TRES DE FEBRERO	46.00	6,440,000	8,635,279.50	-2,195,279.50
GRAL. SAN MARTIN	56.00	7,840,000	13,170,879.00	-5,330,879.00
TIGRE	360.00	50,400,000	21,703,666.50	28,696,333.50
SAN FERNANDO	23.00	3,220,000	5,860,549.50	-2,640,549.50
SAN ISIDRO	48.00	6,720,000	5,203,878.00	1,516,122.00

Total annual renewable water per squared kilometer was first calculated using the available information on the Puelches (Jorge Santa Cruz, 1997), assuming that volumes of water are uniformly distributed along the 75,000km² that the aquifer occupies in the Province of Buenos Aires. Then, annual renewable water was calculated per municipality, using information on the area of each municipality (INDEC, 1991). Average water consumption for domestic use is estimated in 300 liters/capita.day (Brunstein, 1988). This value was used to calculate annual water consumption per municipality from the population not connected to the water company, and was subtracted to the renewable water to obtain the corresponding deficit. This estimation assumes that all population not connected to the water supply network is extracting water from the Puelches aquifer. Figure 4 shows these results. Only two municipalities would be exploiting their underground water resources in a sustainable way (Tigre and San Isidro), at least in terms of domestic use.

Figure 4. Underground water overexploitation from domestic use

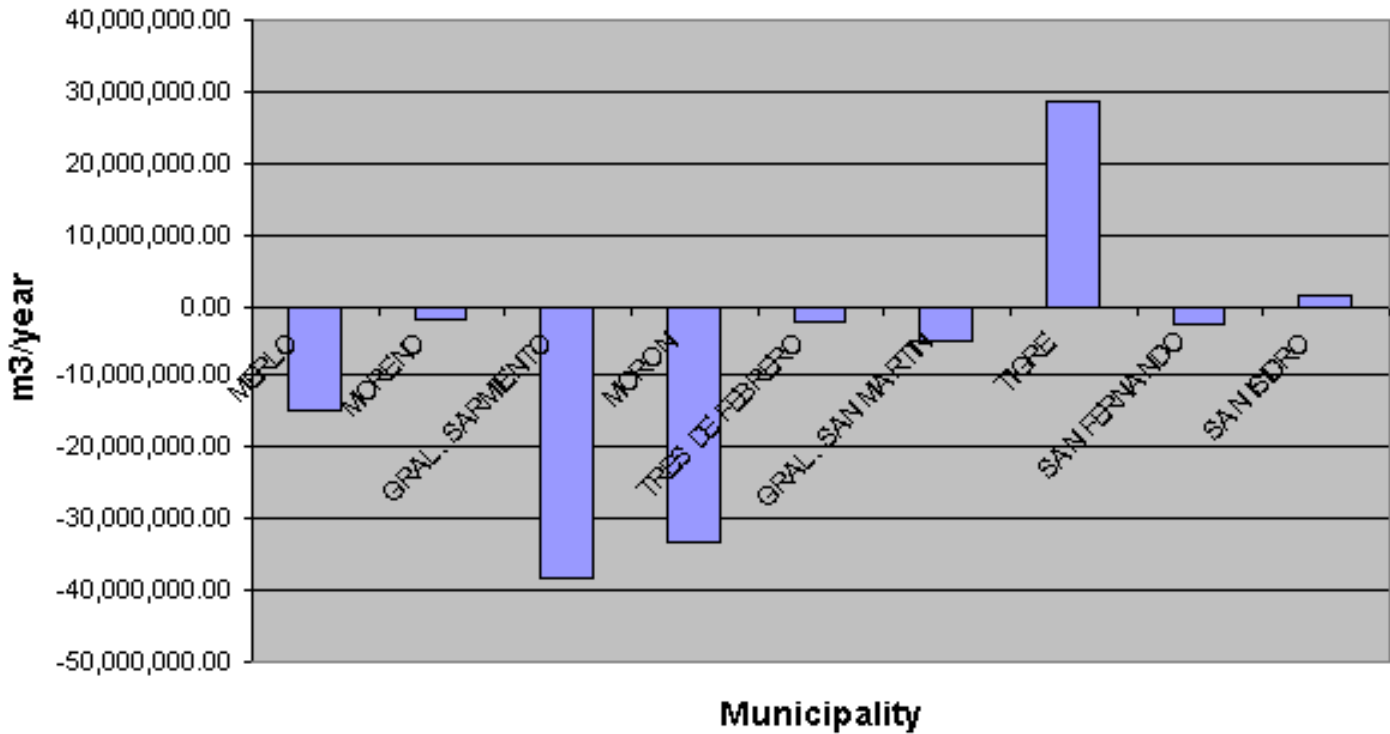


Table 3 shows the time it would take for collapse of the aquifer at current rates of domestic consumption, i. e. if population growth rates were equal to zero and no technological changes were available to increase efficiency in water use (terms in brackets are negative values, and are discarded; they correspond to those municipalities who exploit the aquifer at sustainable levels).

Table 3. Time for depletion from domestic use (years)

	Area (km ²)	Total water (m ³)	Depletion time
MERLO	170.00	250,466,666.10	16.87
MORENO	180.00	265,199,999.40	136.55
GRAL. SARMIENTO	196.00	288,773,332.68	7.52
MORON	131.00	193,006,666.23	5.79
TRES DE FEBRERO	46.00	67,773,333.18	30.87
GRAL. SAN MARTIN	56.00	82,506,666.48	15.48
TIGRE	360.00	530,399,998.80	(18.48)

SAN FERNANDO	23.00	33,886,666.59	12.83
SAN ISIDRO	48.00	70,719,999.84	(46.65)

According to these results, Gral. Sarmiento and Morón would be the most immediately affected by overexploitation. Their surrounding communities would also be impacted, due to changes in the flow caused by the local depression of the aquifer. At the same time, these are the two municipalities where most of the industrial discharge flows and septic systems occur. The following figures show the risk of deterioration of groundwater resources in terms of [groundwater extraction for domestic use](#), [population growth rate](#), [industrial discharge](#) (relative), and [septic systems](#), for those municipalities for which data was available.

The last map shows the overlay of these figures, in order to identify the [critical areas](#) in terms of all four variables, and confirms that Gral. Sarmiento and Morón (the darkest areas) are the most critical municipalities in the basin.

Little data is available on groundwater intake for industrial activities, which consume water in large quantities.

RECOMMENDATION FOR WATER MANAGEMENT

Water is vital for all living organisms and major ecosystems (De Sherbinin and Dompka, 1998). This includes human health, food production, and economic development for human communities. Since the first civilizations arose in the Nile, Tigris and Euphrates river basins, population growth and distribution have been intimately linked to the availability of freshwater. Today, nearly 40% of the world's food supply is grown under irrigation, and a wide variety of industrial processes depend on water. Already, humans use more than one half of all accessible surface water runoff. This proportion is expected to increase to 70% by 2025, thereby reducing the quantity and quality of water available for aquatic ecosystems. These ecosystems are critical for a range of life-supporting functions -including the cleaning and recycling of water itself. Population dynamics and water resources interact through human uses of water. The most important demographic trend affecting water resources is population growth.

According to De Sherbinin and Dompka (1998), population stabilization is vital. Population stabilization reduces pressure on water resources and serves to "buy time" for the establishment of improved water management, appropriate policies and institutional arrangements. Population growth can be slowed down by taking action in related areas of population policy, reproductive health and family planning services, and improved educational and employment opportunities for women.

Community involvement is essential for effective water management (De Sherbinin and Dompka, 1998). Because of the local nature of water-population relationships, involving communities is crucial to understanding local conditions, creating a sense of ownership, strengthening community capacity, and ensuring sustainable management of water resources.

Access to water is a human rights issue. Water is often "captured" by powerful economic interests, to the detriment of low-income people. Access to water can be viewed as a human right, as much as it is crucial for all aspects of human life (for life in general). Collaborative management of water resources may be one mechanism for improving local access, especially in irrigation schemes (De Sherbinin and Dompka, 1998).

As urban areas grow, the demand for water resources is likely to grow because urban populations, on average, use more water for domestic and industrial purposes than rural populations. On the other hand, urbanization can also present opportunities through economies of scale for more efficient and cost-effective water management (De Sherbinin and Dompka, 1998).

Public education is necessary (De Sherbinin and Dompka, 1998). Policymakers and the general public need to be educated about water resources and population dynamics, with an emphasis on making human activities sustainable with respect to water availability. Rapid in-migration of settlers is creating additional water scarcity and the lack of adequate water and sanitation infrastructure contributes to waterborne illness and other health problems. Educating settlers in water management and appropriate agricultural techniques could help to create a more sustainable relationship.

Successful approaches to balancing the needs of different sectors, stakeholders, and the environment will often involve a combination of one or more of the following strategies (De Sherbinin and Dompka, 1998):

- Changing patterns of water use through institutions, water pricing, integrated management, education, and appropriate technology;
- Changing population dynamics through policies to reduce population growth and shape migration and distribution trends; and
- Changing the supply, quality, or distribution of water resources through ecosystem conservation or integrated water management that takes into account population and water relationships.

Recommendation for the Reconquista River Basin

Water is not a public good; it is a right. Groundwater is more difficult to manage than surface water because it is not seen, its dynamics is unknown and therefore is usually undervalued. The perception that water is free has caused overexploitation and pollution of the Puelche aquifer, in a context of population growth, migration, increased industrialization and urbanization.

Policies that might be applied to the river basin have to cover the areas of education and behavior patterns, economic activity, increasing the provision of sanitary services through water supply from surface waters such as the Rio de la Plata, and expansion of sewer systems. Policies should be coordinated between all the interested parties in the basin. A basin committee was already projected to operate, with community, government, and industrial representatives. Alternatives should consider the demographic transition phase that each municipality is going through, considering that growth patterns are mainly due to migration rather than to birth or death rates.

Domestic consumption can be assumed to be greater in volume than industrial consumption. In addition, population in some municipalities is projected to grow at much faster rates than industrial activity, which in

turn seems to have slowed down. It can therefore be concluded that a priority should be established for domestic use of groundwater, especially because it is a basic human need. On the other hand, this same population relies on industrial activity for economic sustainability. Therefore, a compromise must be reached between total population and industrial economy, before continuing to promote indiscriminate and uncontrolled development. This would especially apply to those municipalities that are still in the initial stages of a demographic transition, i.e. with relatively low growth rates that are rapidly increasing.

A fixed price for water use has not proven successful, for which a pricing system per unit volume of water extracted might be more effective. This would give a sense of ownership, a property right that would encourage a more efficient use of the resource (The World Bank, 1998). Prices should vary according to total volumes of consumption, i.e. unit price should increase as greater volumes of water are extracted, in order to prevent economic interests from "capturing" the resource. Measurement of volumes of consumption is a primary factor for this system to work. Government efforts should focus on surveying the population and industries exploiting groundwater sources, on checking that well casings are adequate and that water extracted is from the non-polluted layers of the aquifer, and on installing measuring devices to determine volumes of extraction. Increased information and control are needed for industrial and domestic discharges that may be polluting the water resources. In addition, sewage infrastructure should be expanded to protect the groundwater from pollution, especially to areas with high population density currently lacking such systems. Charges collected from water use could be allocated to surveys and to sanitation projects.

In those municipalities with highest water deficit due to domestic overexploitation (mainly Morón and Gral. Sarmiento), consideration should also be given to expanding the water supply network covering part of the MABA to connect the denser communities and the industries. This network currently draws water from the Rio de la Plata, which has an extremely high flow but lower quality and requires treatment. This would result in lower individual costs divided among a greater population, especially compared to increasing costs of extraction of groundwater due to local depression of the aquifer. In this way, not only can the water resource be protected from overexploitation, but also from pollution caused by deficient well construction.

Recycling of gray water and use of more water use efficient technologies can also be promoted, complementing these measures.

The identification of critical areas can determine which areas to address first for the implementation of these policies. The Reconquista Basin Committee can enforce these kinds of measures in a coordinated effort between communities to manage the water resources in a sustainable manner. For these efforts to succeed, nevertheless, education of both government officials and the general public is essential to provide an understanding of how the dynamics of population and environment relate and therefore why these policies are necessary. This would bring water back as part of the integrity of the Reconquista River basin, make it visible, into something which the communities can identify with.

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Overview of Presentation

- A. Hydrological Concepts
- B. Tucson Geography and Hydrology
- C. Population Change in Tucson
- D. Tucson's Economic Base
- E. Water Consumption Patterns
- F. Water Management
- G. Other Politics
- H. Central Arizona Project
- I. Solutions?



Solutions?

- Find New Resources, Replenish Current Resources
- More Efficient Use of Resources
- Reduce Consumption



Microsoft PowerPoint Presentation

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“ In the wake of burgeoning populations, water development is currently being driven beyond the absolute limits of guaranteeable supplies and past the point of long-term sustainable livelihoods, thus, preparing the ground for future crises throughout the world.”

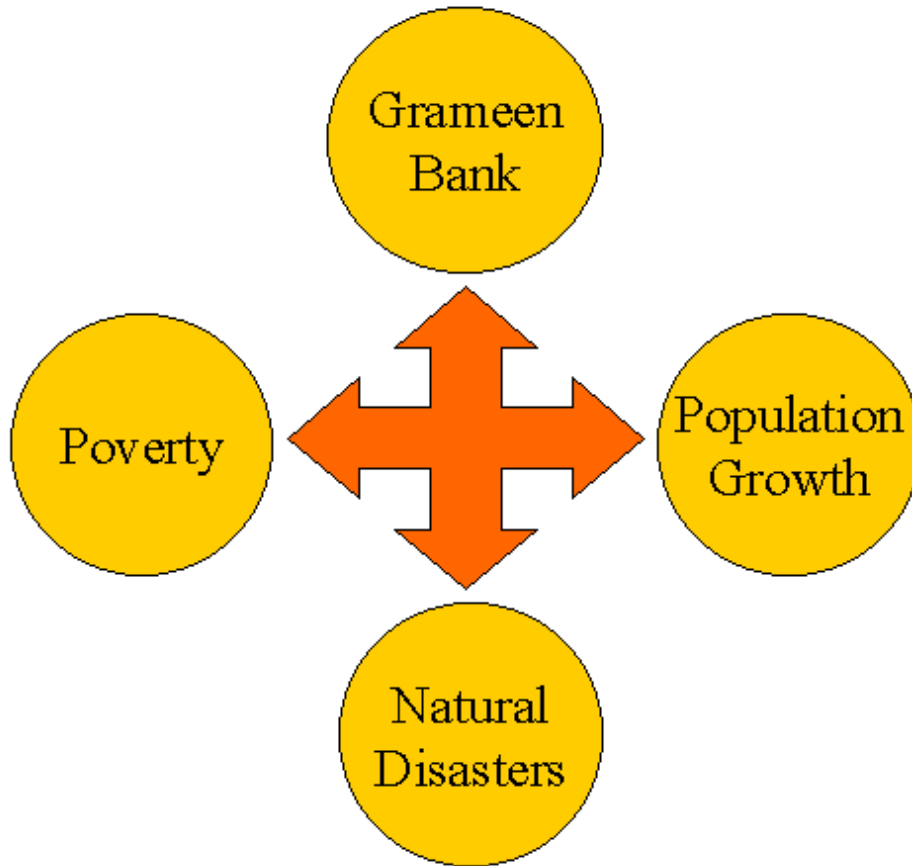
(Water Management in Desert Environments, Bruce Roberts)

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Bangladesh Relationships



Community Economic Development Comparison

■ Grameen Bank

- Developing world
- Entrepreneurship
- No training
- Rural
- Bank goes to members

■ Focus Hope

- Developed world
- Wage labor
- Intensive training
- Urban
- Members go to FH



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The Grameen Bank Surprise

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Two Paths to Alleviating Poverty in Bangladesh

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Outline



- Introduction
- Basic Issues in Turkey's Joining European Communities
- Turkey
- Urbanization Transition
- Urbanization in Turkey
- Factors Shaping Urbanization Pattern in Turkey
- Future of Turkish Urban Pattern
- Urbanization Transition in European Community
- Comparison Between Turkey and EC Members
- Conclusions and Recommendations



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Conclusions and Recommendations

- Urbanization is a very complex transition and a further detailed research is needed for Turkey as well as EC.
- There is no evident relation between joining the EC and urbanization transition.
 - Developed countries may experience different patterns than the developing countries.
- If Turkey joins EC, the larger cities will attract more foreign investment and thus more population.
 - Primacy will increase in Turkey.
 - Urban problems (environmental, housing, infrastructure) will remain or increase in large cities.



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Future of Turkish Cities: New Cities in EC?

12/08/1998

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Regional Disparities

Turkey: regions, topography, and major rivers

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In 1985, Istanbul accommodated 49% of the nation's industries where as the entire Eastern Anatolia accommodated 3%.

National Urban and Regional Strategies

Future of Turkish Urban Pattern

Urbanization Transition in European Community

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Family of transitions in European Community

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Comparison of Turkey and EC Members

[Conclusions and Recommendations](#)

Future of Turkish Cities: New Cities in EC?

. Transition of the project

- Urban environmental problems due to rapid urbanization in Turkey.
- Urbanization and toxicity transitions among European Community members.
- Urbanization in Turkey with comparison to European Community members

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Purpose

To assess the extent of decentralization efforts in Indonesia and its impacts on sustainability of health care services at local levels.



Concluding Observations and Policy implications

- Decentralization of Development Planning
- Fiscal Decentralization
- Equity
- Efficiency
- Cost Recovery



Towards Sustainable Health Care Development in Indonesia

12/01/1998

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Towards Sustainable Health Care Development in Indonesia

by

Taufik Hanafi

NRE 545:

Population-Environment Dynamics: Towards Building A Theory

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Overview

- ☛ Overview of Indonesia
- ☛ Rationale for research
- ☛ Agriculture in Indonesia since 1965
- ☛ Smallholder farming
- ☛ Targeted crops: Coffee, Spices
- ☛ Models for development
 - Coffee in Kenya
- ☛ Recommendations



Policy Options

☛ Market Mechanisms

- invest in infrastructure, institutions, technology

☛ Farming Production

- Increase yields: high-yielding seedlings, extension services, fertilizers; this also lowers marketing costs
- Power to farmer: co-ops, simple technology, education

☛ Trade controls

- price controls, quotas



Returning to the Land

02/05/1999

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Returning to the Land

Prospects for Agricultural Exports and Rural Development in Indonesia

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PRESENTATION CONTENTS:

- MY INTEREST IN ECOTOURISM (IN COSTA RICA)
- WHAT IS ECOTOURISM?
- ECOTOURISM IN THE DEVELOPING WORLD
- THE DEVELOPMENT OF ECOTOURISM IN COSTA RICA
- BENEFITS OF ECOTOURISM
- DANGERS OF ECOTOURISM
- POLICY RECOMMENDATIONS

BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN COSTA RICA





Policy Recommendations

- **GREATER INVESTMENT IN PARK MANAGEMENT AND INFRASTRUCTURE**
- **MORE STRINGENT STANDARDS AND REGULATIONS AROUND THE PRACTICE OF ECOTOURISM (TOUR OPERATORS, GUIDES, VISITATION LEVELS)**
- **GREATER COLLABORATION BETWEEN THE GOVERNMENT AND THE TOURISM INDUSTRY (NATIONAL AND INT'L)**
- **INCREASED INVOLVEMENT OF LOCAL COMMUNITIES IN THE PLANNING AND OPERATION OF ECOTOURISM-RELATED ENTERPRISES**



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Below the Surface:

The Impacts of Ecotourism in

Costa Rica

Presented by

Sujata Narayan

December 1, 1998

NRE 545

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Outline

- Why study Uganda?
- The HIV/AIDS Epidemic
 - Worldwide
 - Uganda
- Transitions and the Emergence of HIV/AIDS
 - Historical/Political
 - Urbanization/Industrialization
 - Theories of HIV Emergence
- Transitions and the Impact of HIV/AIDS
 - Population
 - Family Structure
- Conclusion



Conclusion

- The Epidemiologic Transition of HIV/AIDS has had an incredible effect on Uganda. However, understanding cannot be fully realized without also analyzing the concurrent transitions that have led to the emergence of HIV as well as those that are impacted by it.



UGANDA: A Study in Transitions and the Emergence of HIV/AIDS

02/05/1999

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UGANDA: A Study in Transitions and the Emergence of HIV/AIDS

Mark Schmidt

NRE 545

November 24, 1998

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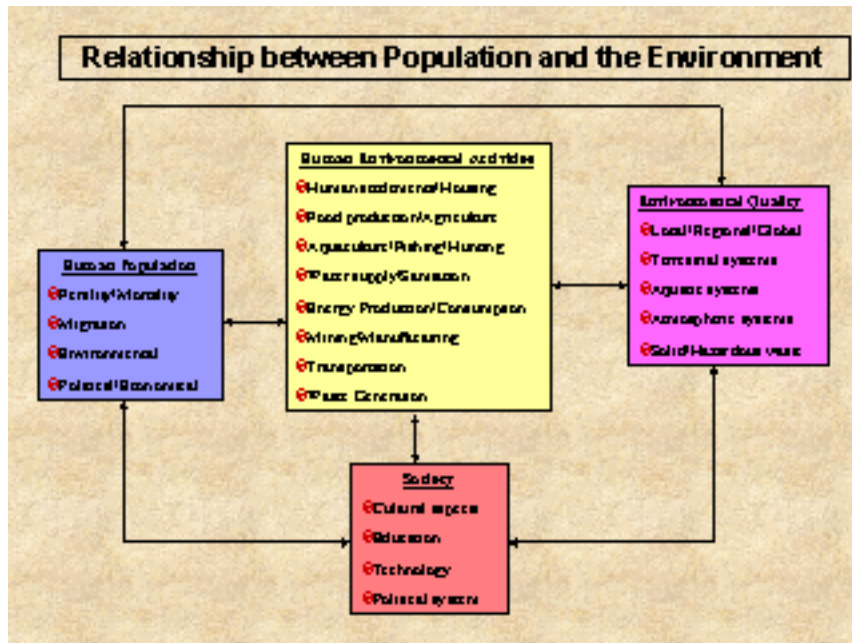
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THREE CATEGORIES
CHILDREN OF THE STREET
CHILDREN OF THE STREET
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THREE CATEGORIES

12/8/98

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Most of the teachers volunteer their time due to limited resources. As you can see, the school is in dire need of various supplies. For many of the children the food provided by the school is the only reliable source of food they receive. Corporal Punishment (Caning) is used extensively in Ghana although it is officially illegal to use in Ghanaian schools. The street child situation has not yet reached the terrible proportions seen in other parts of the world, but if policies and programs are not implemented soon, that may change.

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Children of the Twilight:

STREET KIDS, SOCIETY AND THE SEARCH FOR SUSTAINABLE SOLUTIONS

SNRE/EIH 545: Chandra Sivakumar

Global Analysis of Street Children

- Categories
- Causal Factors
- Conditions

Sub-National Description

- Overview of School
- Statistical Analysis

Interventions

- History
- Potential Applications

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Protected Areas in Niger

- 7.7% of land area is protected
- This is equal to 96,967.4 sq km
- 6 protected areas
- Two largest in the Department of Agadez
 - Air and Tenere National Nature Reserve
 - Addax Strict Nature Reserve



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The Tuareg People and the Air Tenere National Nature Reserve

01/17/1999

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The Tuareg People and the Air Tenere National Nature Reserve

Department of Agadez

Republic of Niger

West Africa

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Author: Sandy Arlinghaus

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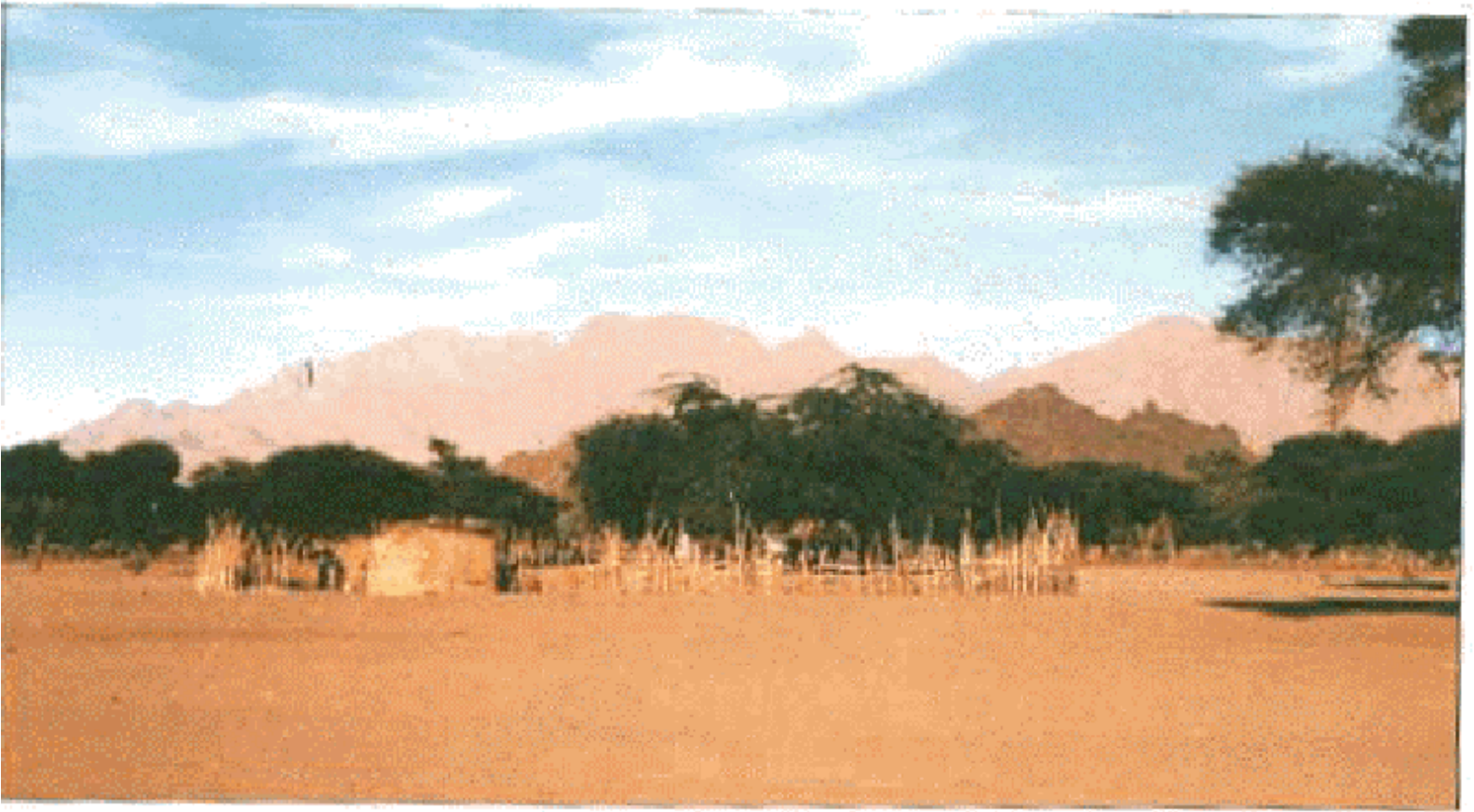
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The Air Tenere National Nature Reserve and Strict Addax Sanctuary

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Uganda is a country stuck in transition. The rate of change across sectors of the country is unbalanced and unequal.

Presentation Outline

- Personal Experience
- Current status: *Economic, Epidemiologic, Demographic, and Educational*
- Possible Explanations: *Internal unrest, Post-colonialism and Global Inequality*
- Policy Suggestions: *Agriculture, Chaos Theory, and Gender Reform*



Suggestions?



Thank you!



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An Analysis of Change in Uganda

12/08/1998

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An Analysis of Change in Uganda

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Lewis Garvin

University of Michigan
SNRE 545 - Population Environment Dynamics

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Two Birds With One Loan: The Grameen Bank's Impact on Population Growth in Bangladesh

[Abstract/Introduction](#)

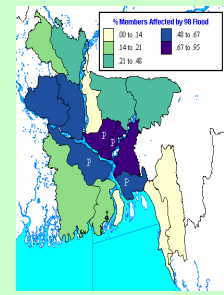
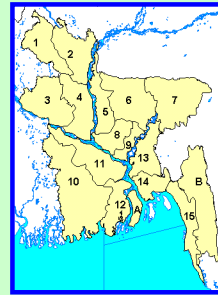
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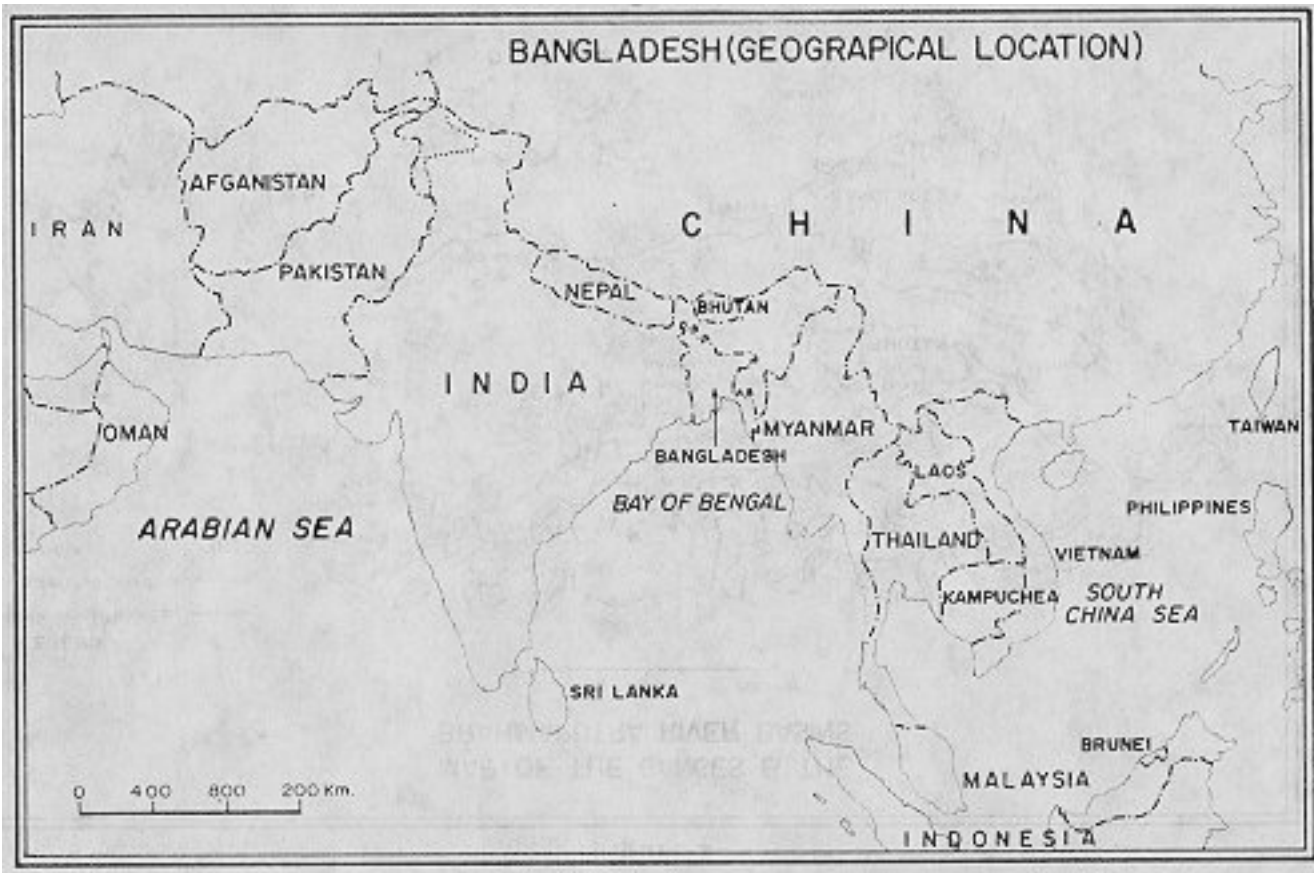
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This research project was completed as part of a class (SNRE 545) taught by Sandra Arlinghaus and William Drake. This project will be combined with others from the class into a single monograph which will be available at <http://www-personal.umich.edu/~wddrake/> in 1999.



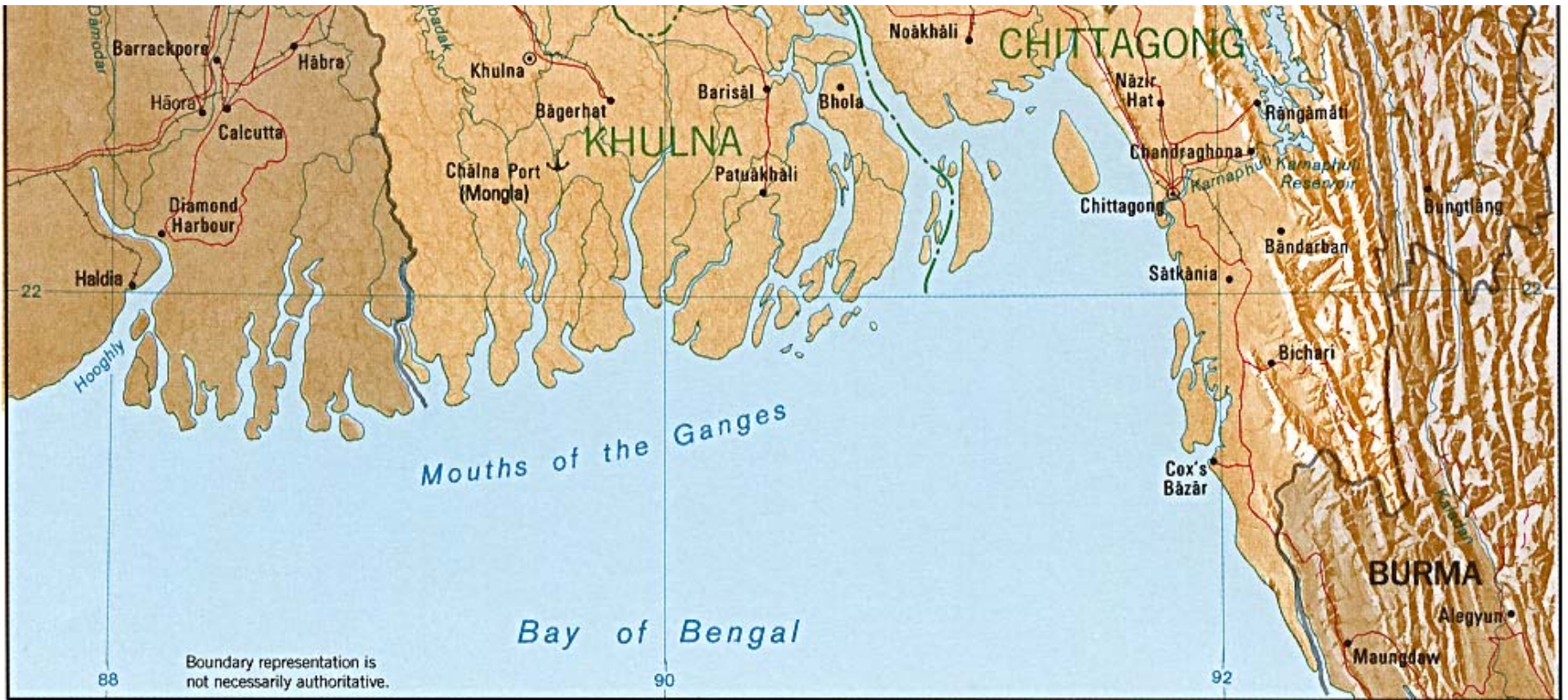
Historical Timeline

- Recorded history of Bangladesh is traceable to the 4th century B.C. with clear evidence of flourishing civilization consisting of cities, palaces, temples, forts, seats of learning, and monasteries.
- 1200 A.D: Bangladesh sees the advent of the Muslims and enjoys periods of prosperity under Muslim rule.
- 17th Century: Bangladesh enjoys a time of economic well being.
- 1757: The British take control and begin colonial rule.
- 1947: The British leave the Indian subcontinent. Bangladesh becomes "East Bengal/East Pakistan" as part of Pakistan.
- 1971: Bangladesh emerges as a sovereign state through an armed struggle under the leadership of the "Father of the Nation," Bangabandhu Sheikh Mujibur Rahman, who becomes the first prime minister.
- 1975: Sheikh Mujibur Rahman is assassinated along with his wife and three sons. General Zia-ur Rahman, who had led the Bangladeshi freedom fighters in the war against Pakistan, takes over as chief martial law administrator, and later assumes the presidency.
- 1979: Zia's party, the Bangladesh National Party (BNP), wins two thirds of the vote in a national election.
- 1981: Zia is assassinated in an attempted coup. New elections are held and the BNP again wins two thirds of the vote.
- 1982: General Hossain Mohammed Ershad seizes power and places the country under martial law.
- 1990: Ershad's regime never delivers on his promises and is known for its corruption. He is toppled and put in jail by a popular uprising led by students around the country. Shahabuddin Ahmad was named Acting President until elections could be held.
- 1991: General Zia's widow, Khaled Zia, is elected as prime minister with the BNP party.

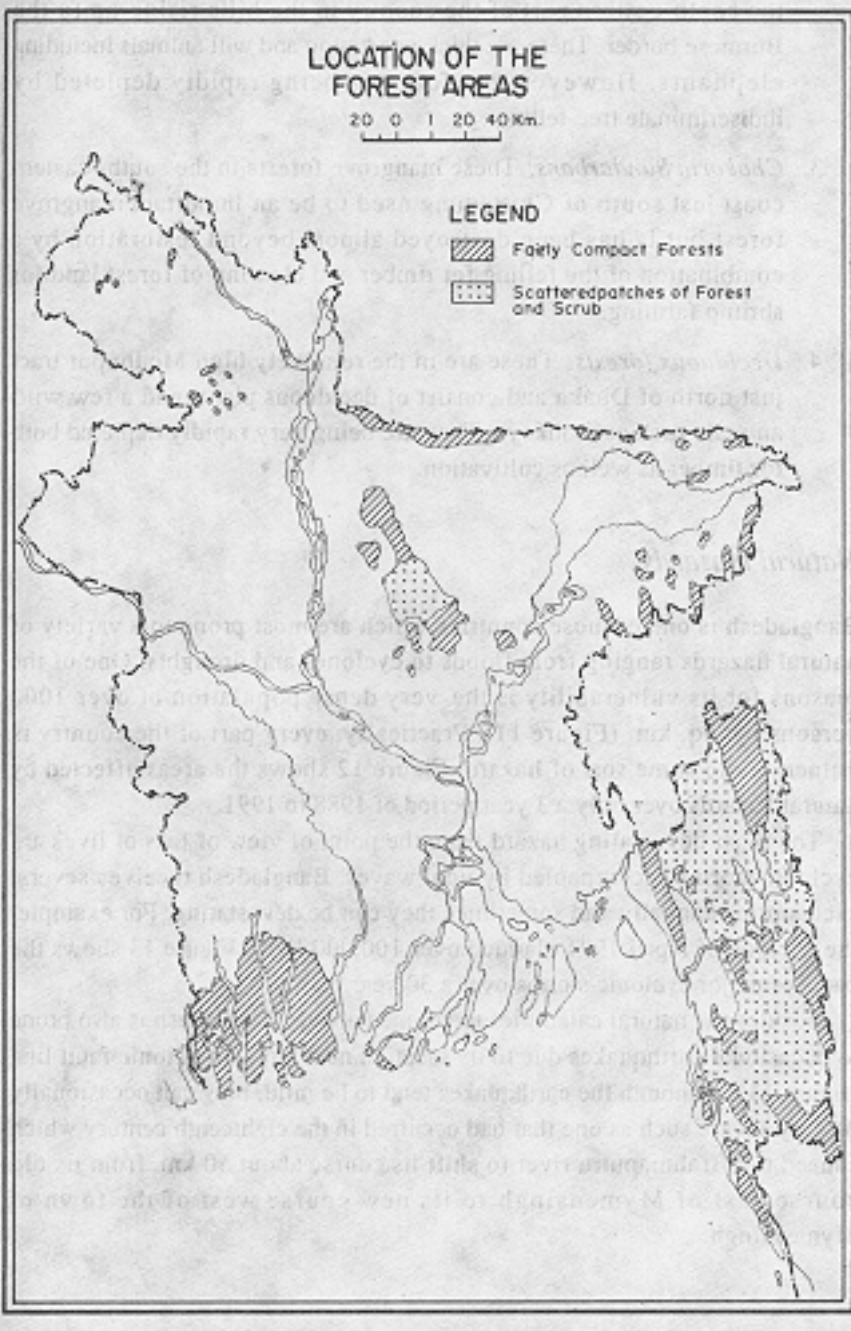
Sheikh Hasina was elected as Prime Minister in 1996 and is the daughter of the Father of the Nation, Rahman. She was the only member of the Rahman family to survive the 1975 assassination because she was in West Germany at the time. She led the opposition movement against Ershad throughout the 1980s. In the early 1990s she demanded the resignation of the BNP government and proposed the establishment of a non-partisan, caretaker government to conduct the national elections. Prime Minister Zia was forced to resign in 1996.

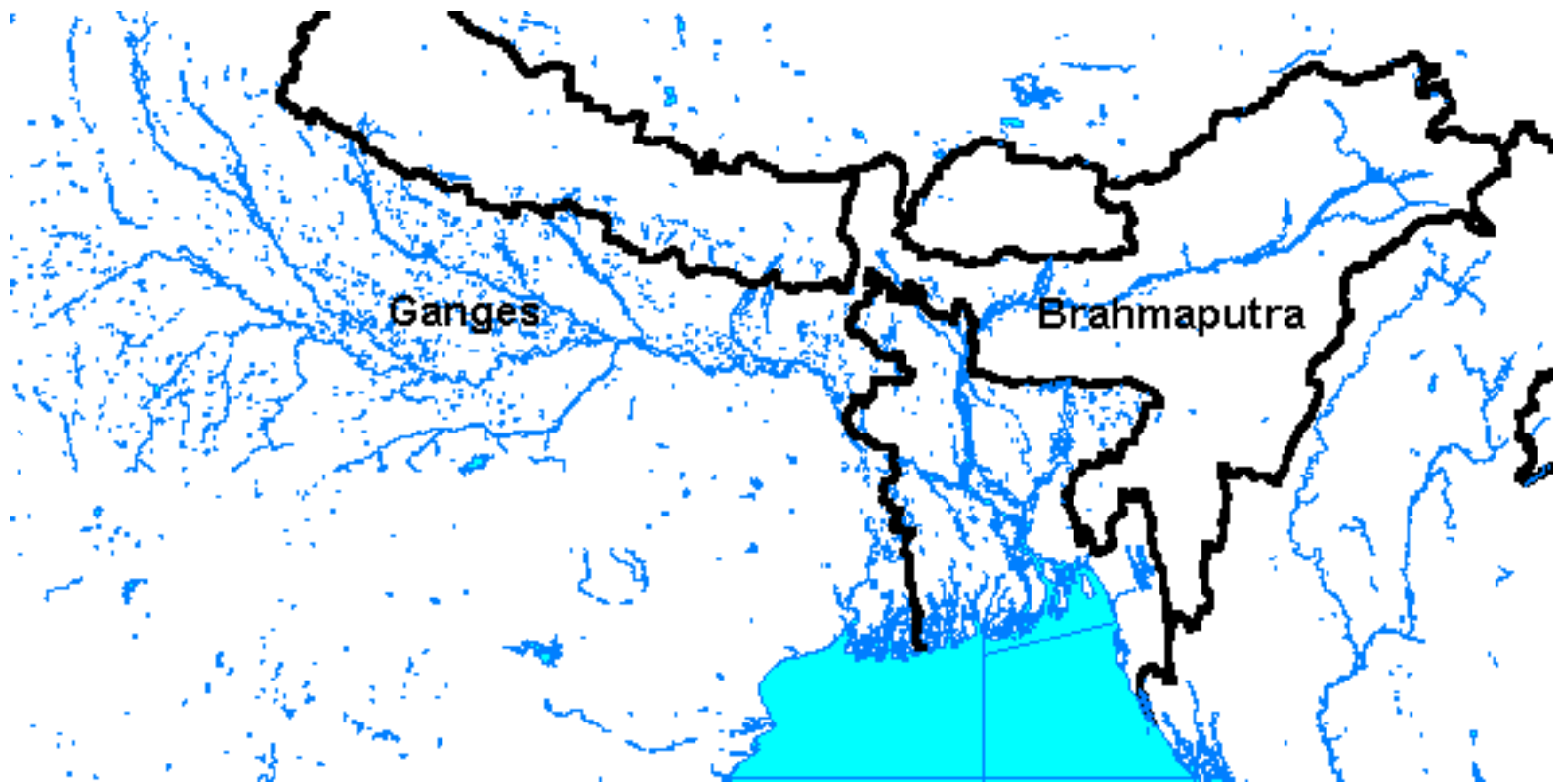
Shahabuddin Ahmed ran unopposed for the Presidency in 1996 and is President today. His past career roles include Chief Justice and Chairman of the Bangladesh Red Cross Society. On his initiative, the Family Planning and Population Control program was included in the main function of the Bangladesh Red Cross.





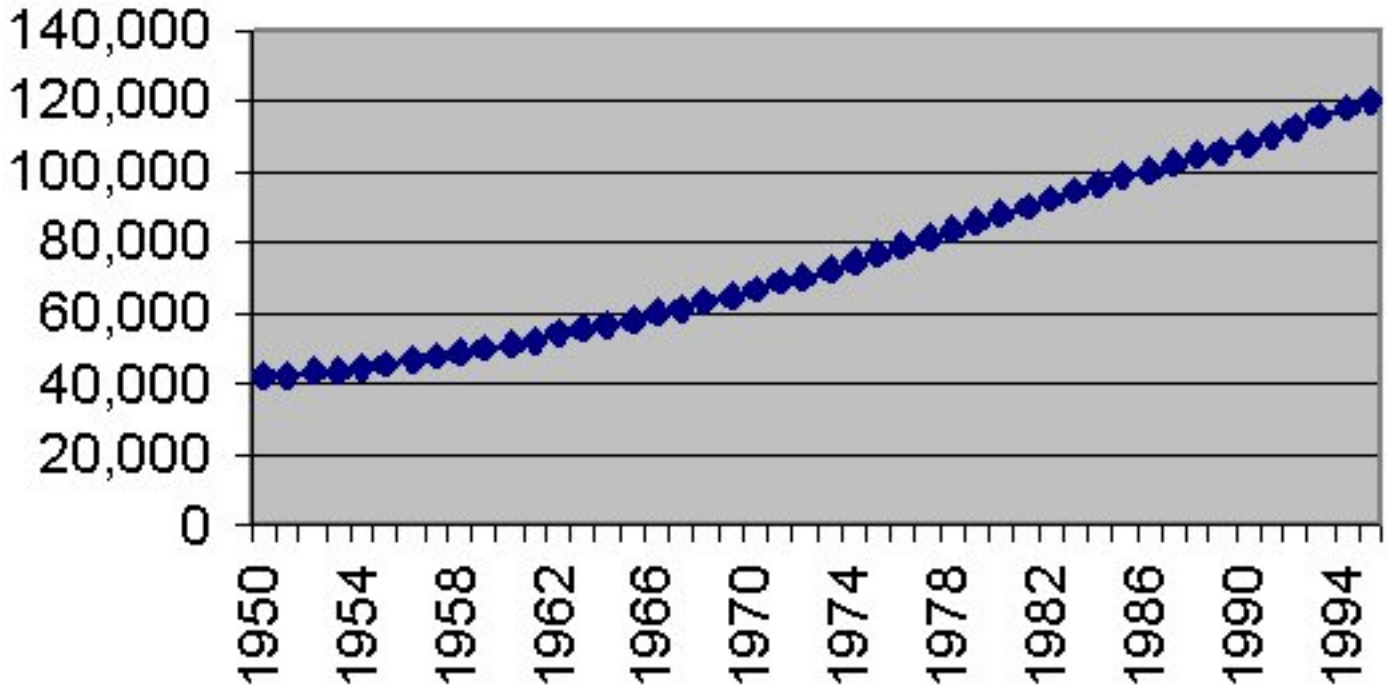
Base 802491 (544488) 5-96



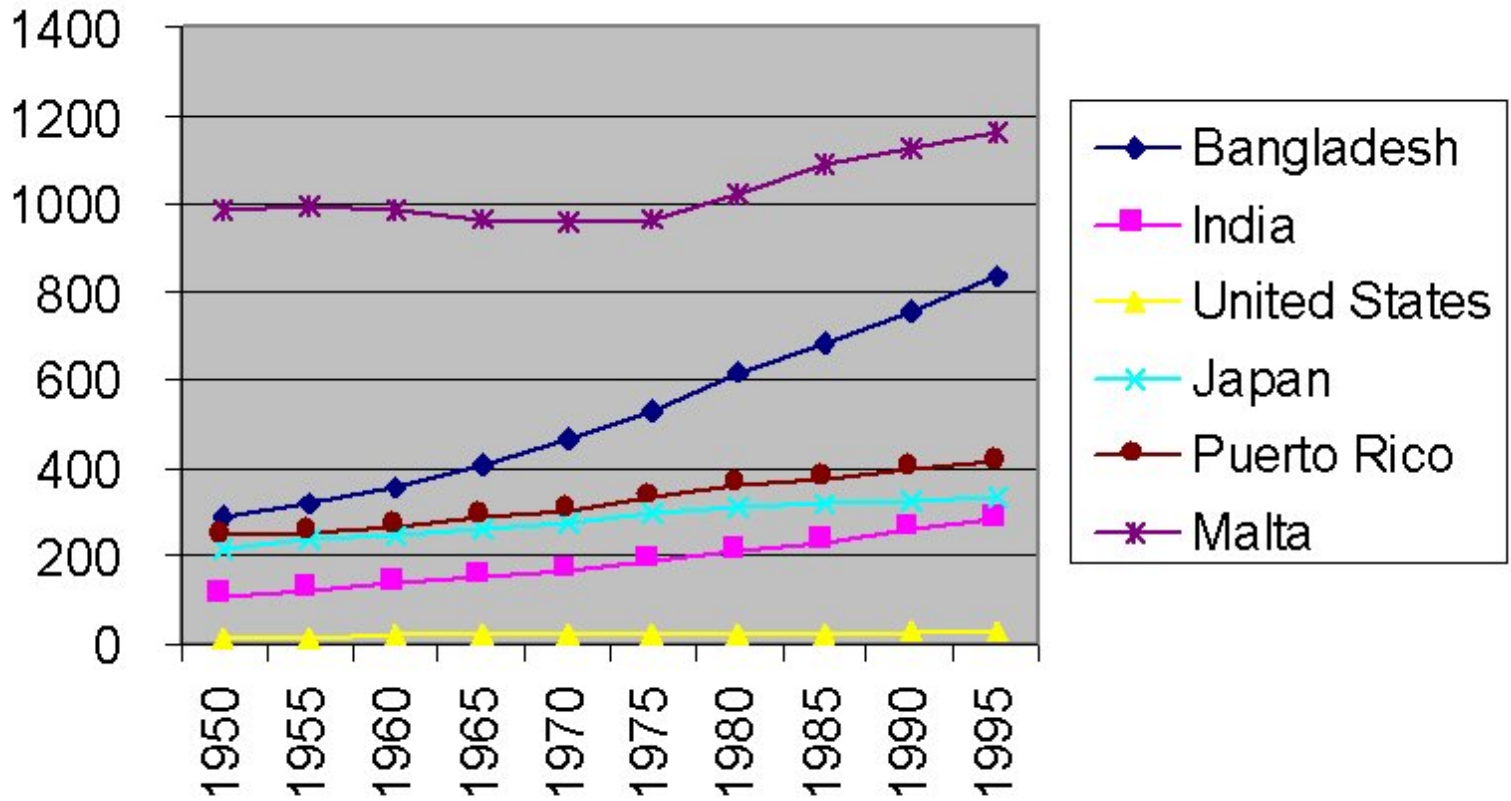


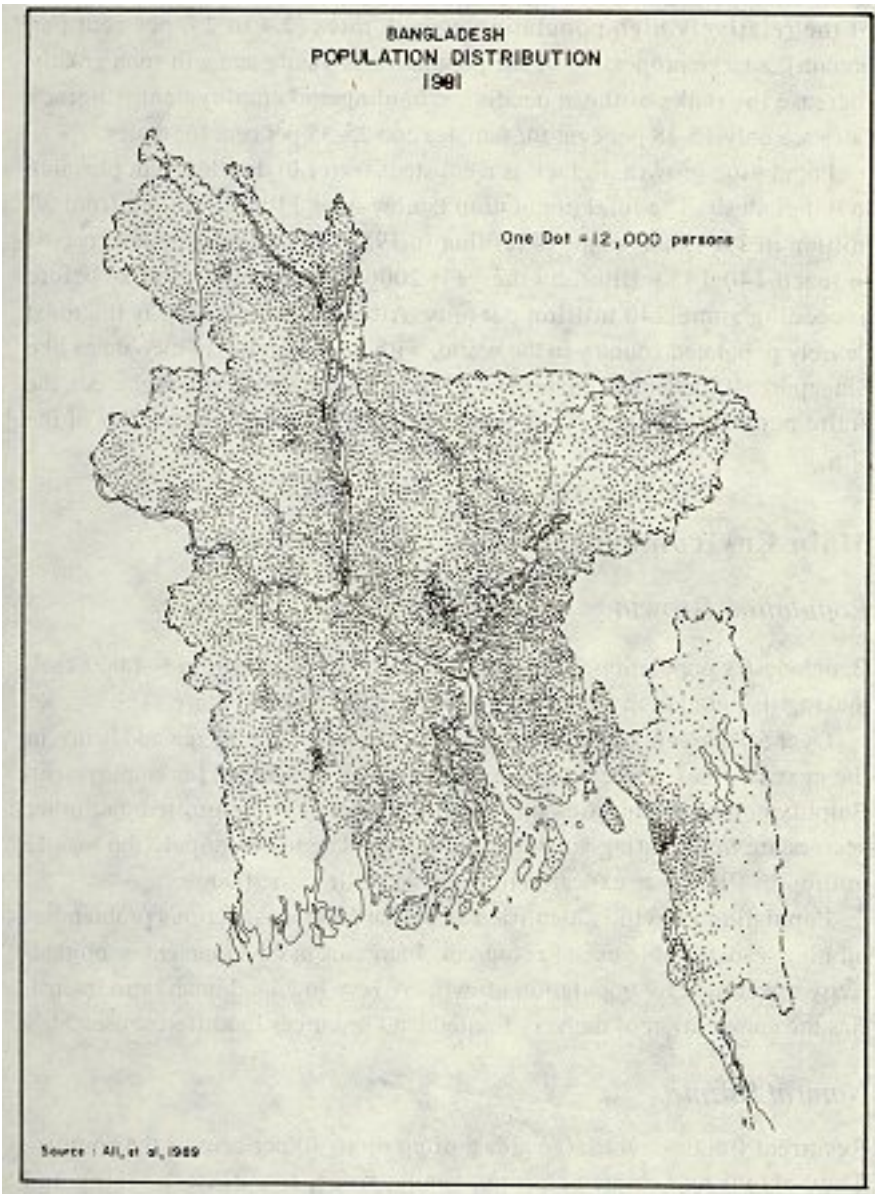
Population 1950-1995

(in 000s)



Population Density (People/sq. km) 1950-1995





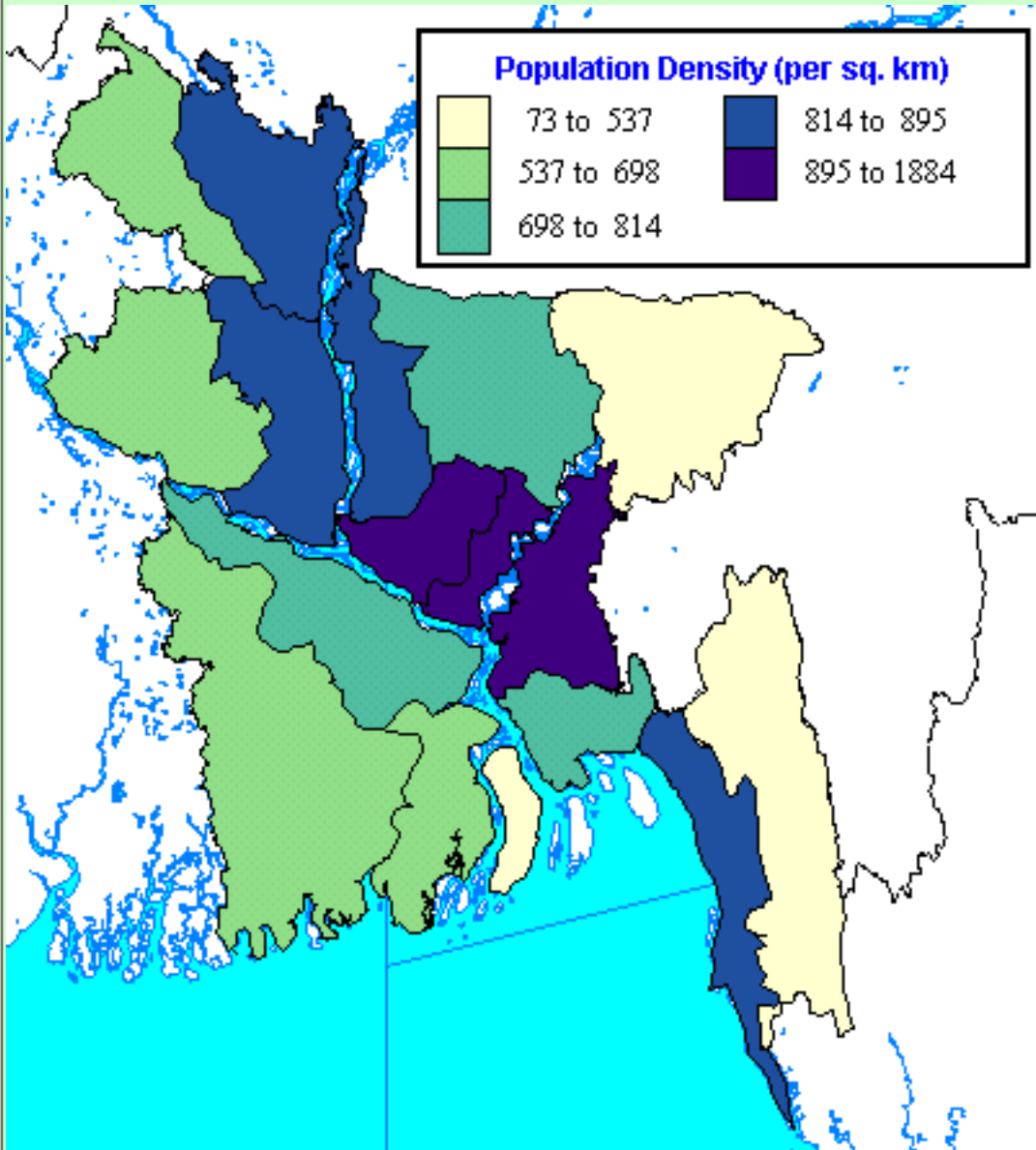
Bangladesh Zone Maps

1998 Grameen Bank

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- [Grameen Members](#)
- [Grameen Centers per Village](#)
(Mixed 1991/1998 data)
- [% Households w/ Grameen Member](#)
(Mixed 1991/1998 data)
- [% Grameen Members Affected by 1998 Flood](#)

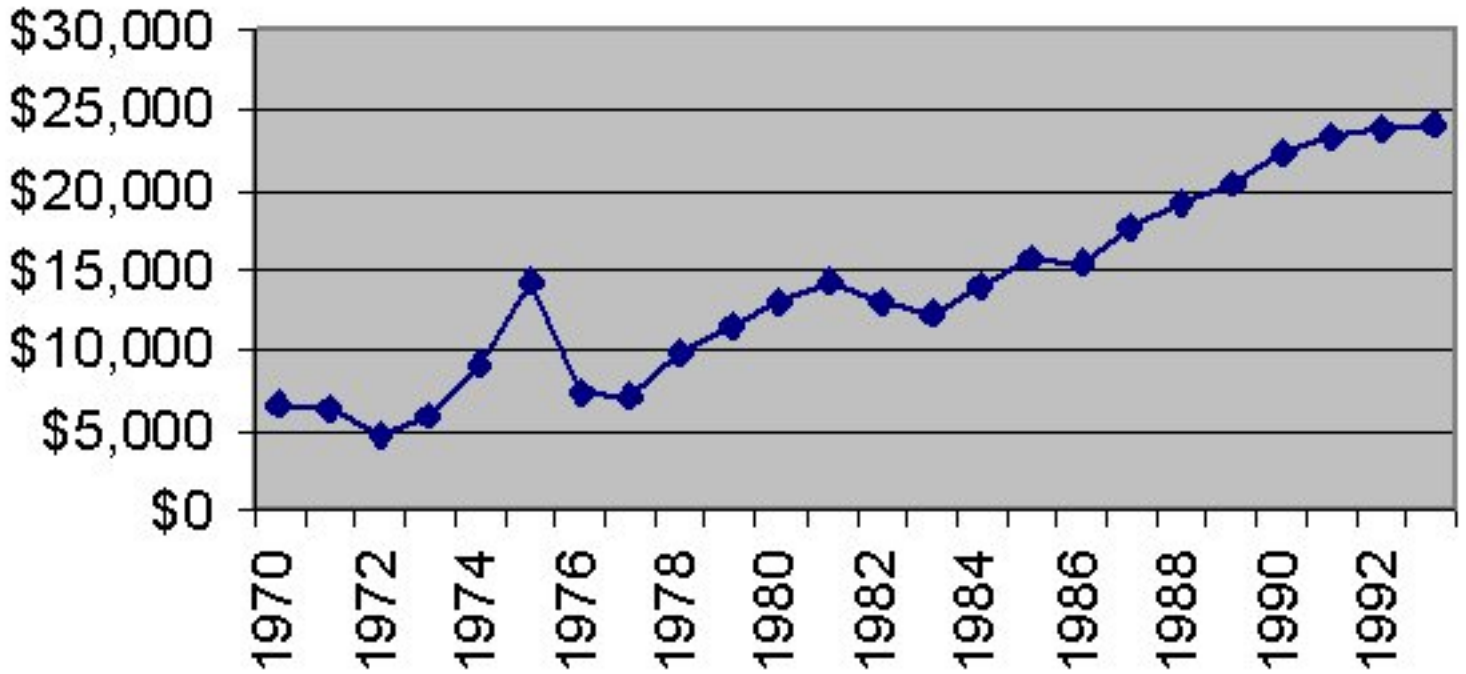
1991 Census

- [% Less Than Four Years Old](#)
- [Rural Child-Woman Ratio](#)
- [Urban Child-Woman Ratio](#)
- [Population Density](#)
- [% Urban](#)
- [% Females Literate](#)
- [% Females Economically Active](#)
- [% Muslim](#)

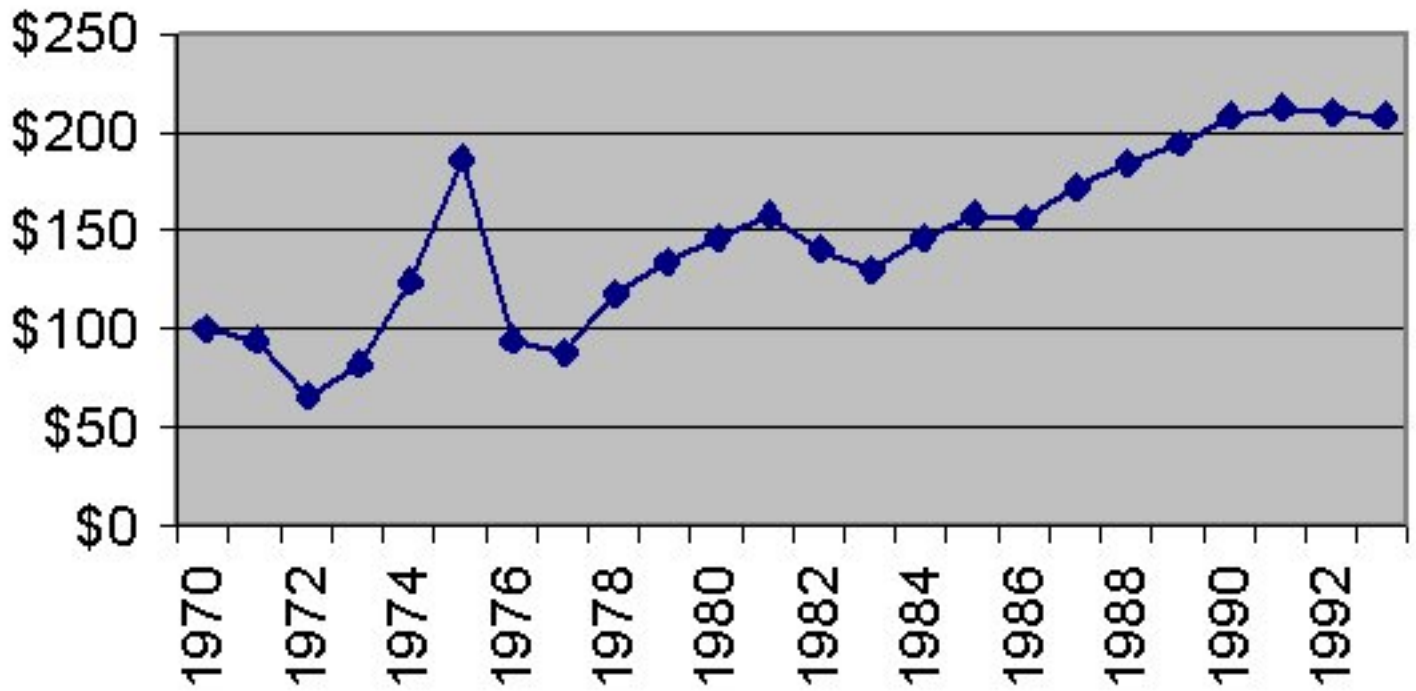


[Return](#)

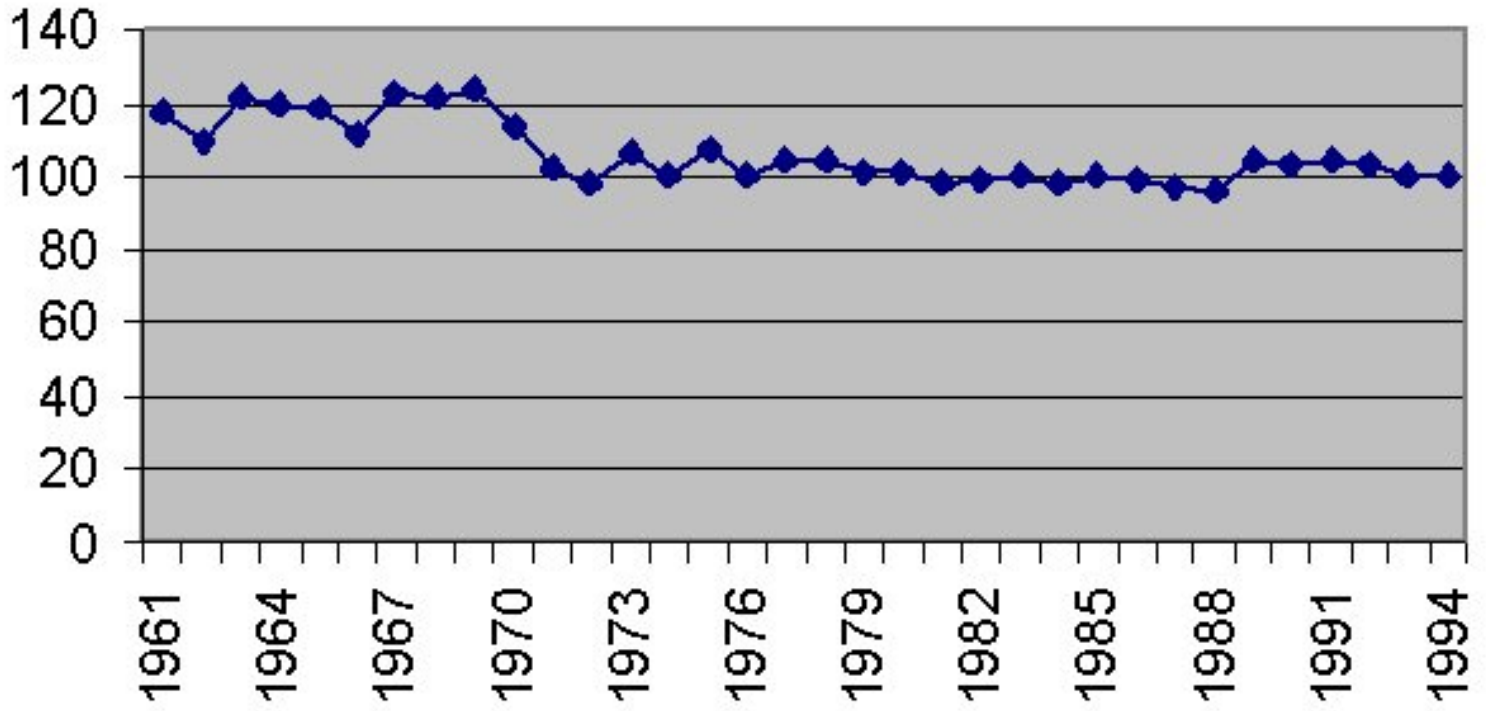
Gross Domestic Product (US\$ Millions)



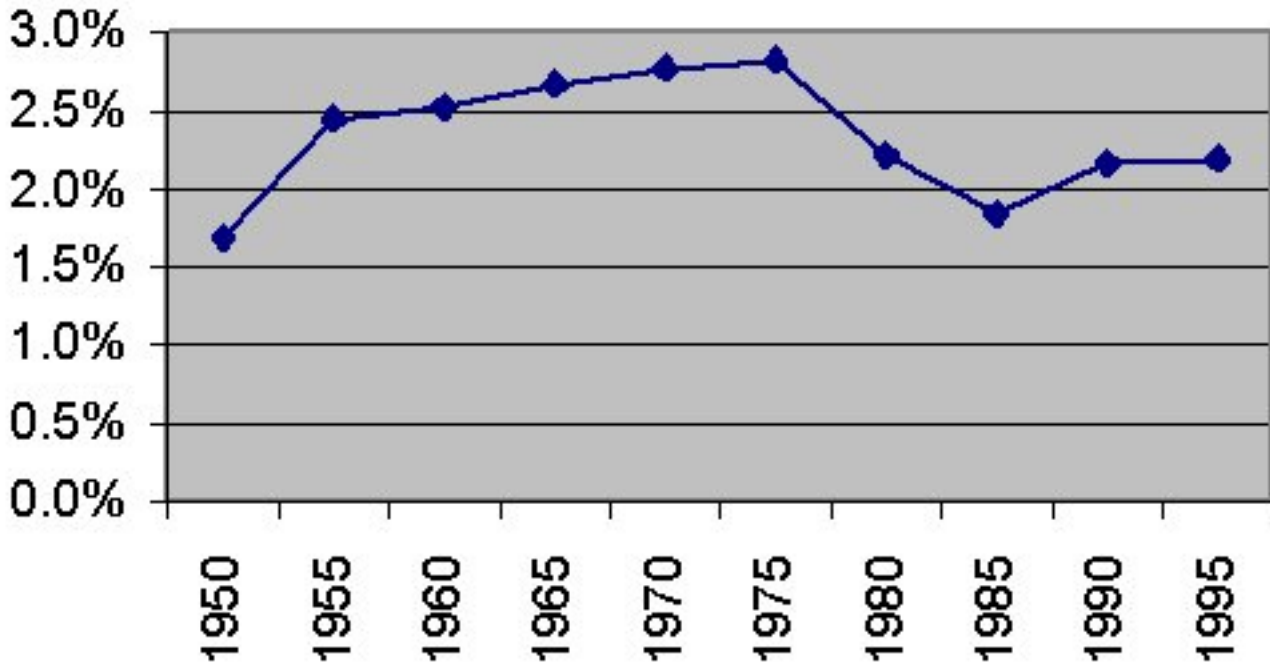
GDP Per Capita (US\$)



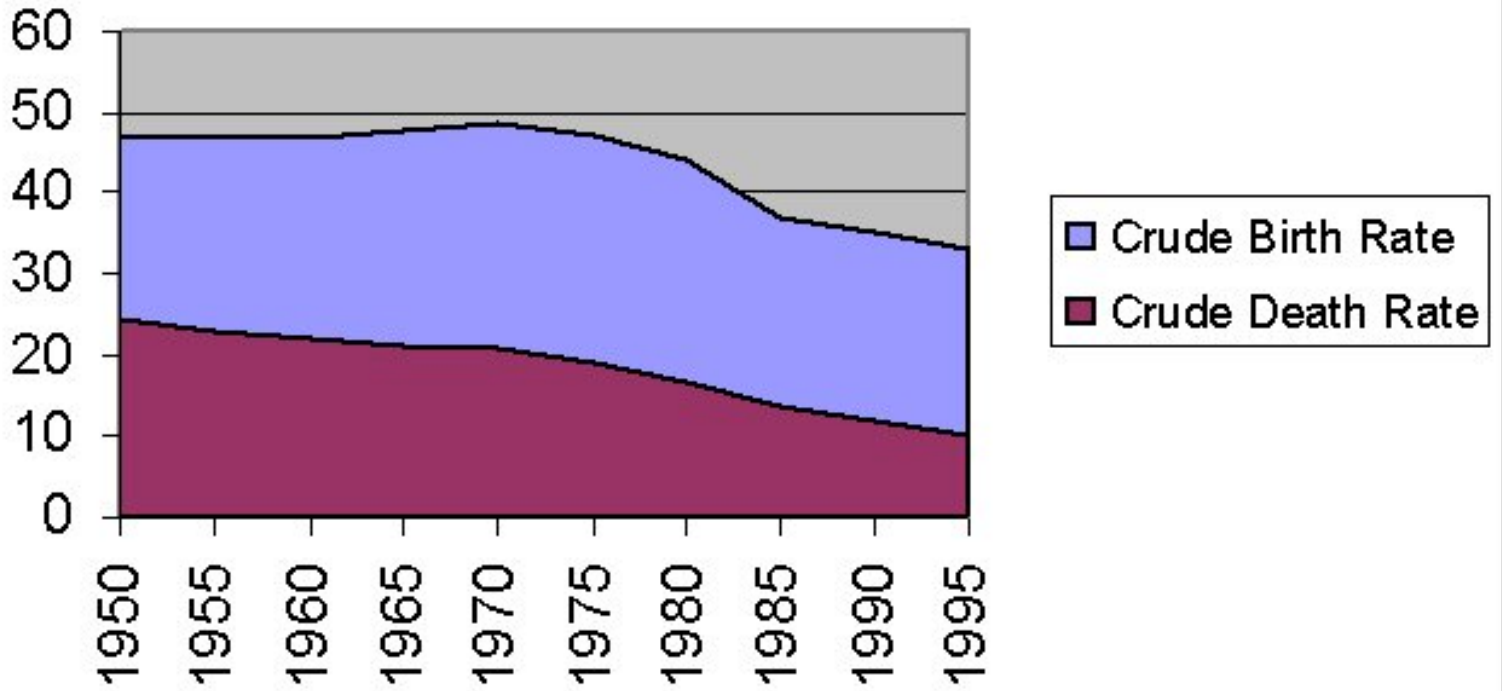
Food: Per Capita Production Index 1961-1994



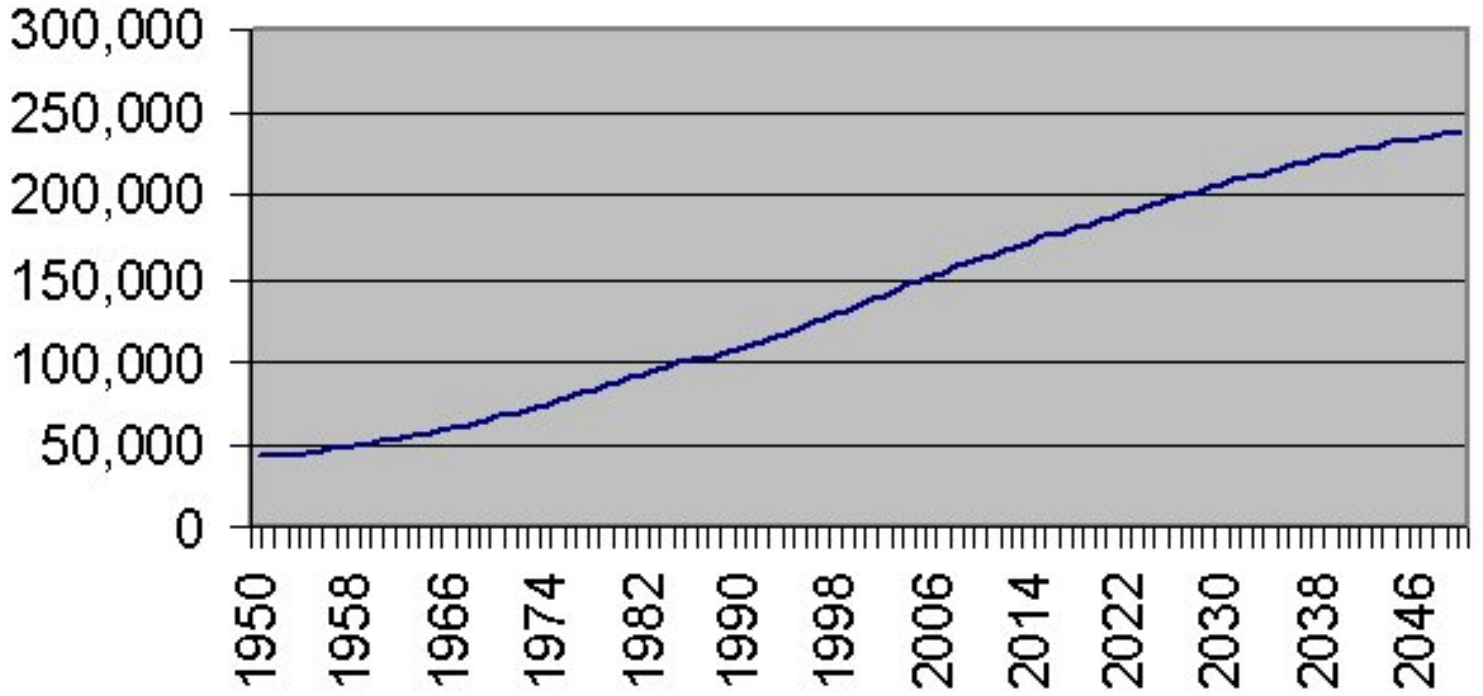
Mean Population Growth Rate % 1950-1995



Annual Crude Birth/Death Rates (per 1000) 1950-1995



Population (in 000s) 1950-2050



Annual Crude Birth/Death Rates (per 1000) 1950-2050

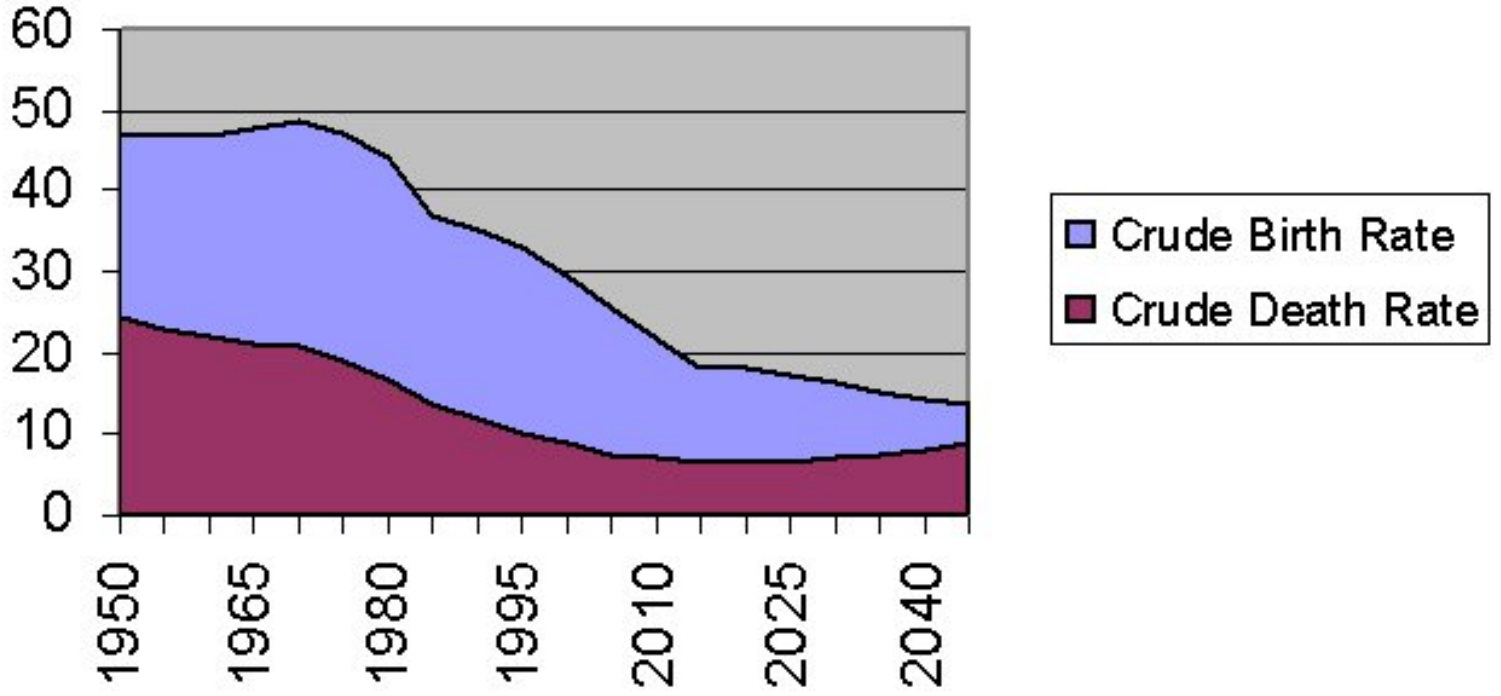


Figure I-1. Demographic Future of Bangladesh: The Demographic Transition Model.

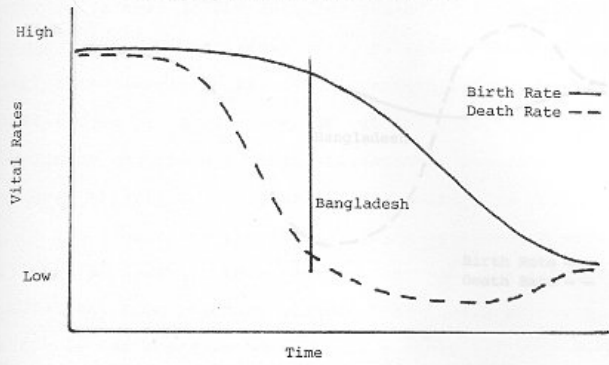


Figure I-2. Demographic Future of Bangladesh: The Doomsday Model.

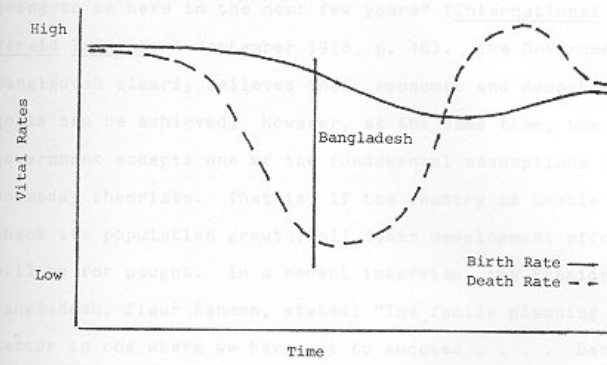
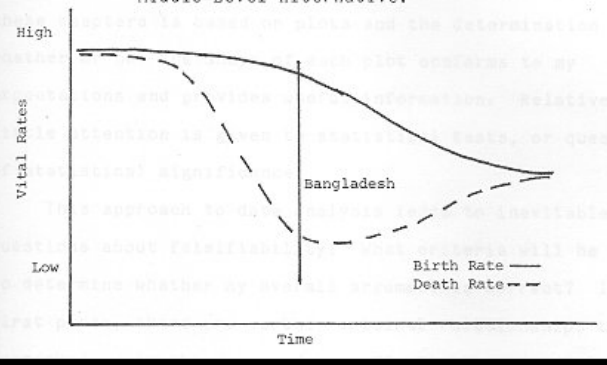
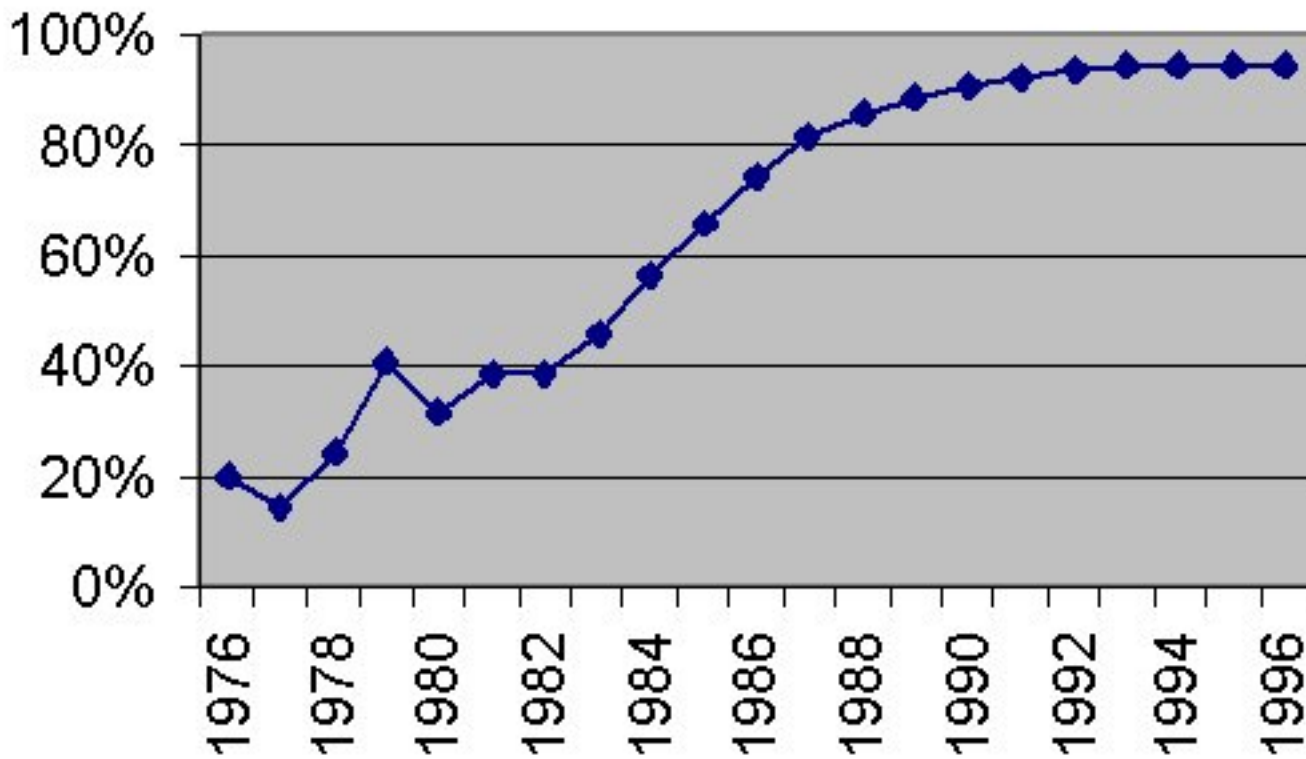


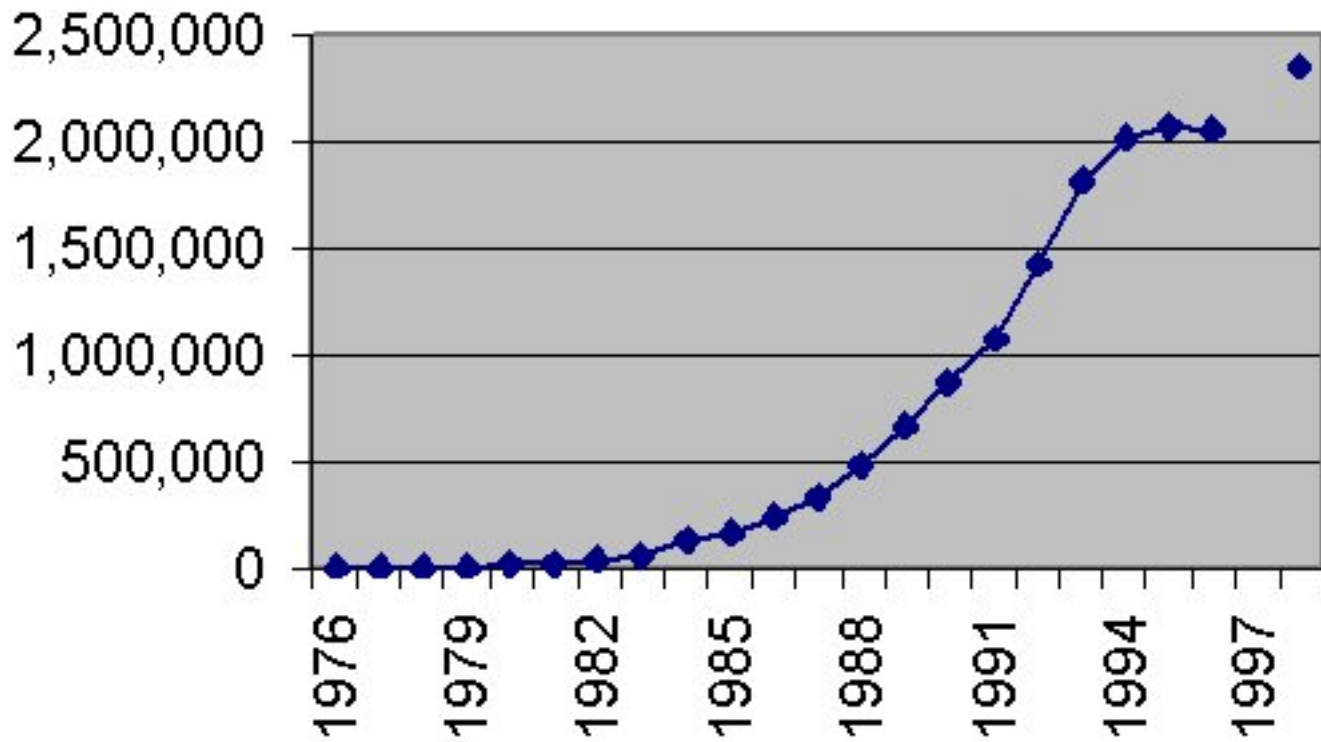
Figure I-4. Demographic Future of Bangladesh: The Middle-Level Alternative.



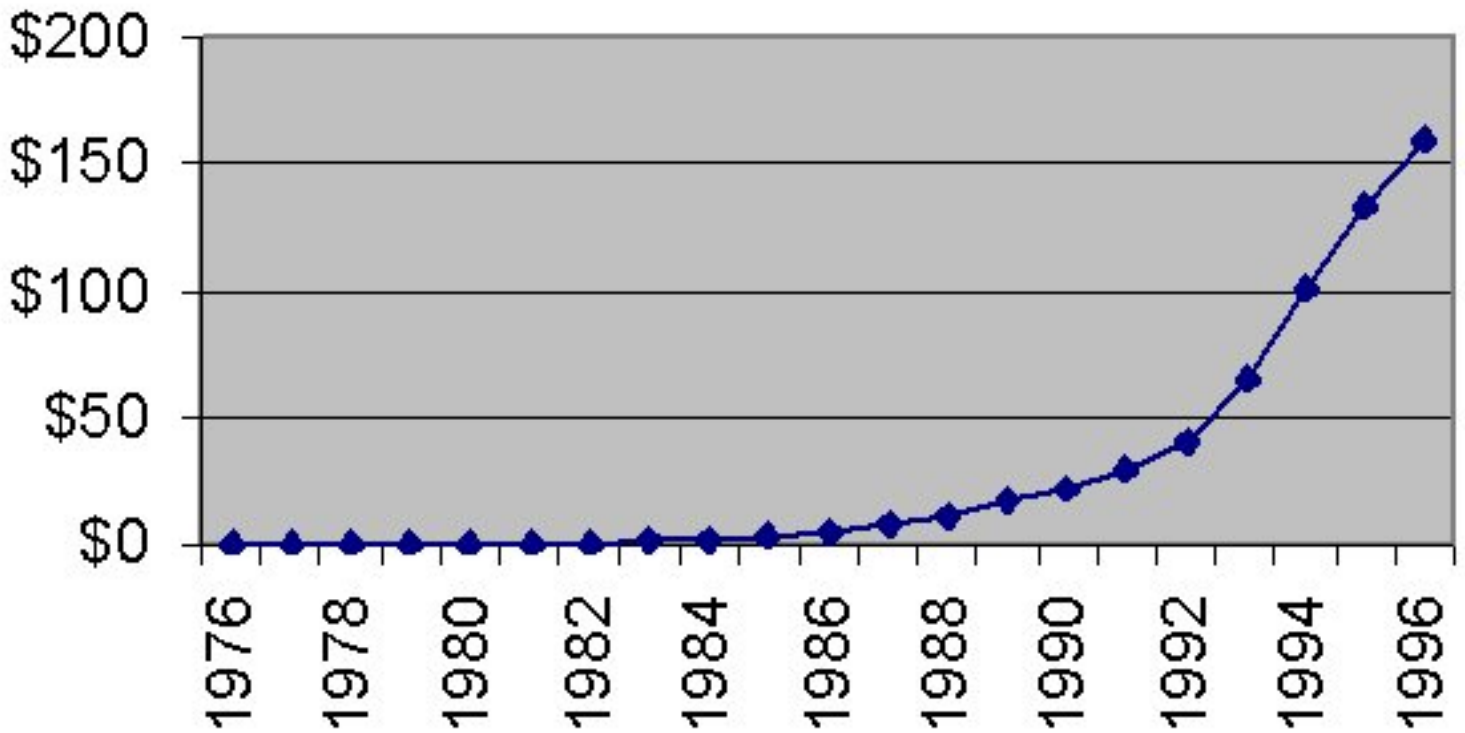
Percent Female Members 1976-1996



Grameen Bank Members 1976-1998

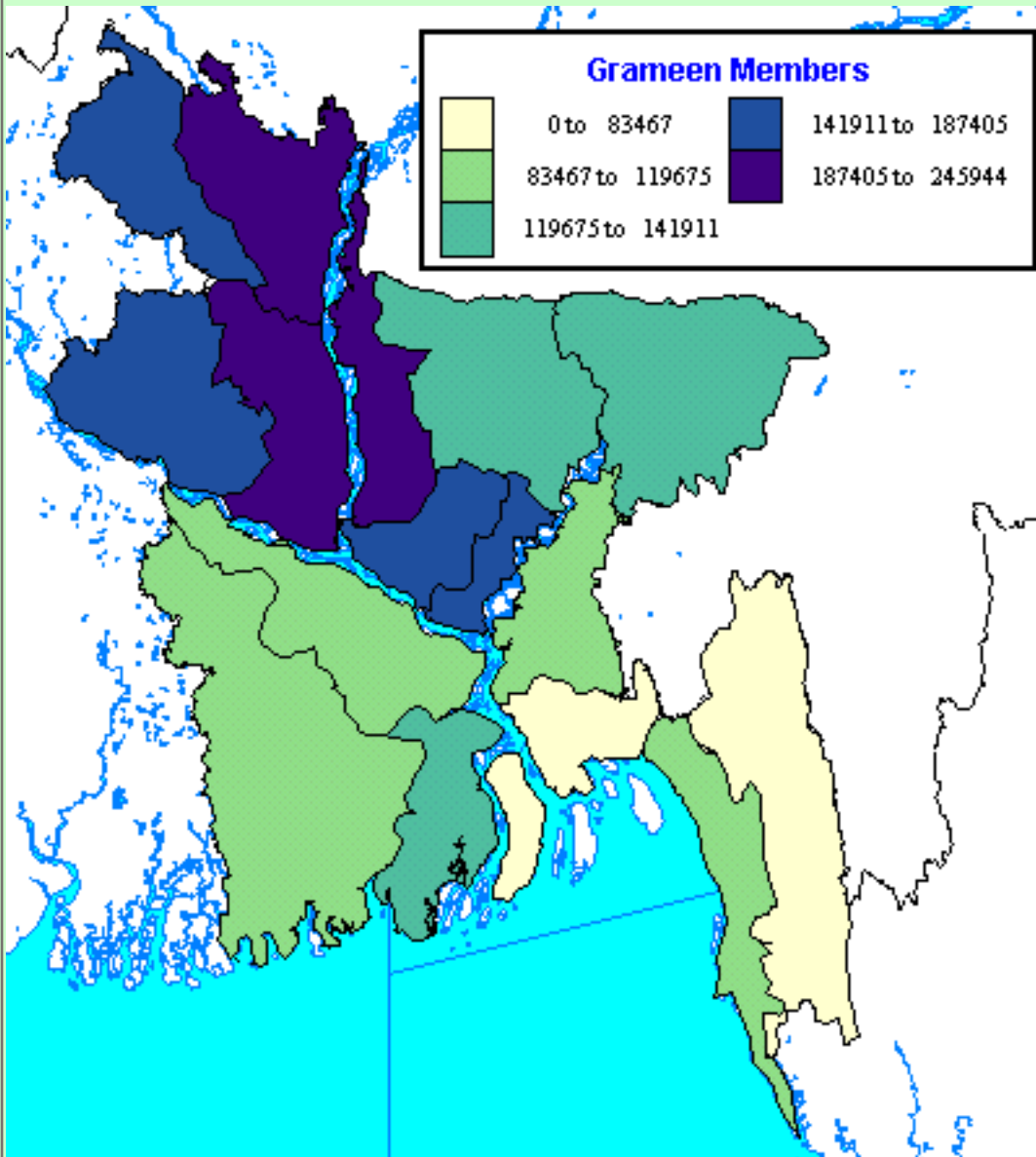


General Loan Disbursements (US\$ Millions) 1976-1996



Bangladesh Zone Maps

1998 Grameen Bank



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(Mixed 1991/1998 data)
- [% Households w/ Grameen Member](#)
(Mixed 1991/1998 data)
- [% Grameen Members Affected by 1998 Flood](#)

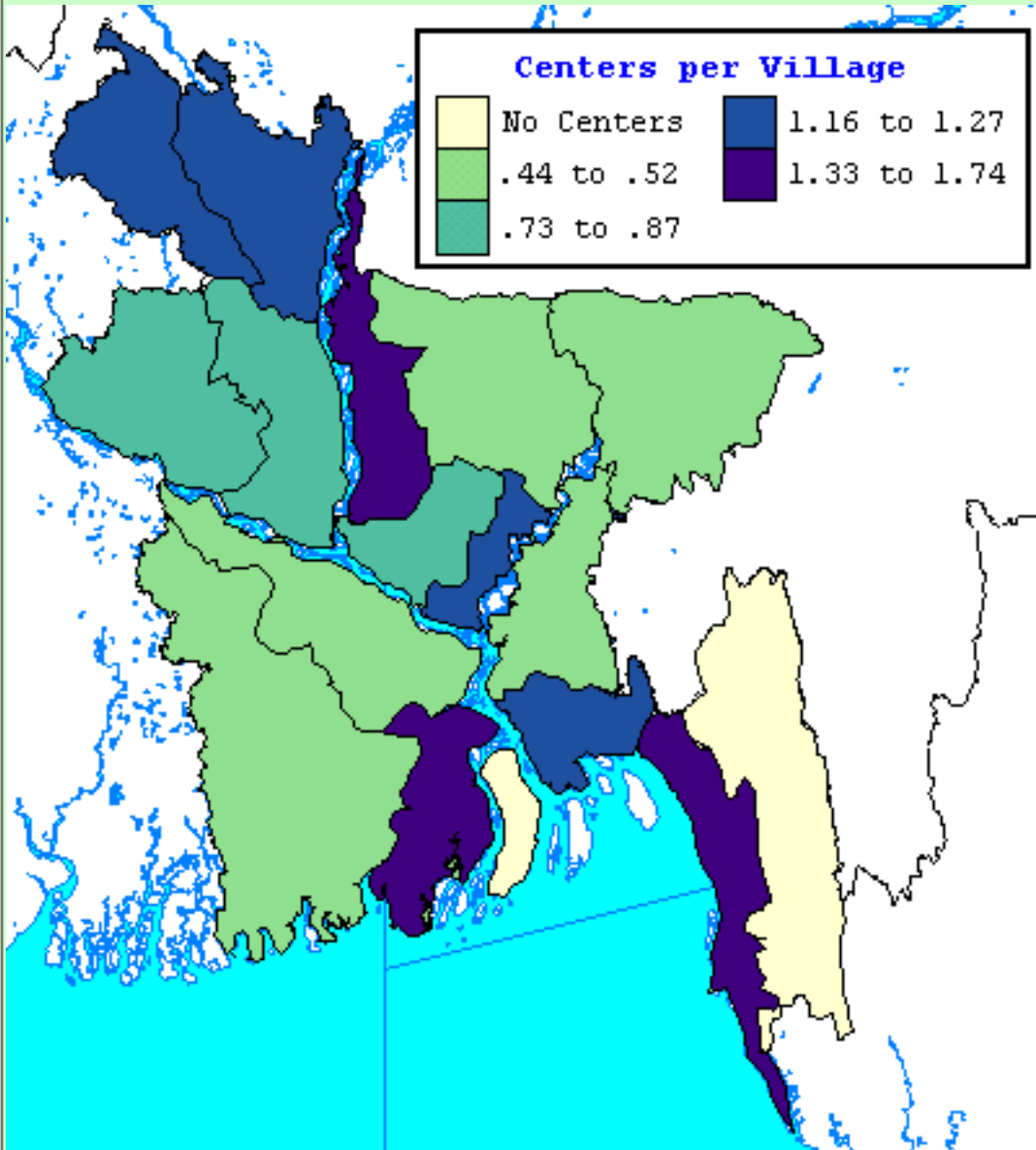
1991 Census

- [% Less Than Four Years Old](#)
- [Rural Child-Woman Ratio](#)
- [Urban Child-Woman Ratio](#)
- [Population Density](#)
- [% Urban](#)
- [% Females Literate](#)
- [% Females Economically Active](#)
- [% Muslim](#)

[Return](#)

Bangladesh Zone Maps

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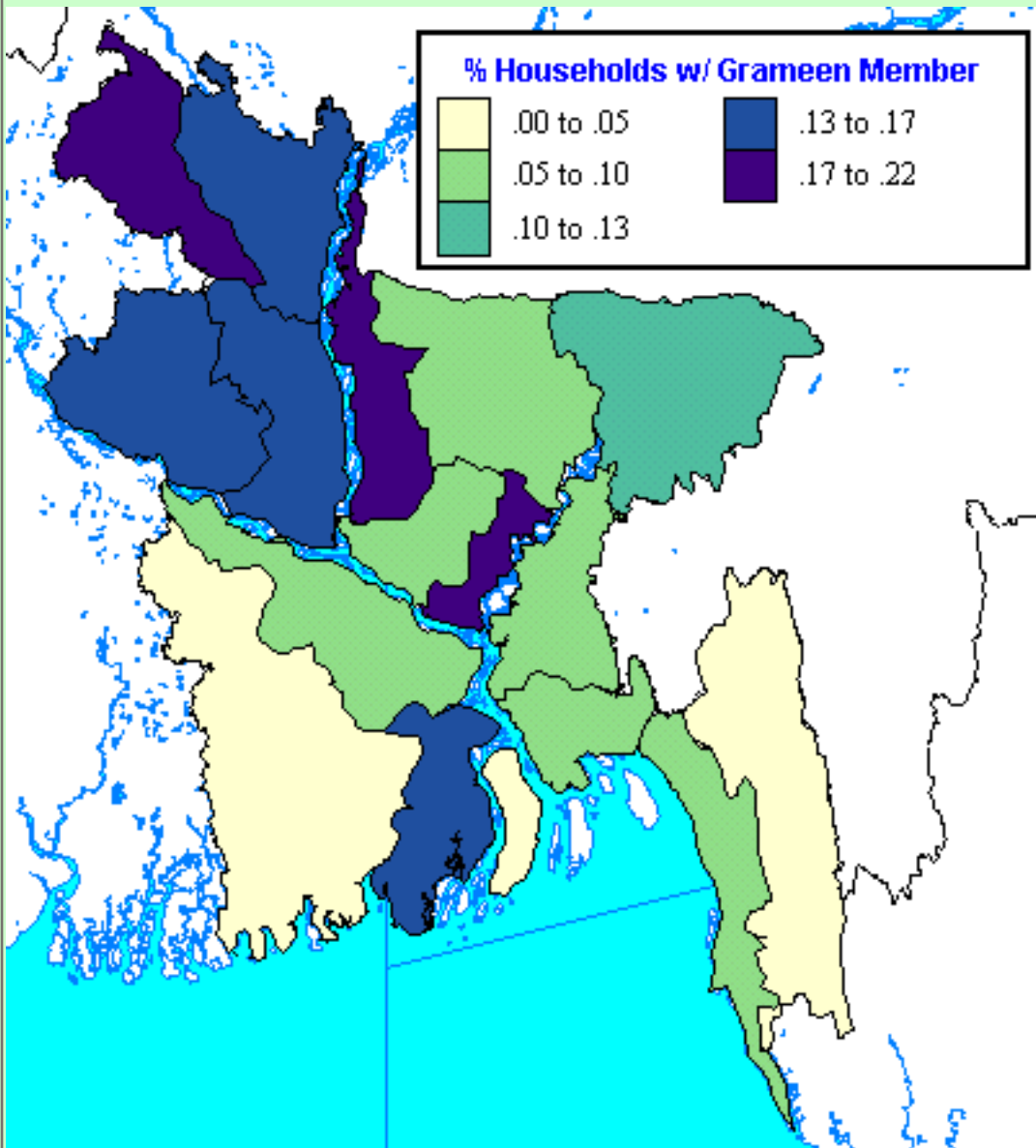
Bangladesh Zone Maps

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1991 Census

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- [Urban Child-Woman Ratio](#)
- [Population Density](#)
- [% Urban](#)
- [% Females Literate](#)
- [% Females Economically Active](#)
- [% Muslim](#)



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Analysis of Member Penetration

Data

World Resources Database

- 110,341,000 total population in 1991.
- 128,707,000 total population in 1998.
- 84% rural in 1991.
- 78% rural in 1998.

1991 Census

- 19,398,000 households
- 85,359 villages

Grameen Websites

- 1,066,426 members in 1991
- 2,349,830 members in 1998
- 66,293 centers in 1998

% of Population

$2,349,930 \text{ members} / 128,707,000 \text{ population} = 1.8\% \text{ in } 1998$

This calculation seems to indicate a very low penetration rate. This ratio is not a good measure of penetration, however, because at most one person from each household can become a member. Grameen's strategy allows the number of members to be no larger than the total number of households.

% of Households

$1,066,426 \text{ members} / 19,398,000 \text{ households} = 5\% \text{ in } 1991$

This calculation shows a higher degree of penetration but is still underreporting. Grameen targets rural populations, targets the poorest 50% of the population, and is ineffective at reaching the poorest 10%.

Combining these figures, the number of households that fall within Grameen's target is:
 $19,398,000 * .84 * (.50 - .10) = 6,518,000 \text{ households}$

$1,066,426 \text{ members} / 6,518,000 = 16\%$ in 1991

This calculation is still underreporting Grameen's penetration because the target is yet smaller than 6,518,000 households:

- The poorest 50% may include landholders who are therefore not Grameen targets.
- Not all of the rural population are in villages, which is where Grameen focuses its activities.
- Increasing numbers of the target population have already been members and left the Grameen Bank (typical membership is four years).
- Not all of the target population will be accepted by a group due to personal mistrust (lack of individual social capital) or are willing to join for personal reasons.
- Some of the target population take loans with other non-governmental organizations and government microcredit programs and are therefore unlikely to become Grameen members.

Also, although household data for 1998 is not yet available, the penetration in 1998 should be higher because:

- Grameen membership more than doubled between 1991 and 1998 while population only grew 16%.
- Rural % shrank from 84% to 78% between 1991 and 1998.

Centers Per Village

$66,293 \text{ centers in 1998} / 85,359 \text{ villages in 1991} = 78\%$

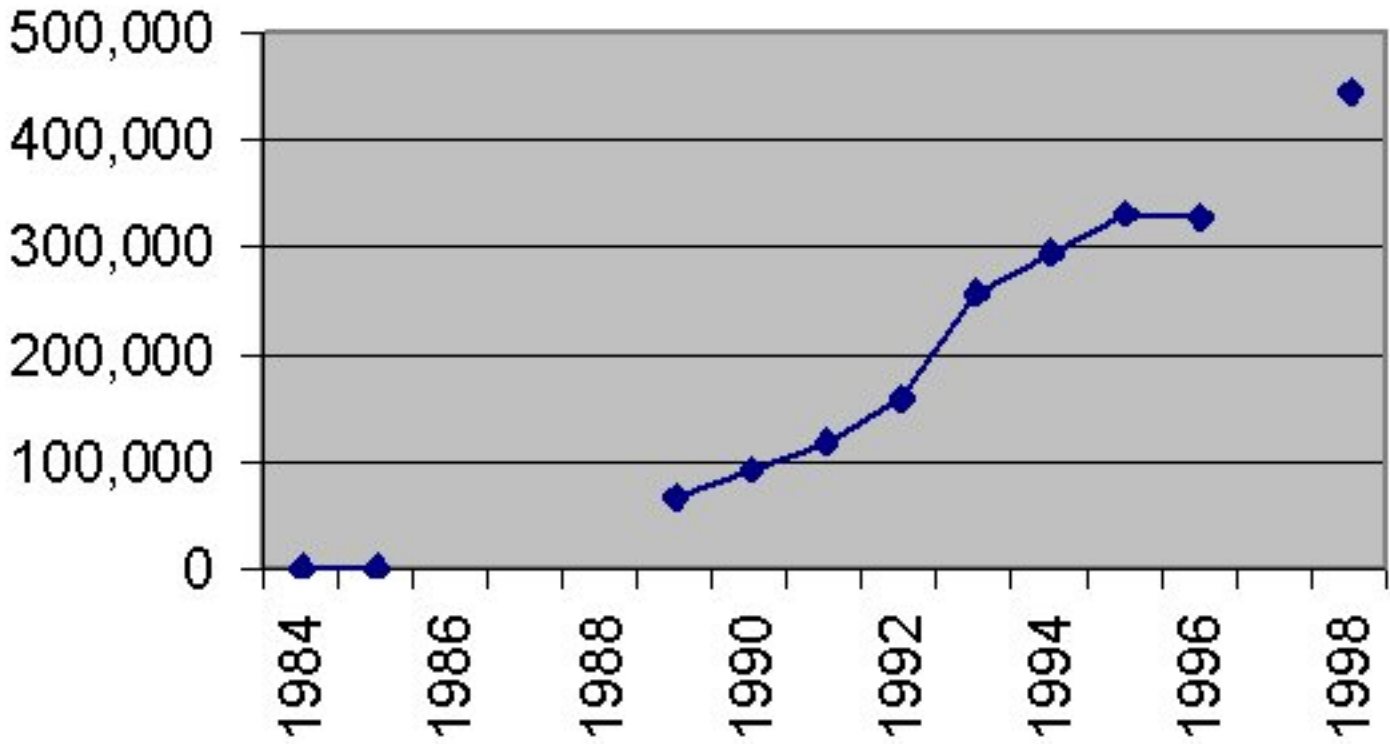
This number most accurately portrays Grameen's penetration because it avoids all of the problems related to estimating the size of the target market of individuals or households. Almost any village could be a potential target for Grameen, making villages a fairly accurate measure of Grameen's potential for growth. Grameen means "village" in Bangladeshi.

The number of villages has probably increased slightly, which would make the actual penetration rate lower than 78% in 1998. If the number of villages grew at the same rate as population, then the penetration rate would be:

$(66,293 \text{ centers} / 85,359 \text{ villages}) (110,341,000 \text{ 1991 pop.} / 128,707,000 \text{ 1998 pop.}) = 67\%$

There are therefore about two Grameen centers for every three villages on average in 1998.

Annual Grameen Houses Built 1984-1998



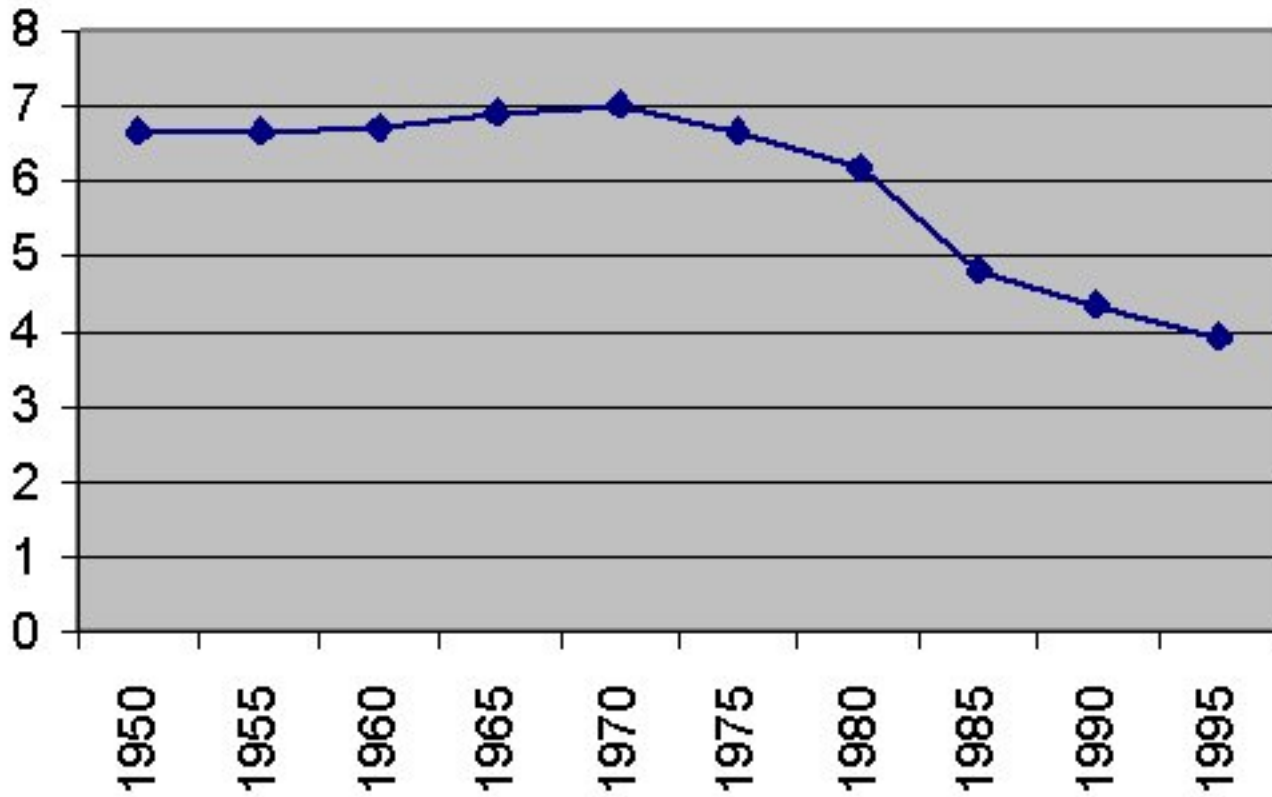
Additional Services from Grameen Family of Organizations

- **1984 - Housing Loans** - Housing loans were the first expansion of services beyond the standard group loan. Yunus was at first hesitant to offer loans to build houses because they appeared to be "consumption" loans which did not create assets that could generate a future income. Grameen Bank studies showed, however, that poor housing is the single greatest factor which prevents a family's rise out of poverty. Grameen began offering housing loans in 1984 and scaled up activity in 1987 in response to widespread floods. These houses are required to be solidly constructed with concrete pillars and a cement latrine according to Grameen specifications.
- **1991 - Krishi Foundation** - Runs a variety of programs designed to stimulate agricultural activity, for example coordinating the irrigation of crops using water from tube-wells.
- **1993 - Health Program** - This program created a health center attached to each Grameen branch with one doctor plus a small staff. Members pay for insurance or pay a higher usage fee if uninsured. Yunus was convinced of the need for improved health by a study performed by Helen Todd which showed that 18% of nonmembers crossed over the extreme poverty line compared with 58% of members. Of the 42% of members who remained mired in poverty, 60% had experienced serious illness in the family such as tuberculosis, typhoid, jaundice, gastric ulcer. (Bornstein, 1996) In order to achieve its mission of eradicating poverty, the Grameen Bank had to tackle basic health care.
- **1994 - Motsho Foundation** - Manages fish and shrimp farms.
- **1994 - Uddog** - Manages the production of handwoven cloth by providing supplies, managing home weavers, and maintaining standards.
- **1994 - Grameen Fund** - Provides venture capital funding to risky, technology-oriented companies in the information, communications, and bioengineering industries.
- **1996 - Kalyan** - Provides a variety of financial services to improve the lives of Grameen Bank members and especially for Grameen employees.
- **1996 - Shamogree** - Markets goods produced by the rural poor such as handwoven fabrics.
- **1996 - Telecom** - Develops telecommunication infrastructure and sells cellular phones to rural villages.
- **1996 - Shakti** - Supplies energy from renewable sources to villages previously without electricity.
- **1996 - Cybernet** - Provides internet services.
- **1997 - Communications** - Promotes the use of the internet to improve education, social well-being, health, and sanitation through the sharing of academic, statistical, and research information.

The Sixteen Decisions

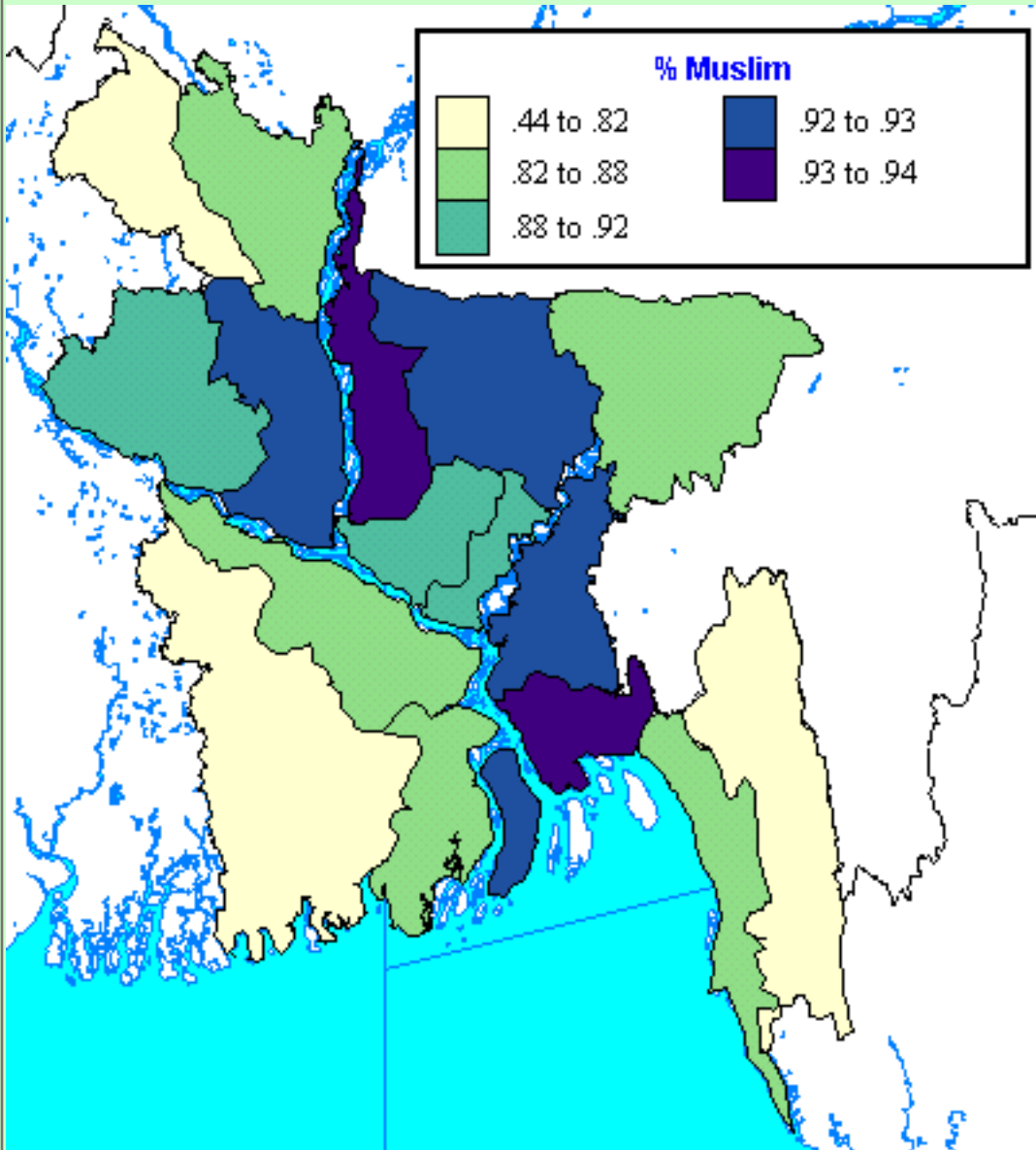
1. The four principles of Grameen Bank -- Discipline, Unity, Courage, and Hard Work -- we shall follow and advance in all walks of our lives.
2. Prosperity we shall bring to our families.
3. We shall not live in dilapidated houses. We shall repair our houses and work toward constructing new houses at the earliest.
4. We shall grow vegetables all the year round. We shall eat plenty of them and sell the surplus.
5. During the plantation seasons, we shall plant as many seedlings as possible.
6. **We shall plan to keep our families small.** We shall minimize our expenditures. We shall look after our health.
7. We shall educate our children and ensure that they can earn to pay for their education.
8. We shall always keep our children and the environment clean.
9. We shall build and use pit-latrines.
10. We shall drink tubewell water. If it is not available, we shall boil water or use alum.
11. We shall not take any dowry in our sons' weddings, neither shall we give any dowry in our daughters' weddings. We shall keep the center free from the curse of dowry. We shall not practice child marriage.
12. We shall not inflict any injustice on anyone, neither shall we allow anyone to do so.
13. For higher income we shall collectively undertake bigger investments.
14. We shall always be ready to help each other. If anyone is in difficulty, we shall all help him.
15. If we come to know of any breach of discipline in any center, we shall all go there and help restore discipline.
16. We shall introduce physical exercise in all our centers. We shall take part in all social activities collectively.

Total Fertility Rate 1950-1995



Bangladesh Zone Maps

1998 Grameen Bank



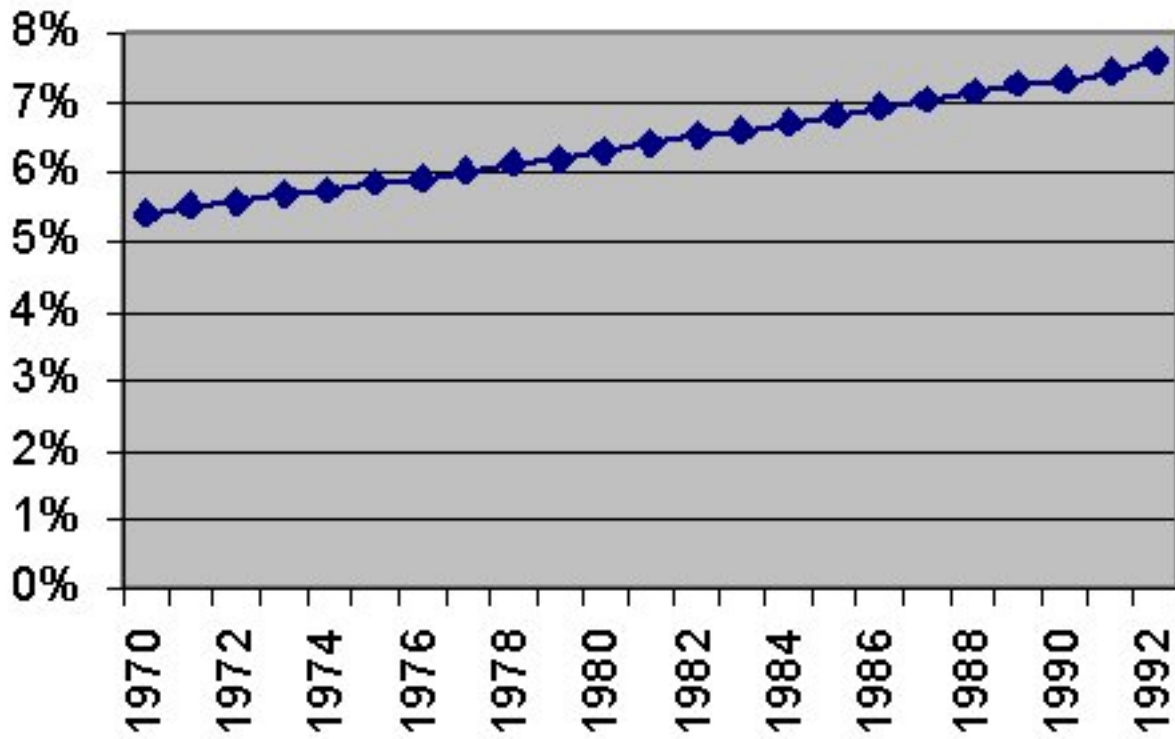
- [Grameen Bank Administrative Zones](#)
- [Grameen Members](#)
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- [% Muslim](#)

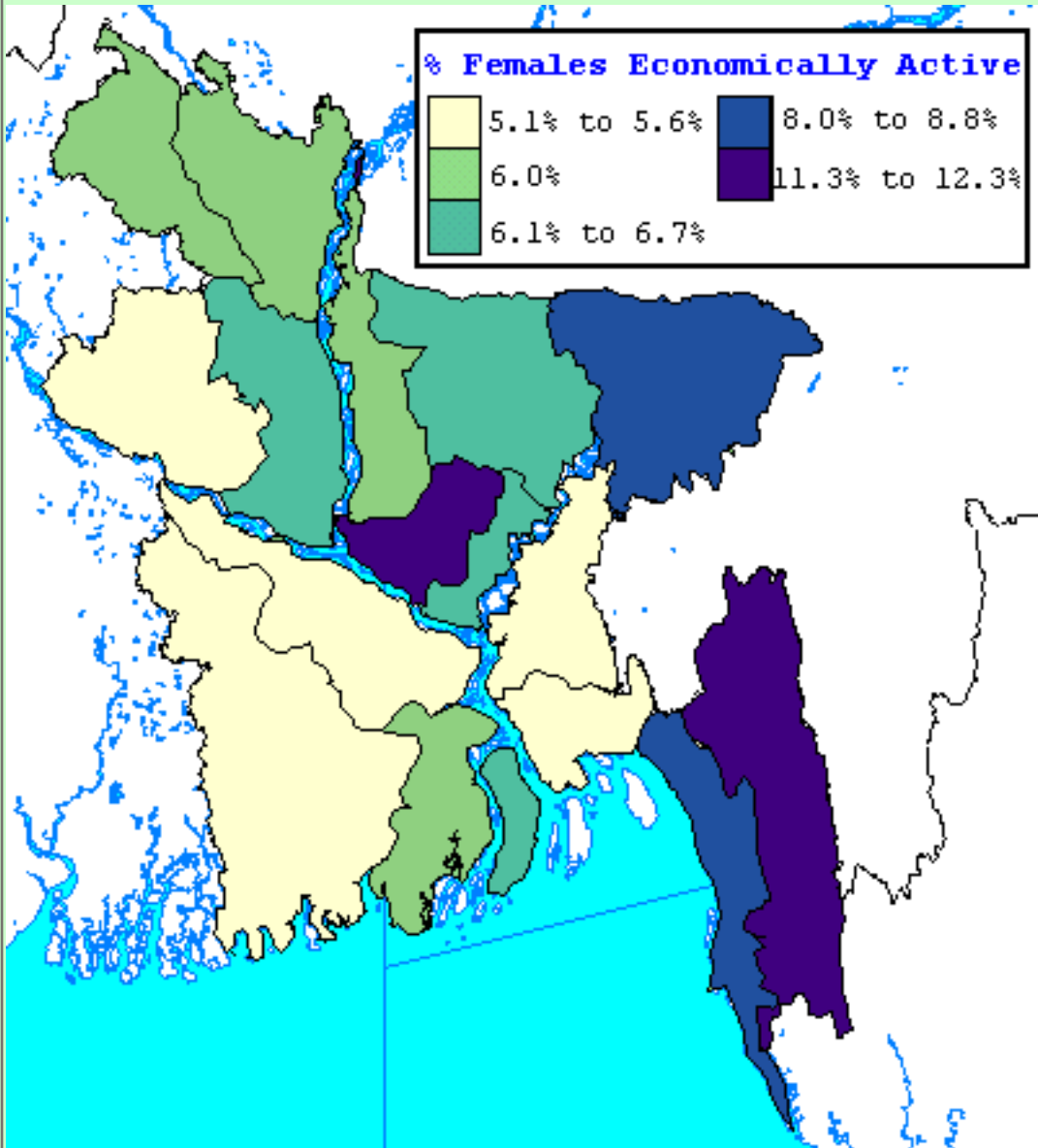
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Females as % of Labor Force 1970-1992



Bangladesh Zone Maps

1998 Grameen Bank



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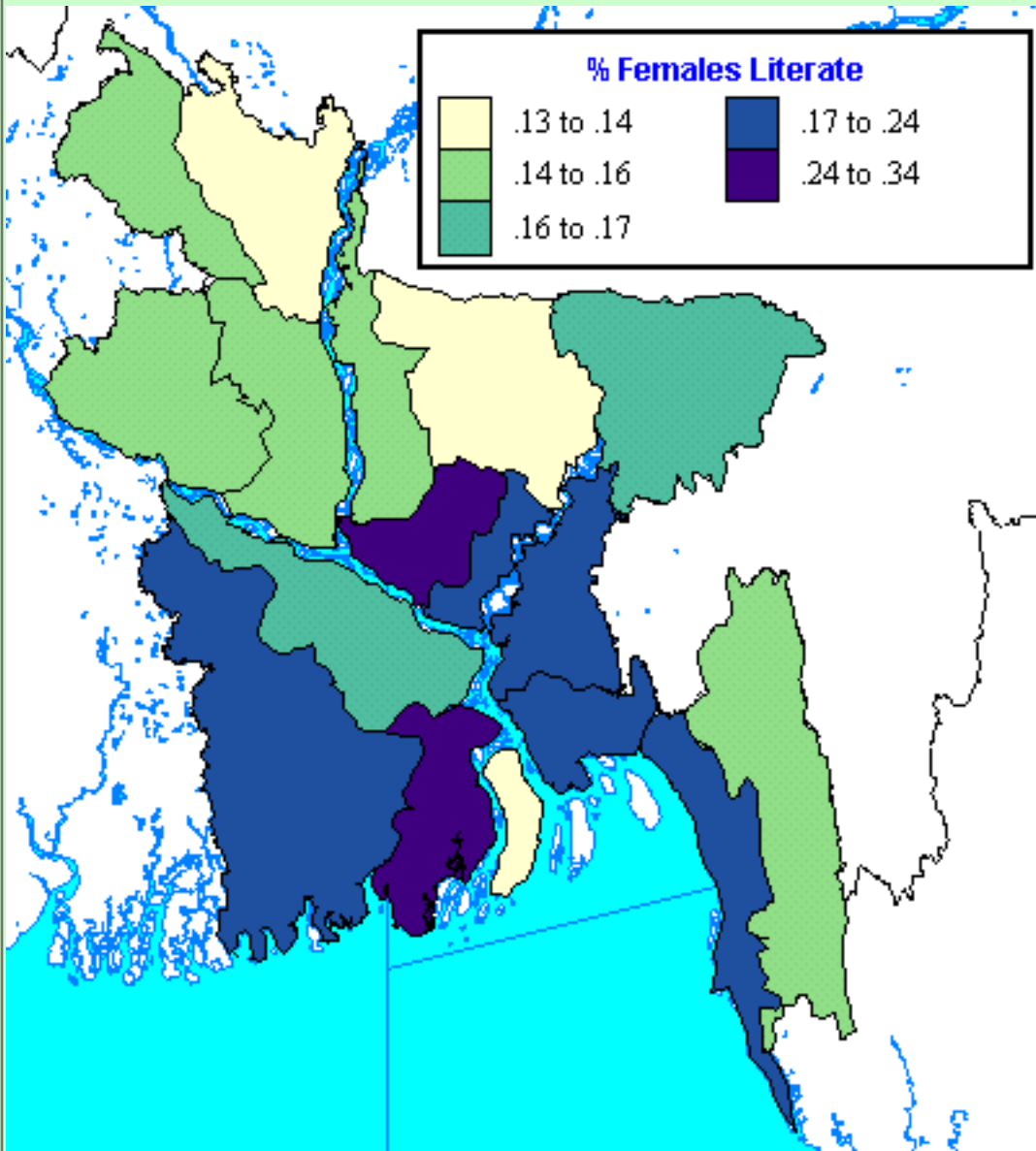
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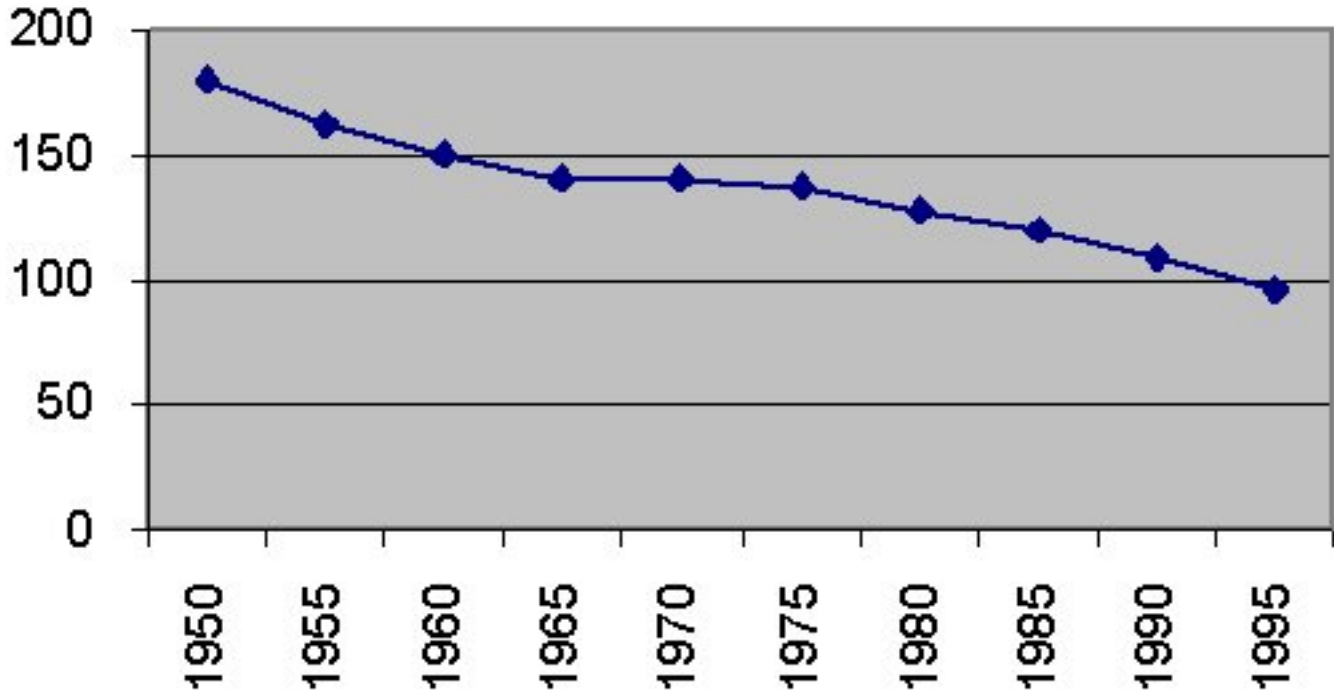
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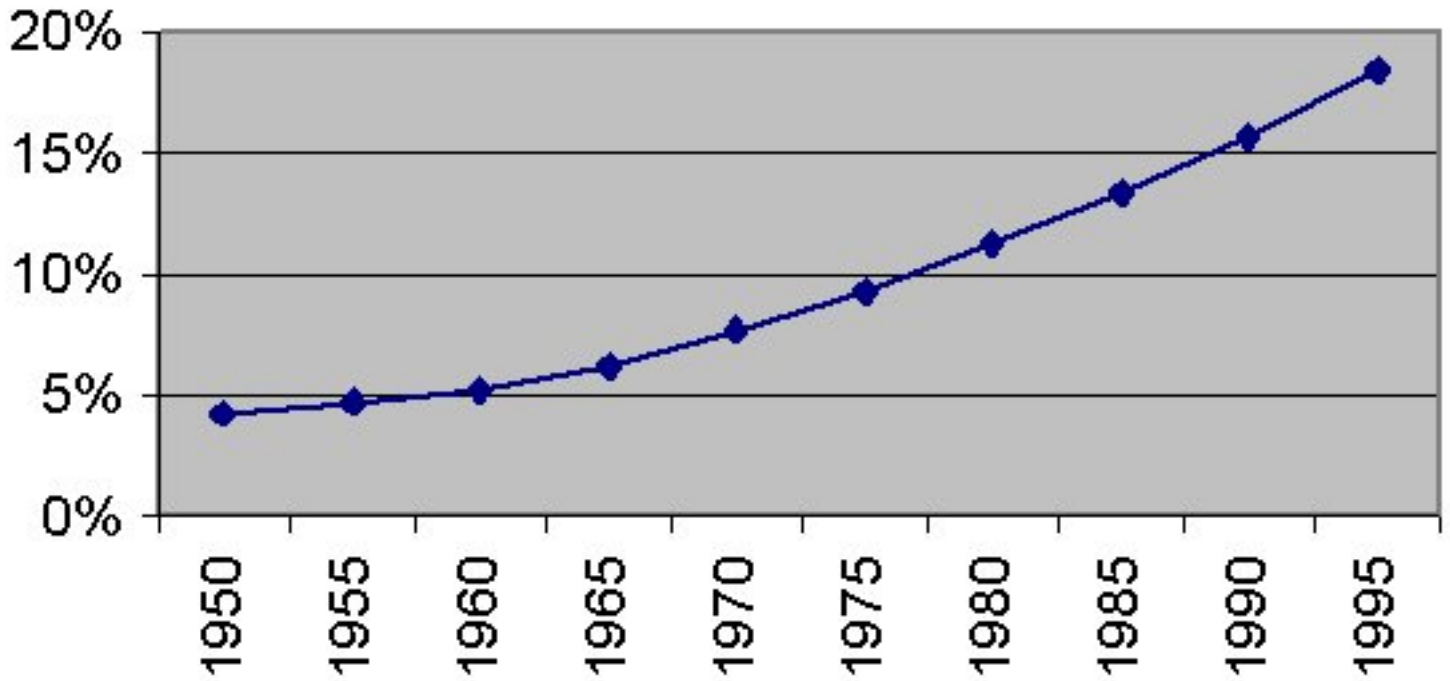


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Infant Mortality Rate 1950-1995 (per 1000 births)



Urban Population Percent 1950-1995



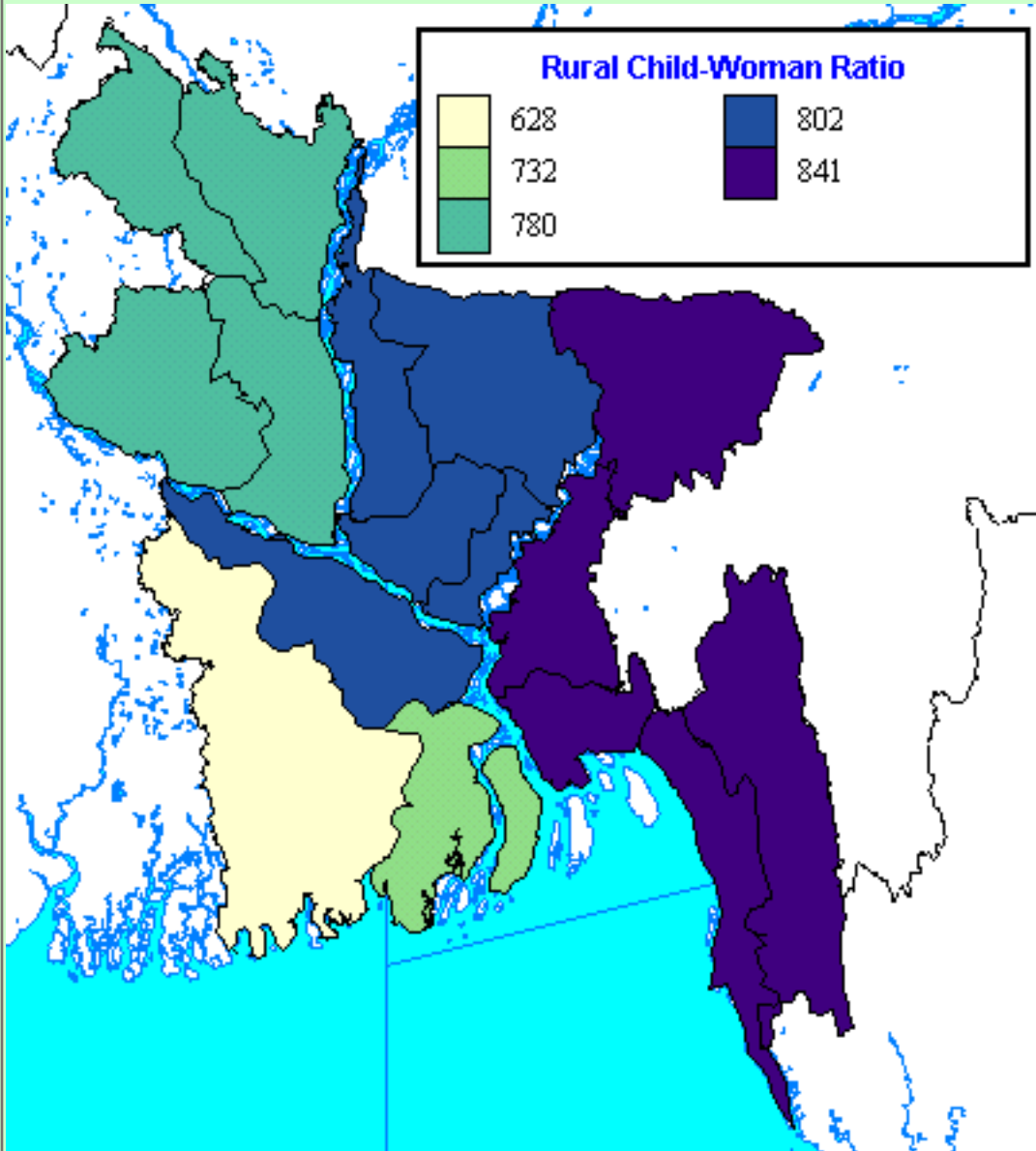
Bangladesh Zone Maps

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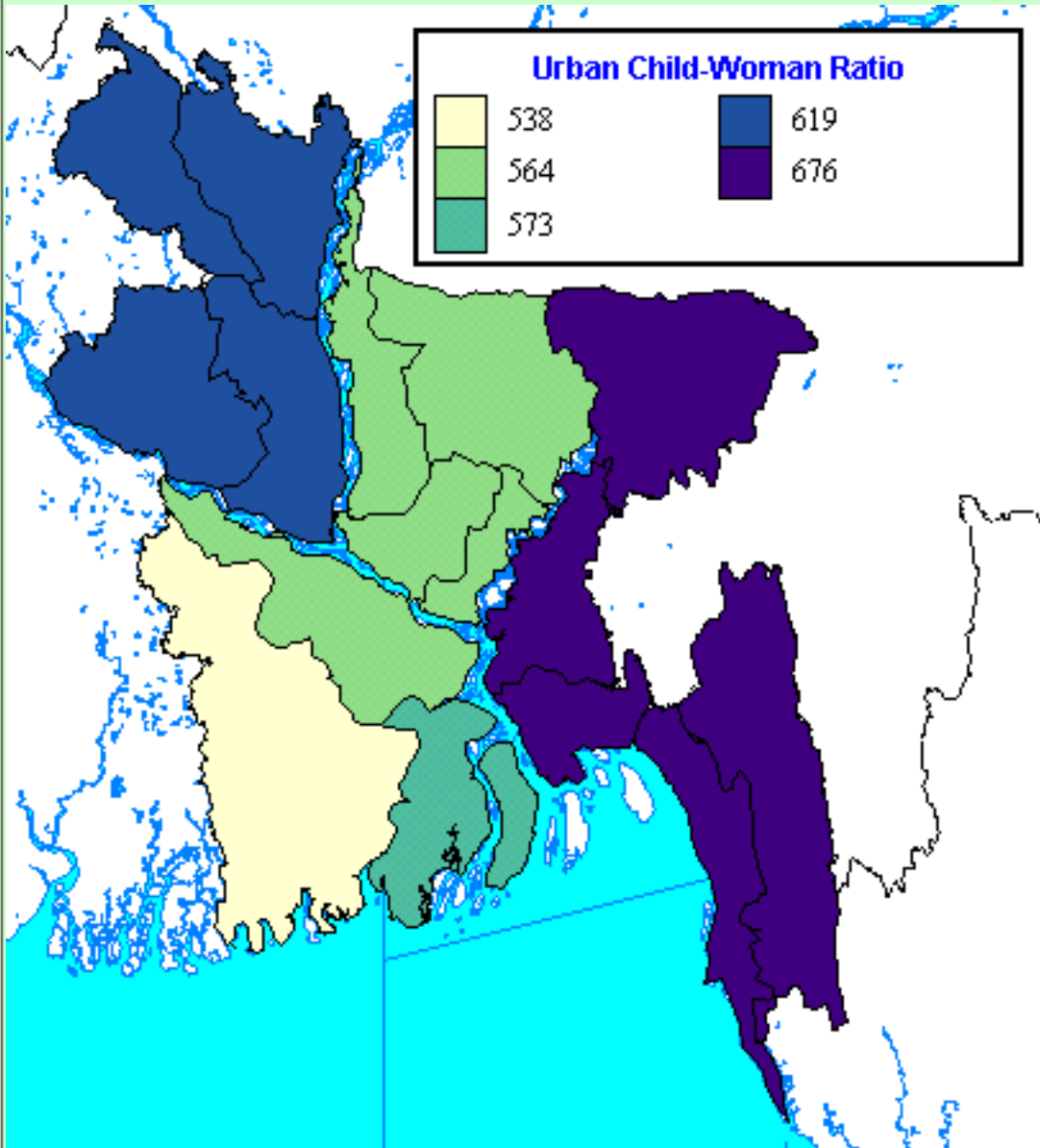
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- [% Muslim](#)



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Ages Responsible for Births, 1995

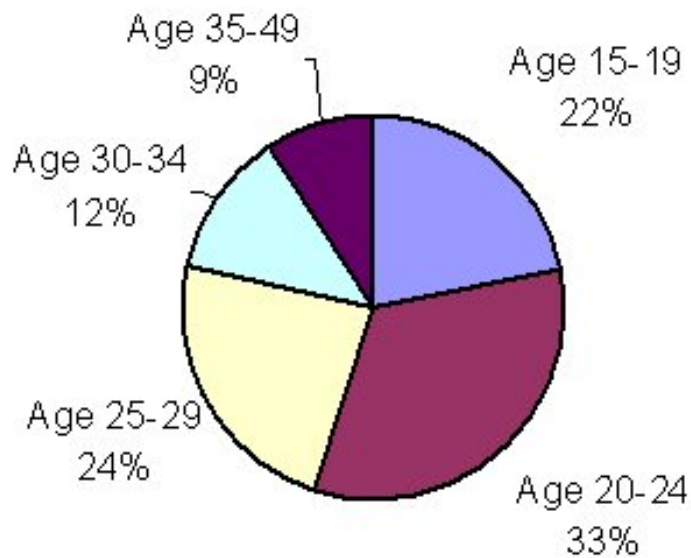
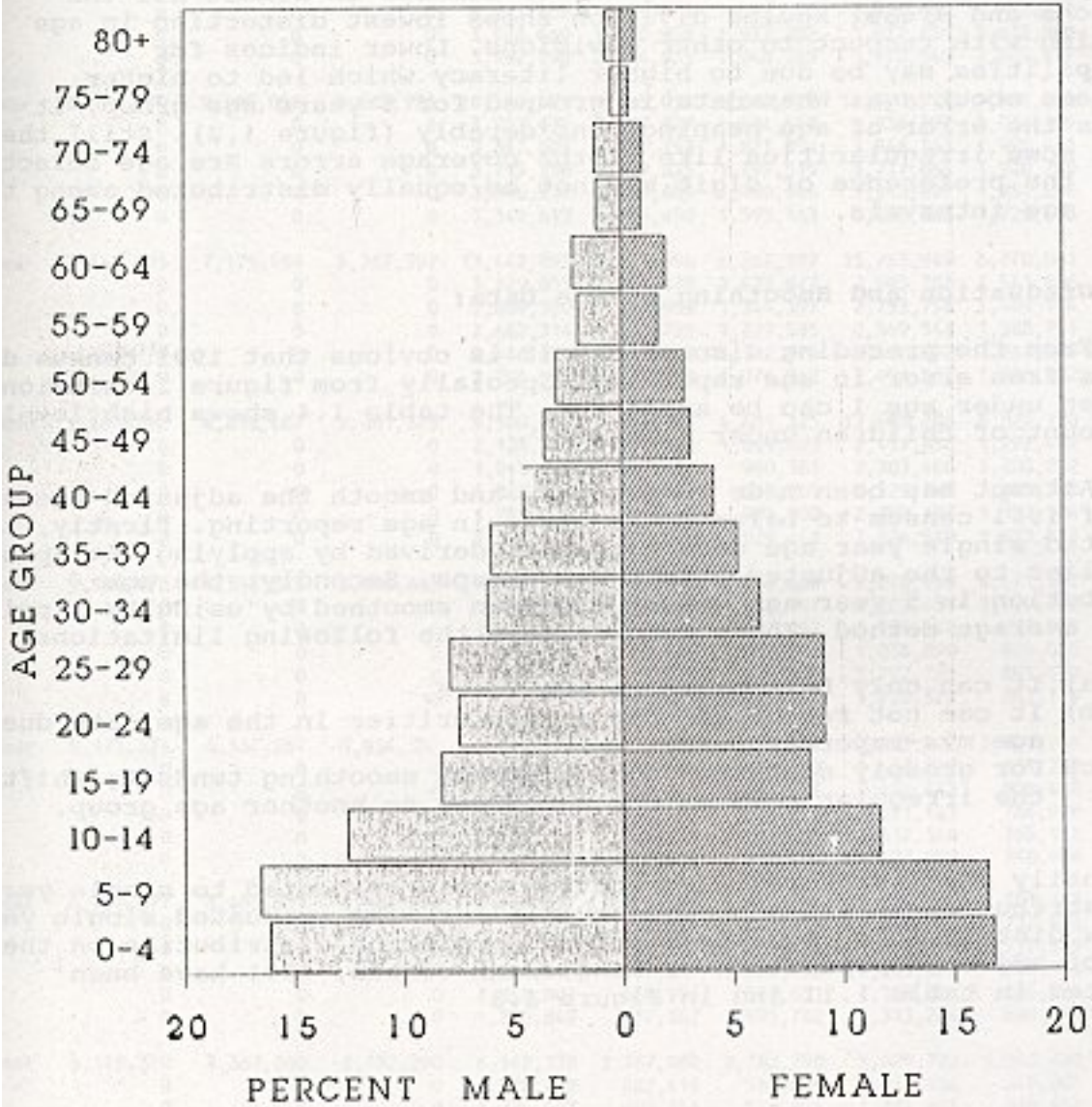
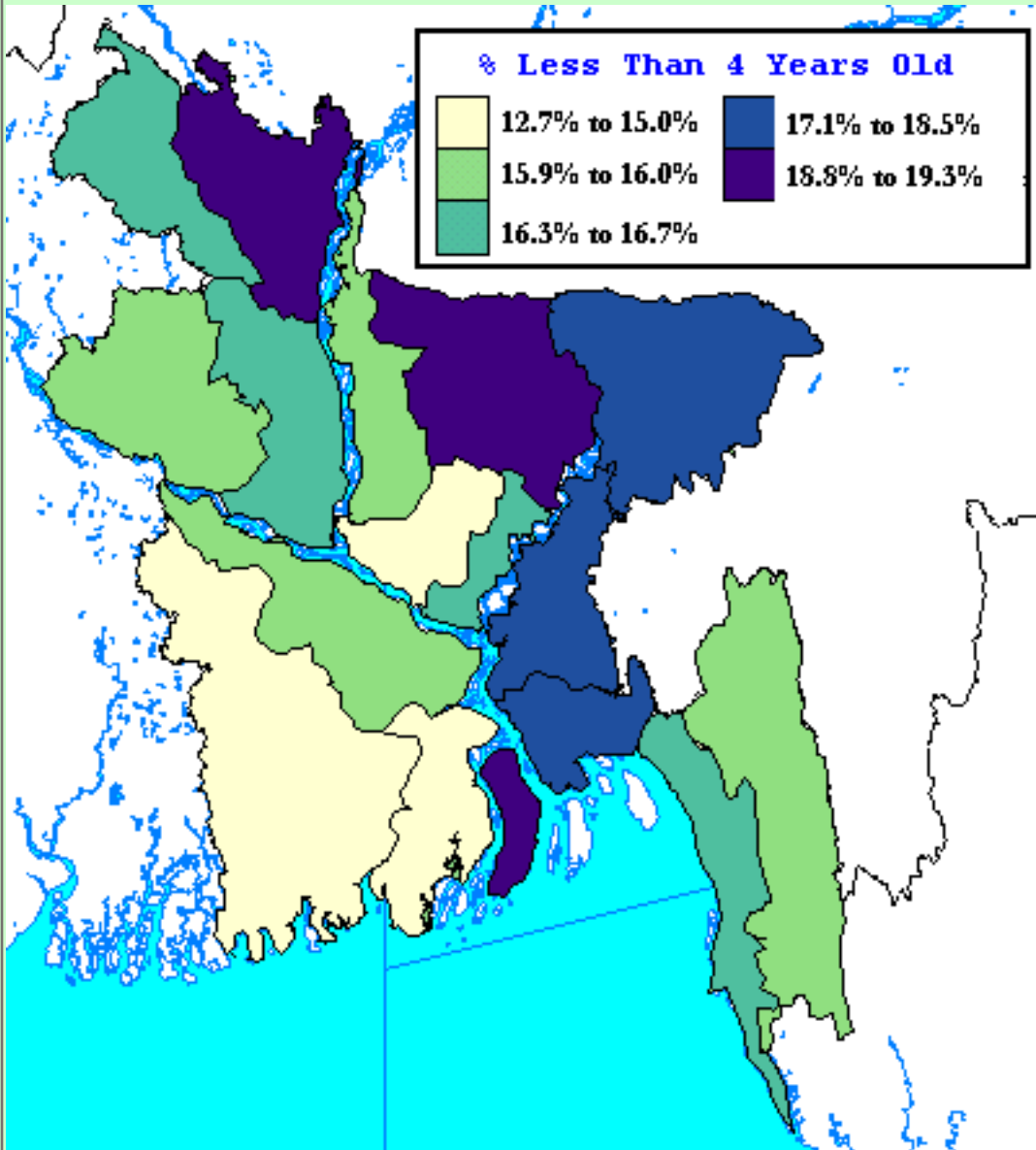


FIGURE 1.2 AGE AND SEX PYRAMID
FIVE YEAR AGE GROUP
FOR ENUMERATED PULATION,1991



Bangladesh Zone Maps

1998 Grameen Bank



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Linear Regression

Note: The datafile containing the data for this regression can be found on the homepage for this report.

Regression Results:

Y value is % of population under four years old

Factor	Coefficient	P-value
Intercept	.133	1.37E-6
% Females Econ. Active	.296	.0422
% Females Literate	-.134	.000476
% Muslim	.053	.0179
% Urban	-.052	.0267

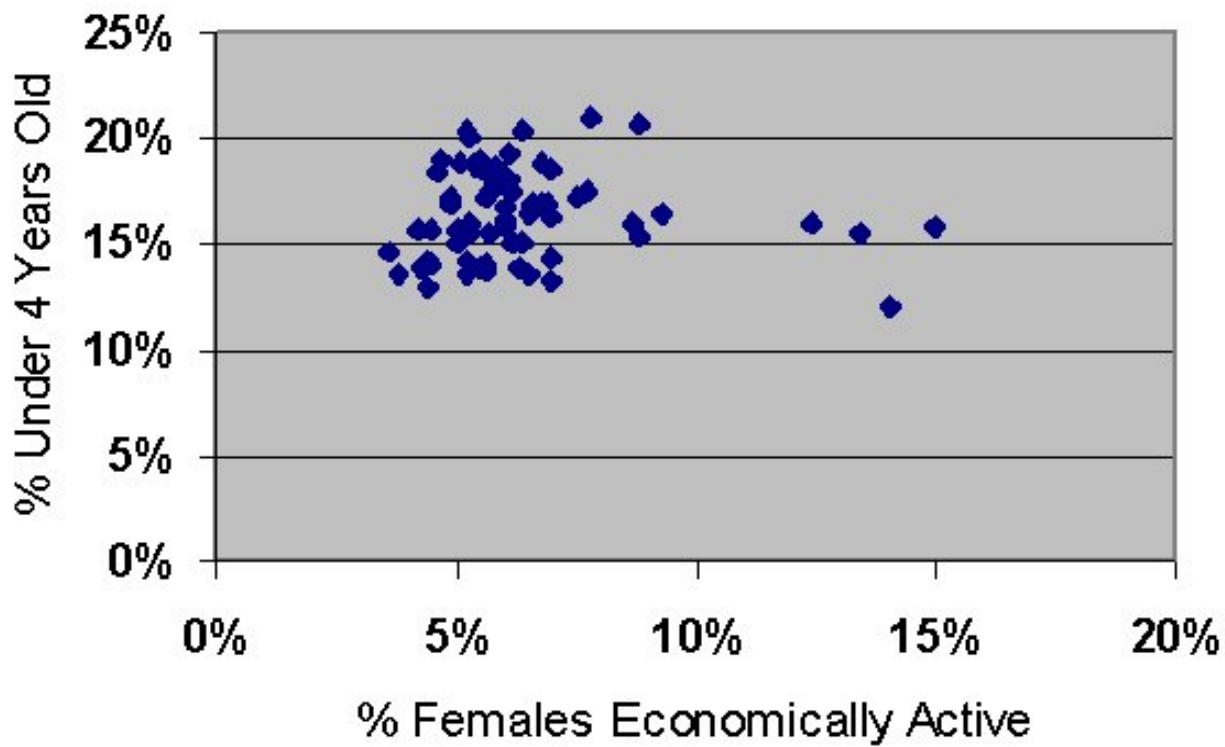
Adjusted R Square = .363

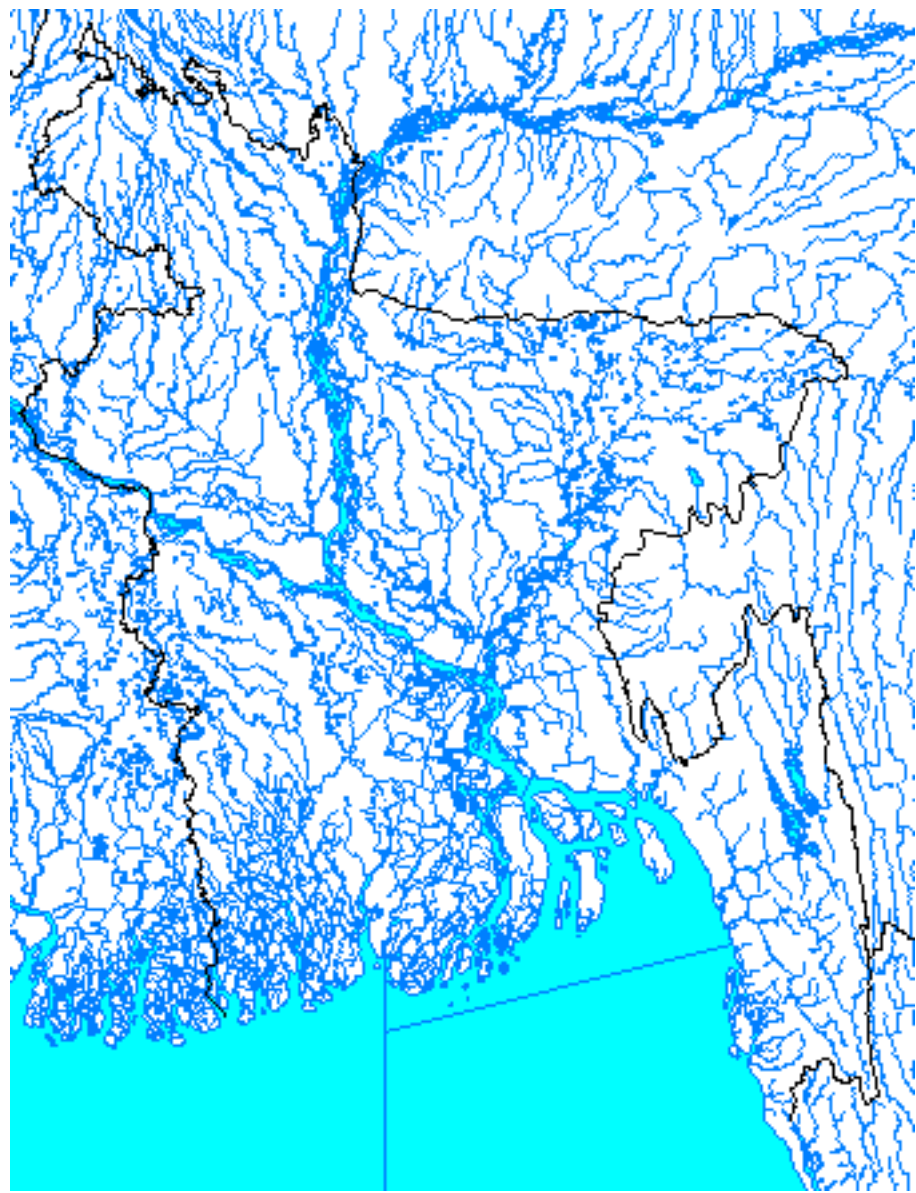
Conclusions:

- The regression is not a very robust model for determining the percent of the population under four. The regression model only accounts for 36% of the variance of the target variable.
- Strong evidence exists that raising female literacy will decrease fertility.
- Medium evidence exists that being Muslim accounts for higher fertility.
- Medium evidence exists that urban residents have lower fertility.
- Weak evidence exists that economically active women have higher fertility.

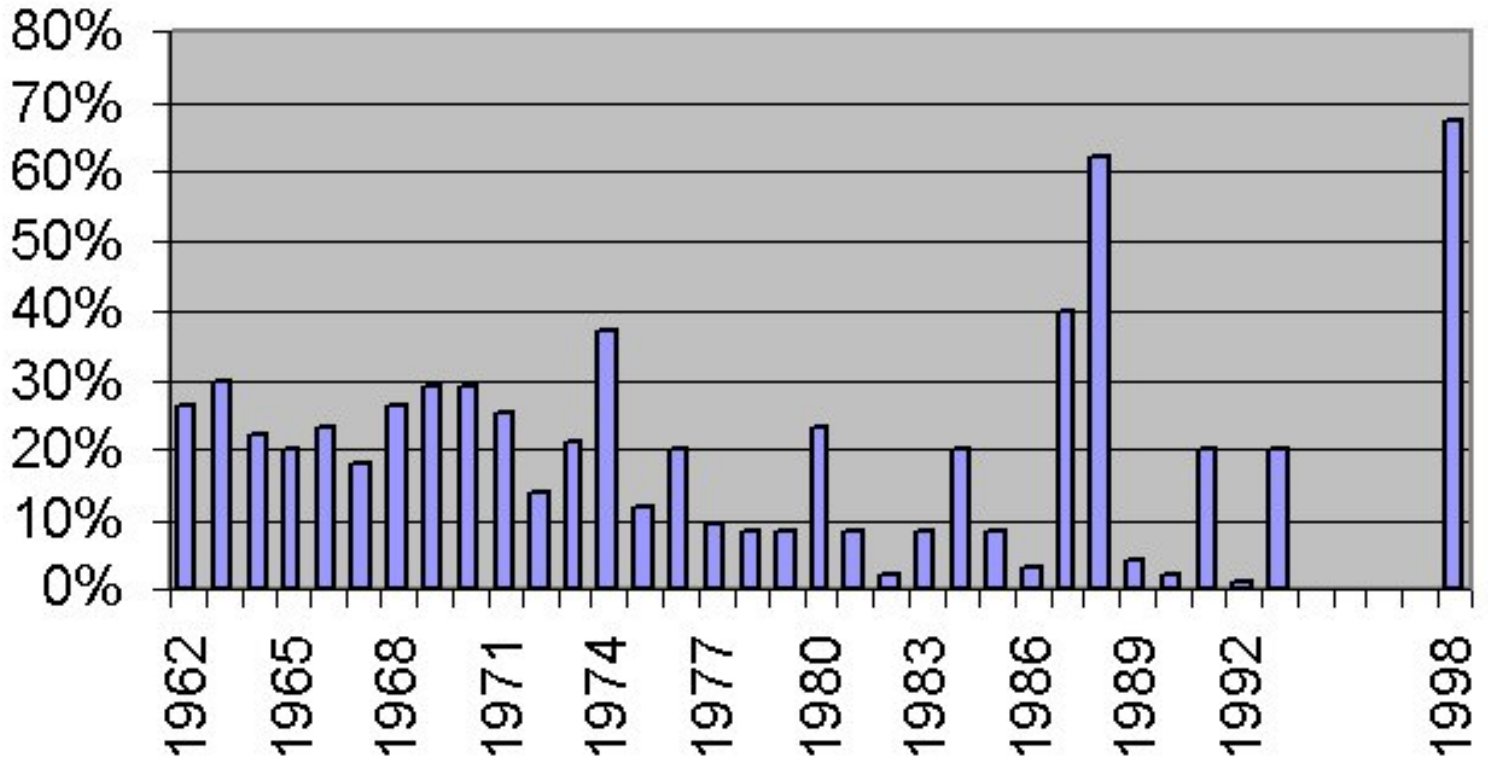
All findings agree with our expectations except the last one. The graph below shows how the percent of economically active women and percent children compare for each zila (local region). Due to the low predictive quality of the regression, this anomaly should be ignored in favor of more robust local research which has shown a negative correlation between the two. There is no obvious visual relationship between these two variables. It should, however, be noted that this factor may not be as predominant as otherwise thought.

% Under 4 vs. % Females Econ. Active For Each Zila





Percent Land Area Affected by Flooding

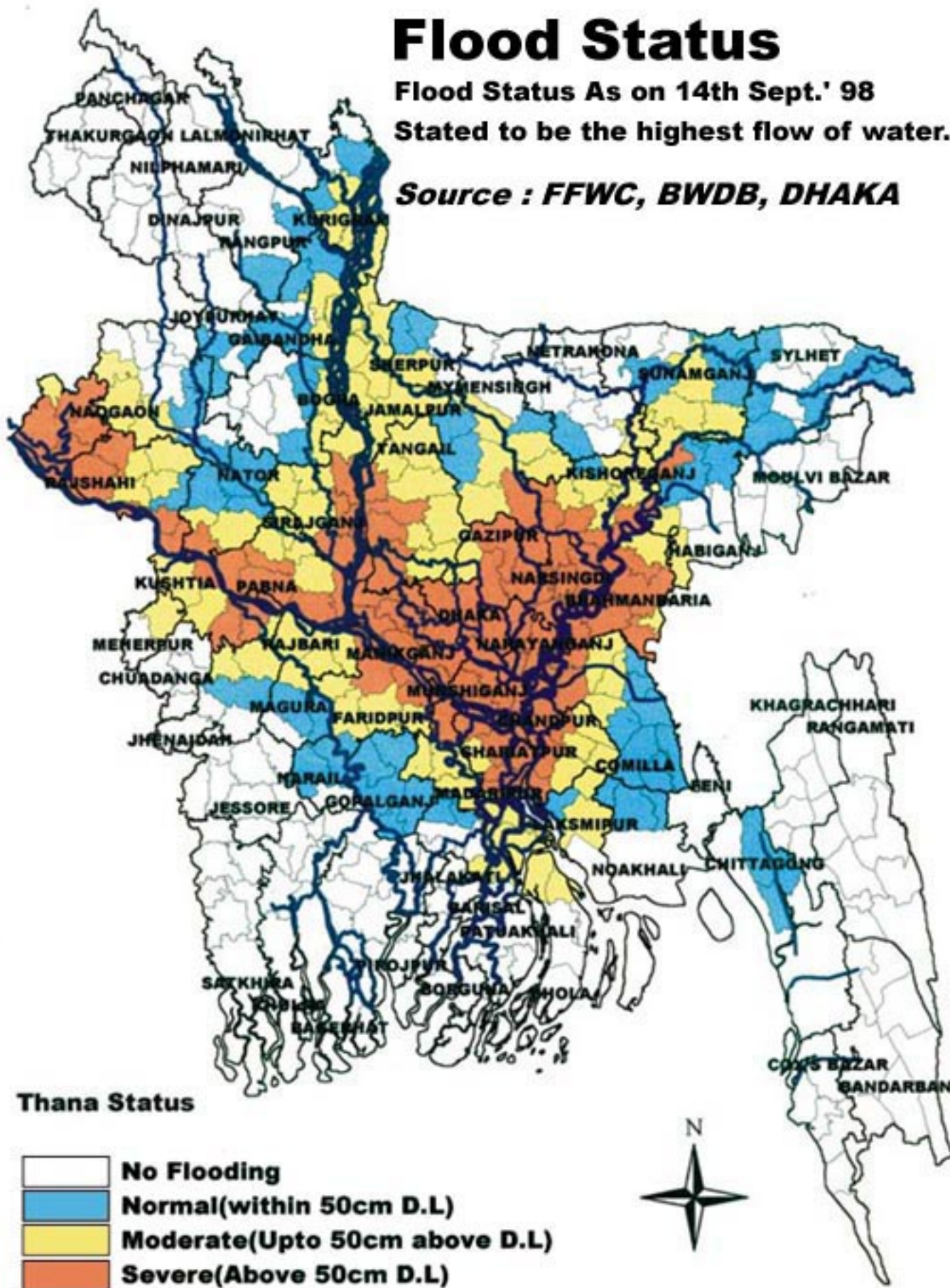


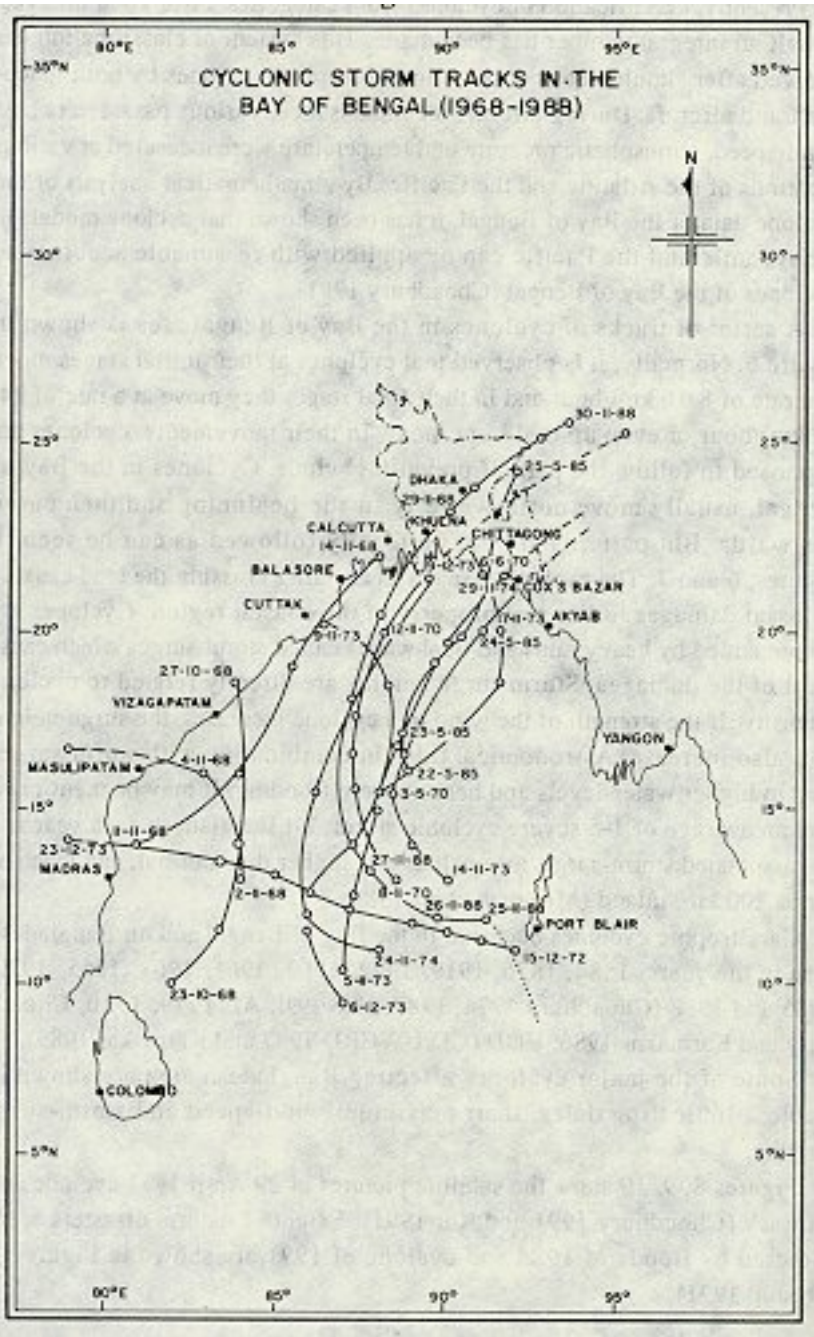
Flood Status

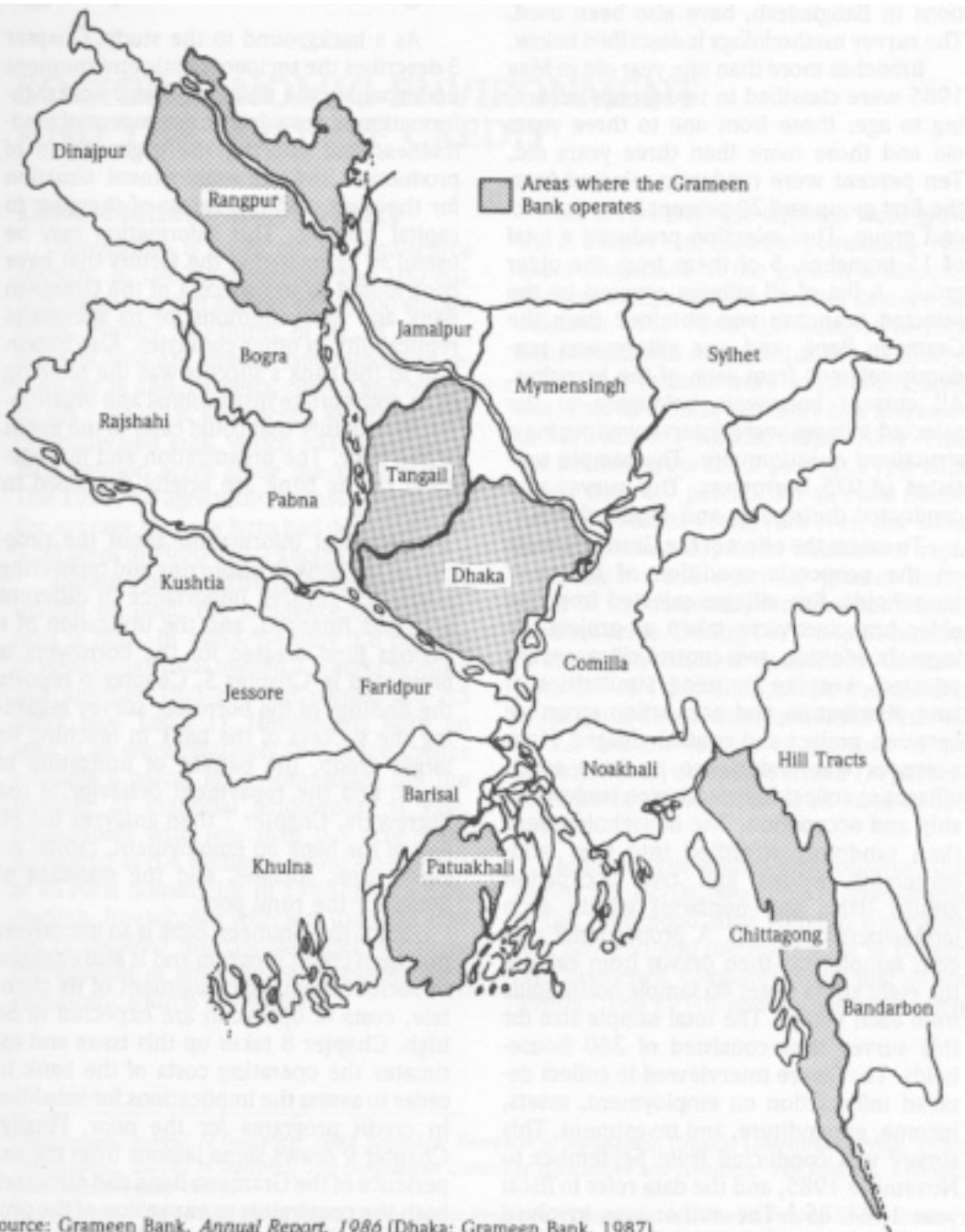
Flood Status As on 14th Sept.' 98

Stated to be the highest flow of water.

Source : FFWC, BWDB, DHAKA



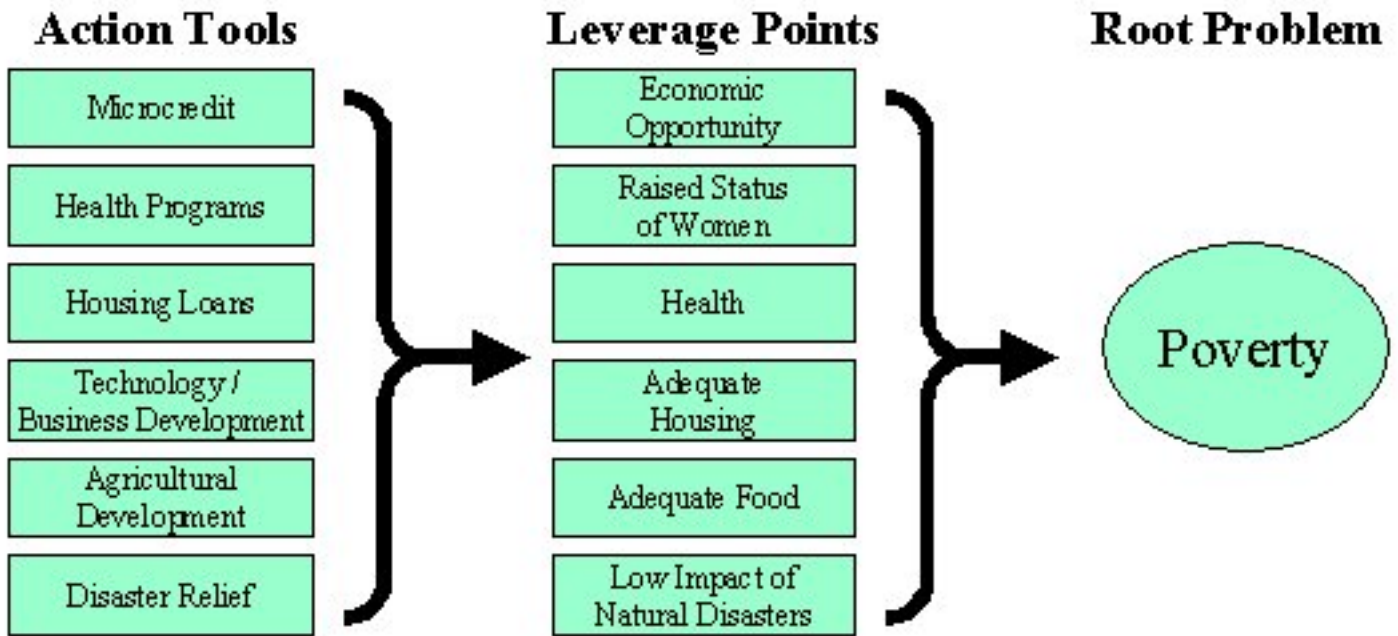




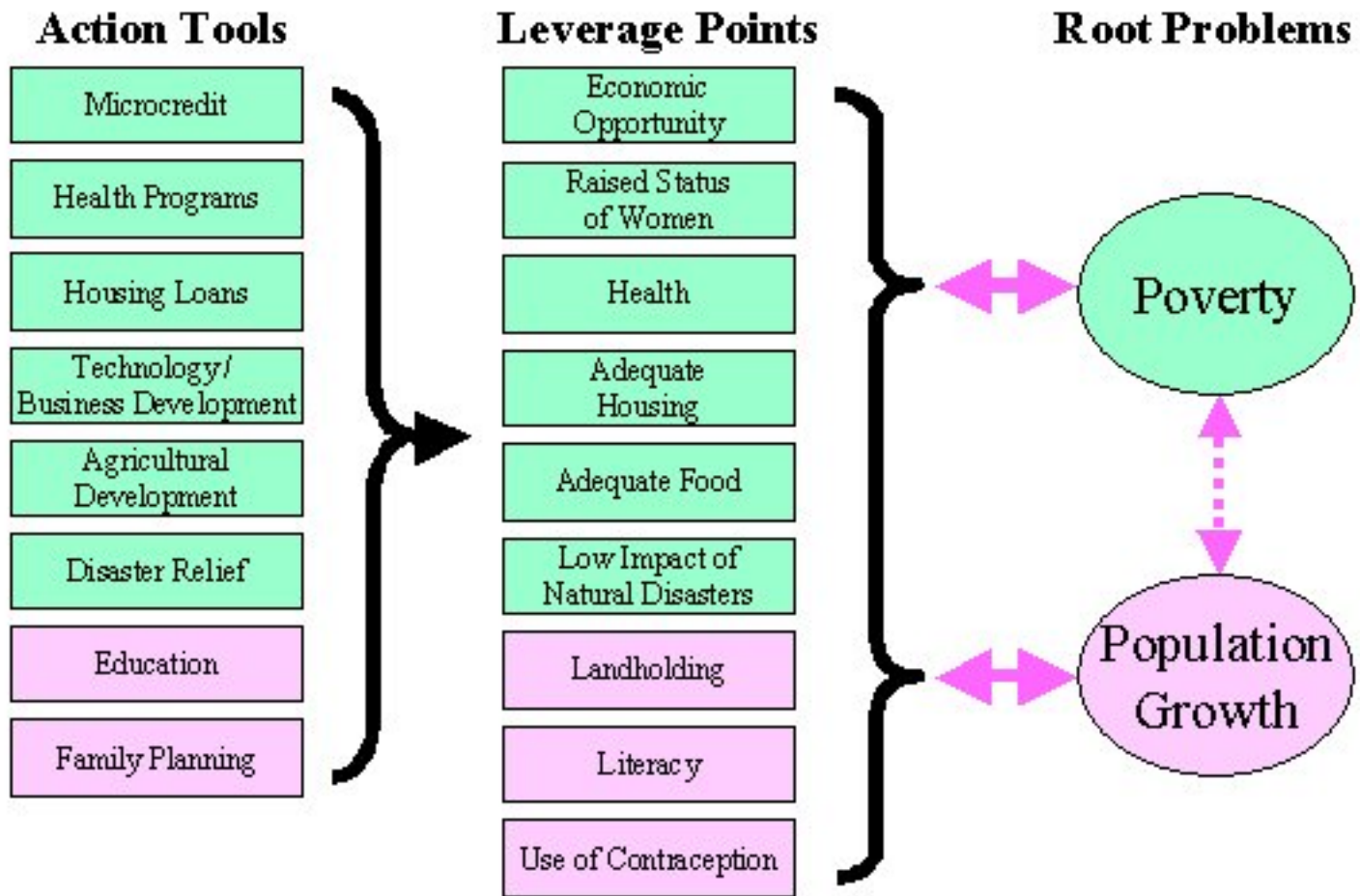
Source: Grameen Bank, *Annual Report, 1986* (Dhaka: Grameen Bank, 1987).

Note: An administrative reorganization in 1982 created 64 new districts out of 21 old districts.

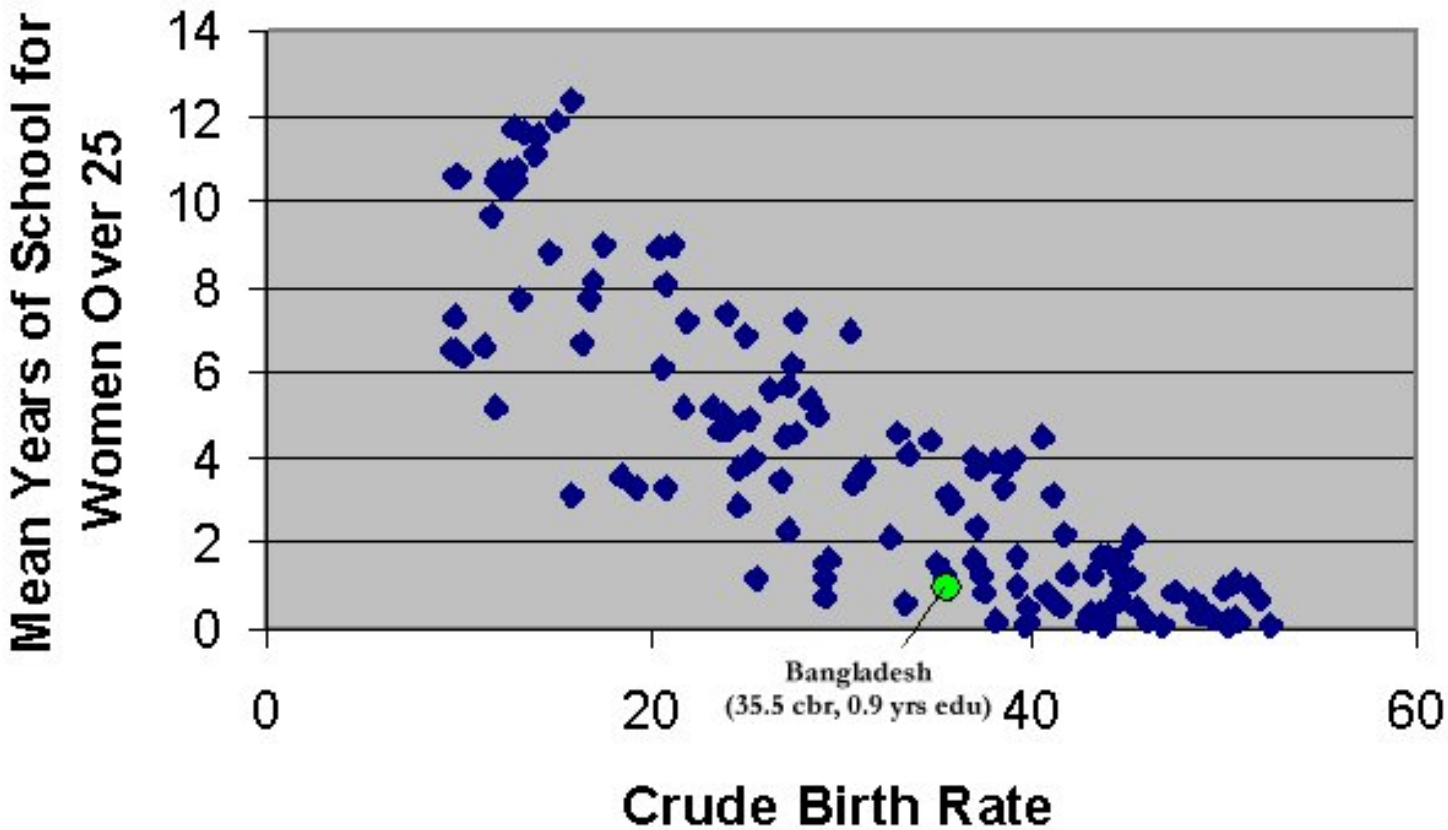
Grameen Model



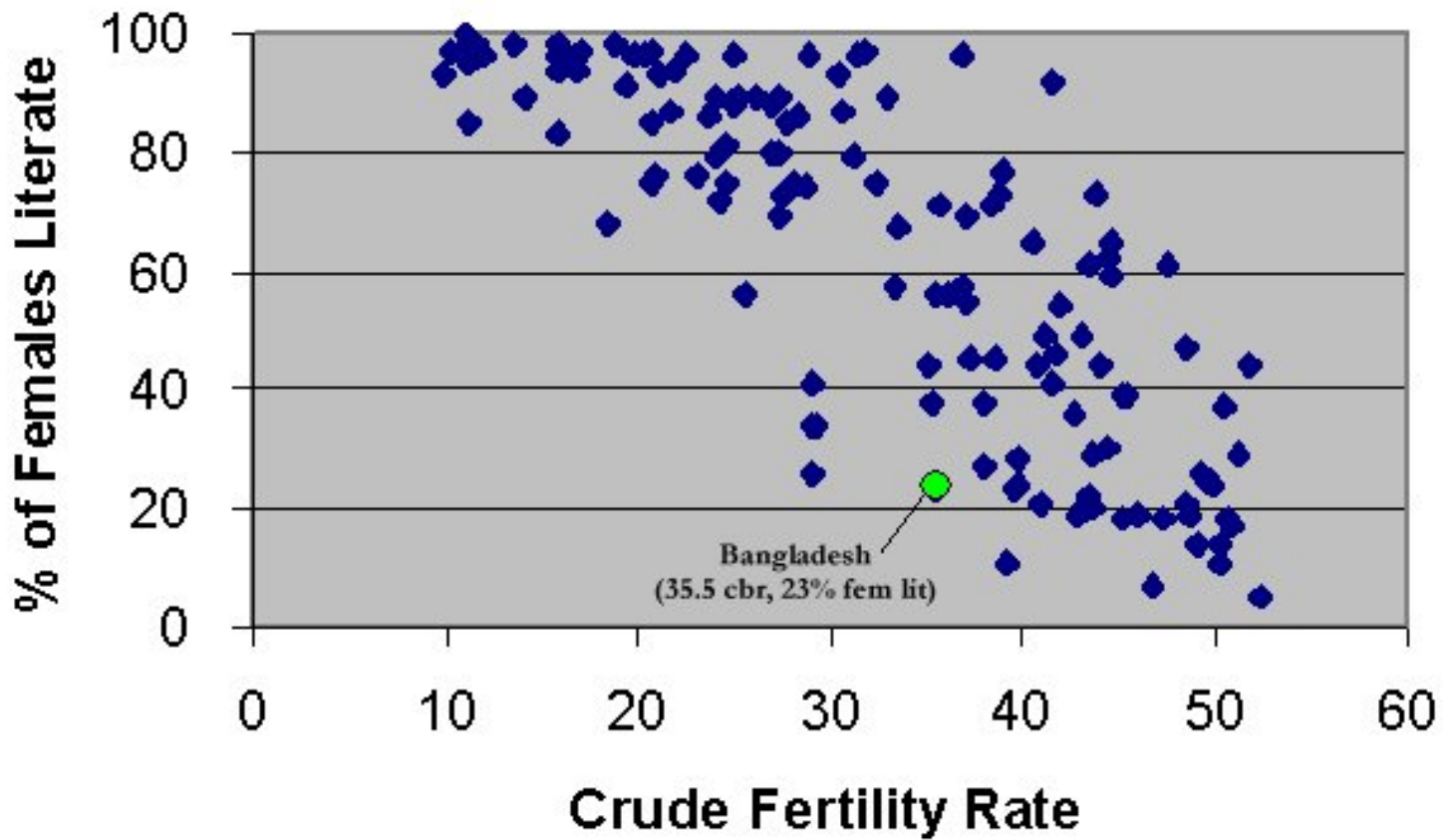
Expanded Grameen Model



1990 Fertility vs. Education For 132 Nations



1990 Fertility vs. Female Literacy For 132 Nations



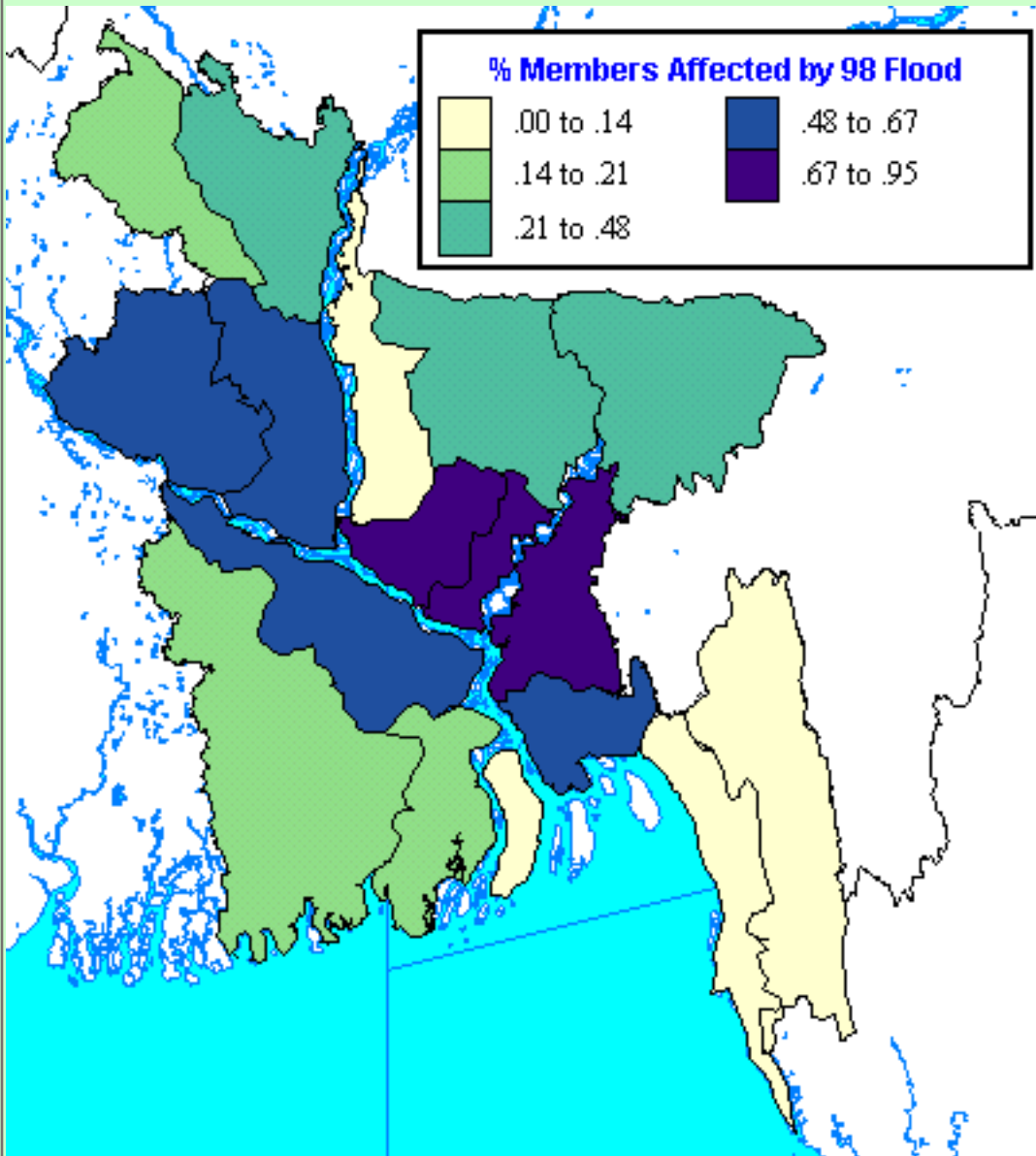
Bangladesh Zone Maps

1998 Grameen Bank

- [Grameen Bank Administrative Zones](#)
- [Grameen Members](#)
- [Grameen Centers per Village](#)
(Mixed 1991/1998 data)
- [% Households w/ Grameen Member](#)
(Mixed 1991/1998 data)
- [% Grameen Members Affected by 1998 Flood](#)

1991 Census

- [% Less Than Four Years Old](#)
- [Rural Child-Woman Ratio](#)
- [Urban Child-Woman Ratio](#)
- [Population Density](#)
- [% Urban](#)
- [% Females Literate](#)
- [% Females Economically Active](#)
- [% Muslim](#)



[Return](#)

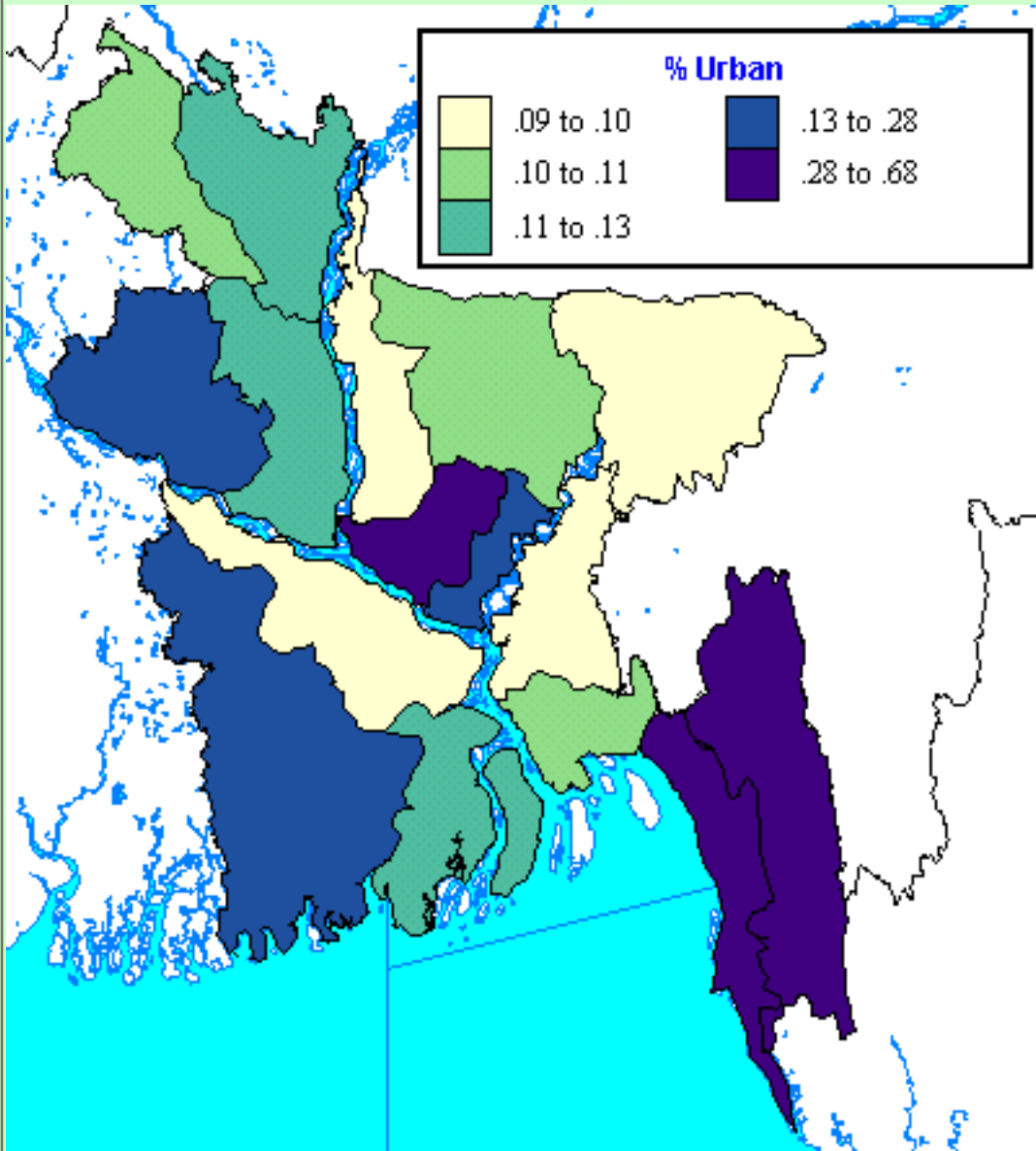
Bangladesh Zone Maps

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- [% Females Economically Active](#)
- [% Muslim](#)



[Return](#)

Photographs



Tahera and her friend, both from centre no. 6, with their bamboo bed.
Photo - A.K.M. Samsur Rahman



Daily chores still go on. Photo - Salahuddin Azizee



Losses and Damages Caused by Flood as of October 4, 1998

- 1.Total area affected by flood about 100,000sq.km.
(Area of Bangladesh is 148,393sq.km.)
- 2.Total shortfall of production will be about 2.2 million MT
- 3.Number of Districts 52
- 4.Number of Police Stations 366
- 5.Number of Affected Union Parishad 3,323
- 6.Number of Affected People 30,916,351
- 7.Affected Standing Crops in Acre 1,423,320
- 8.Number of Affected Homesteads 980,571
- 9.Number of Deaths 918
- 10.Cattle heads killed 26,564
- 11.Road Damaged (km) 15,927
- 12.Embankment Damaged (km) 4,528
- 13.Number of Damaged Bridge /Culverts 6,890
- 14.Number of Educational Institutions 1,718
- 15.Number of Flood Shelters 2,716
- 16.Number of People taking refuge 1,049,525

NB: 52 Districts of the country have been affected more or less till today as on OCTOBER 4,1998. The latest situation of the flood-hit districts is as follows:

- 1.The flood situation has turned normal now in all the affected 52 districts due to receding of water.
- 2.According to the latest report, total death tolls in flood affected districts stand 918.
- 3.The total sanction in flood affected areas till OCTOBER 04, 1998 stands at 5 crore and 17 lakh 75 thousand Taka and 91,062 MT of rice & 750 MT Wheat worth of taka 128 crore 53 lakh and 68 thousand. In addition to that 1 crore and 40 lakh taka in cash has been sanctioned from Prime Minister's Relief and welfare Fund for the flood victims

Numerical Expressions Used:

One Lakh= 1,00,000

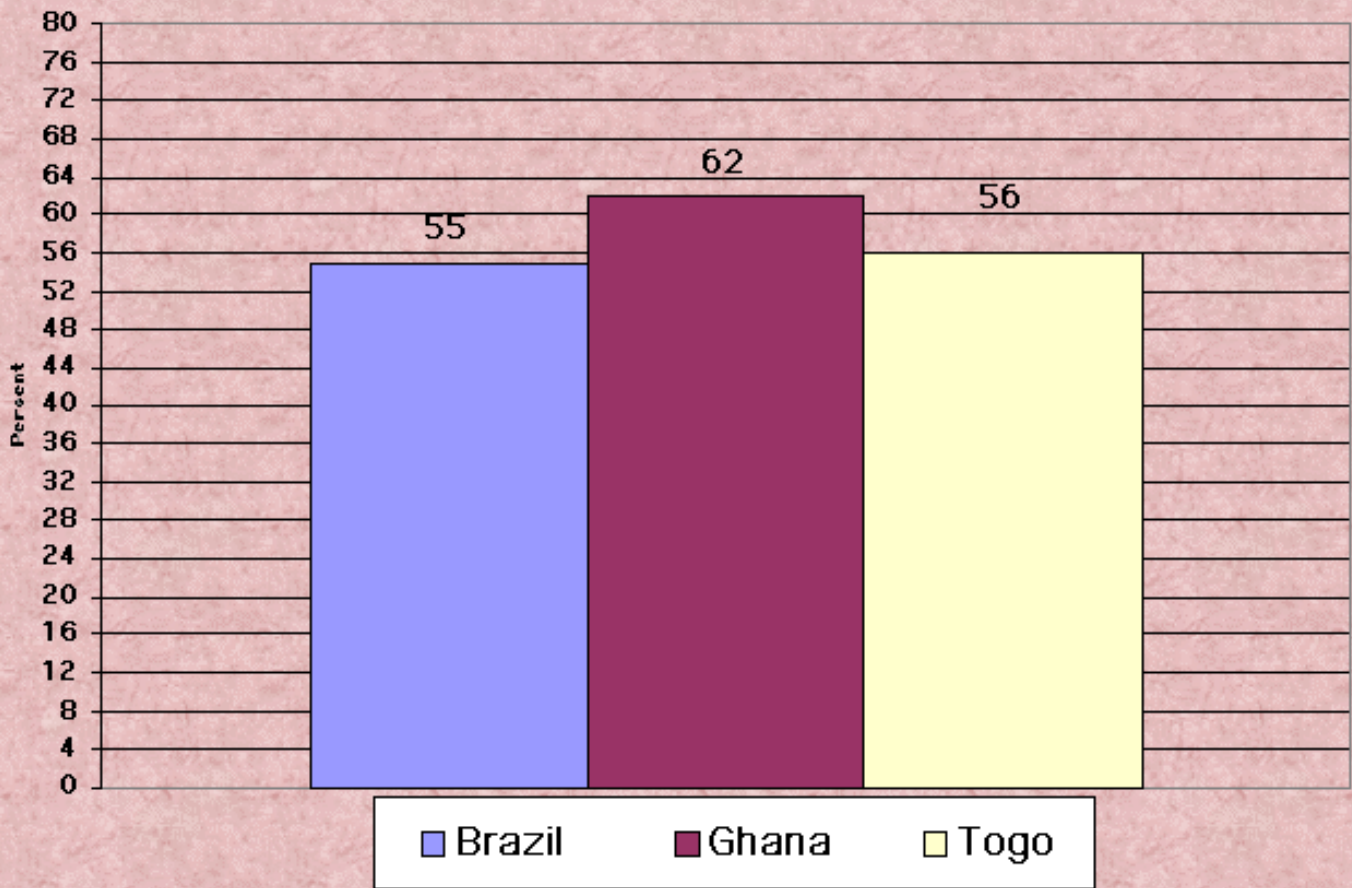
Ten Lakh= 10,00,000

Ten Lakh= one million

One Crore= Ten million

One Crore= 1,00,00,000

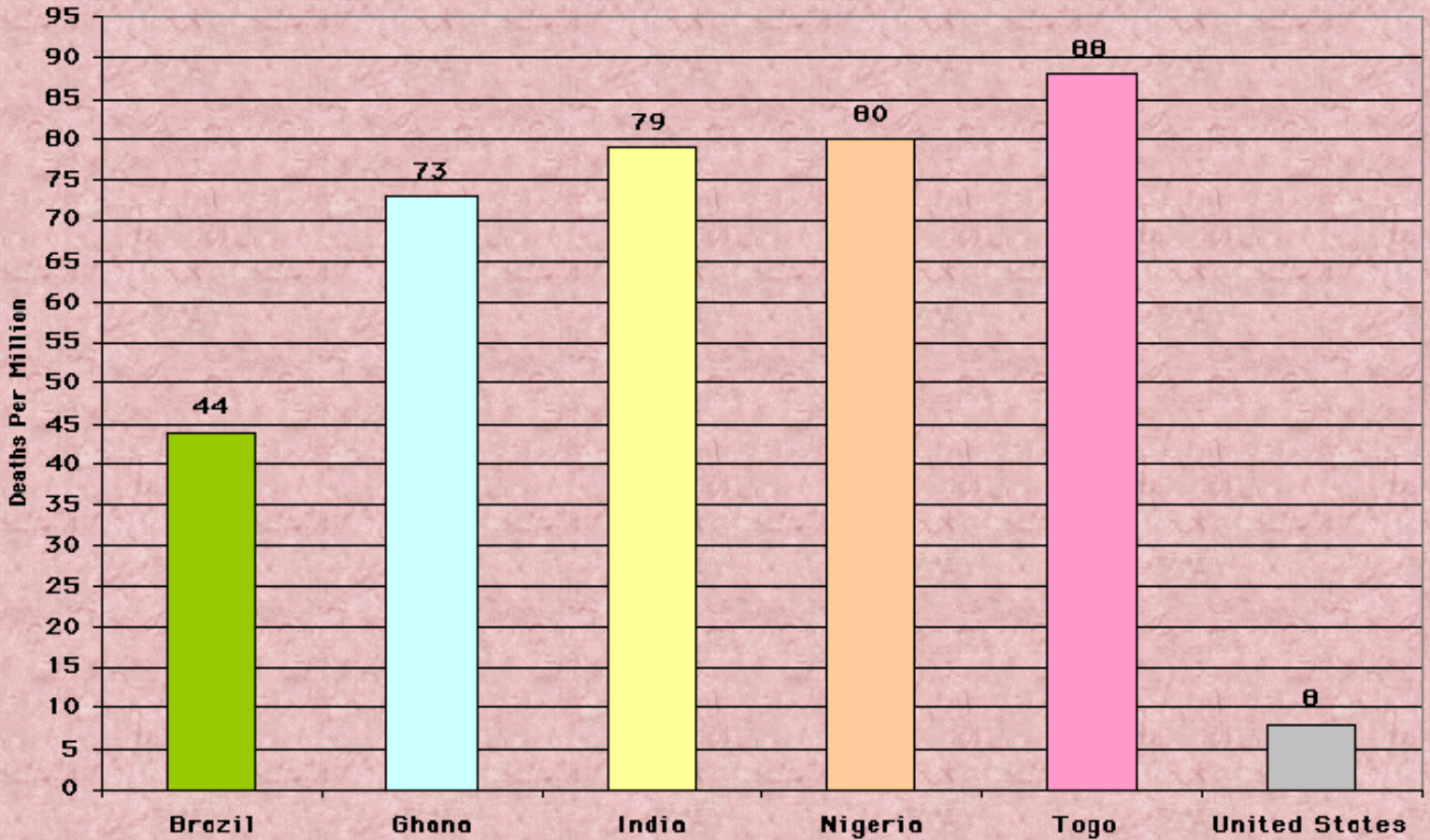
% of Urban Access to Adequate Sanitation



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Infant Mortality Rate (Per 100 Live Births) - 1995



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11/24/98

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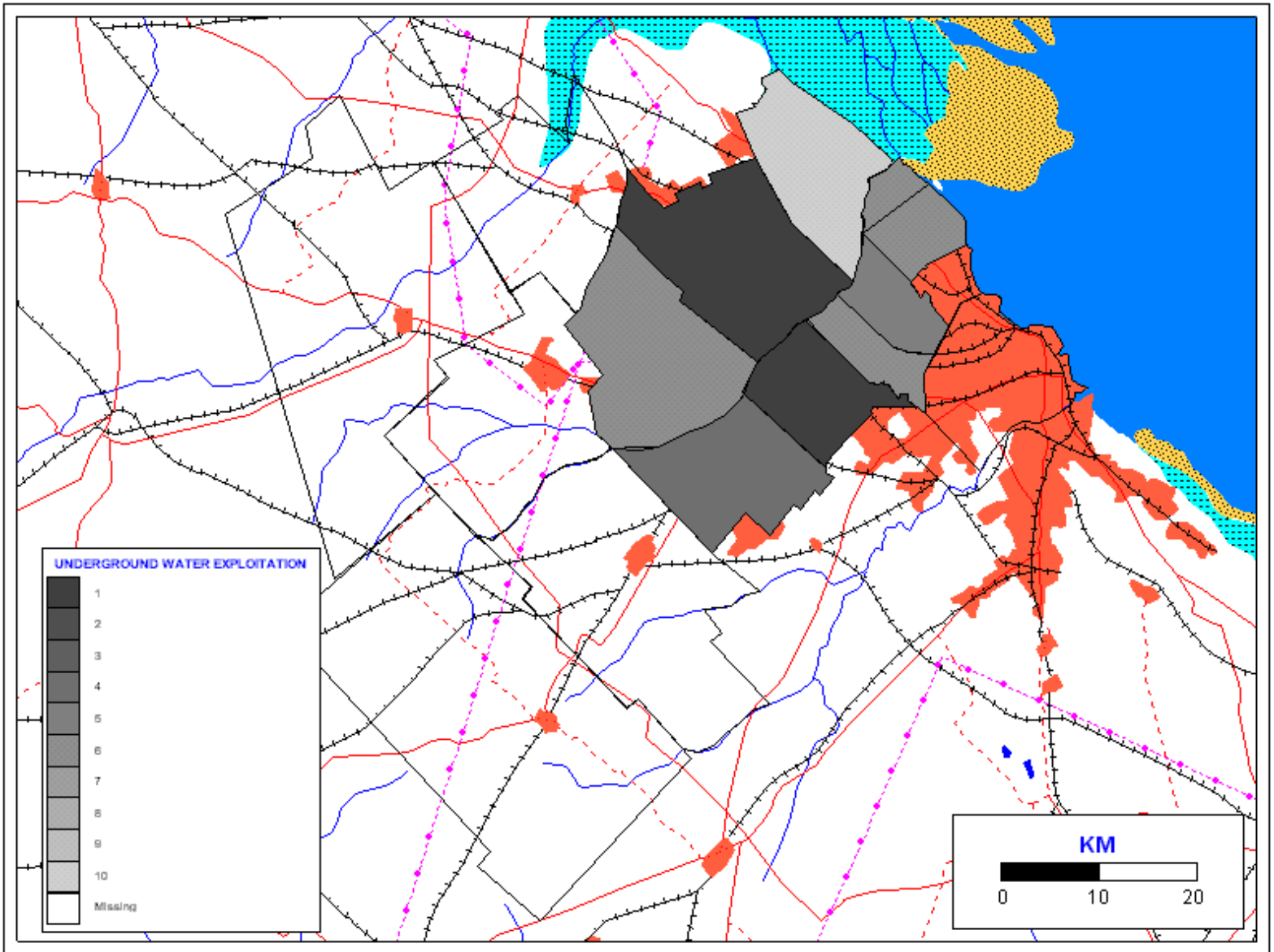
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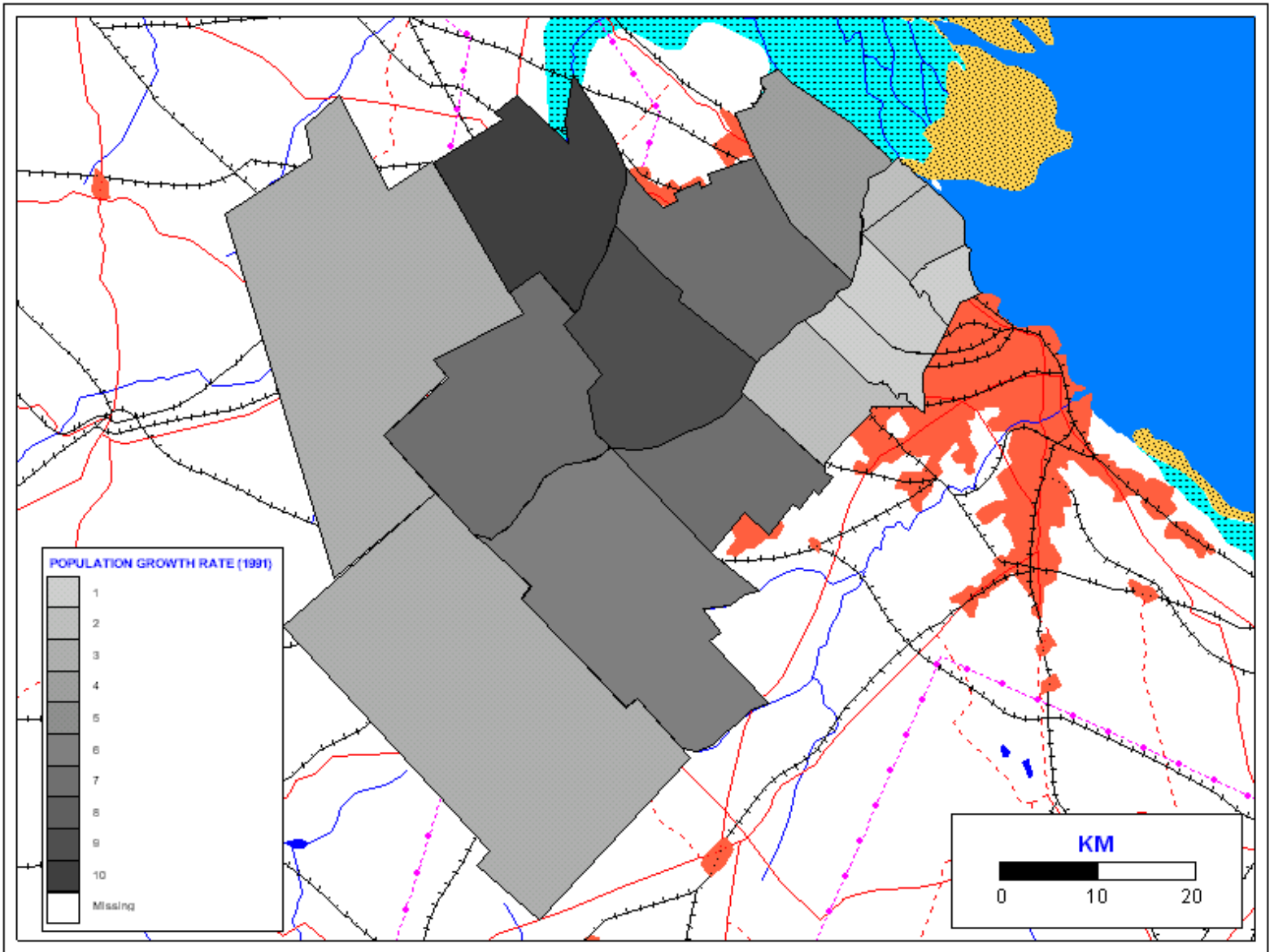
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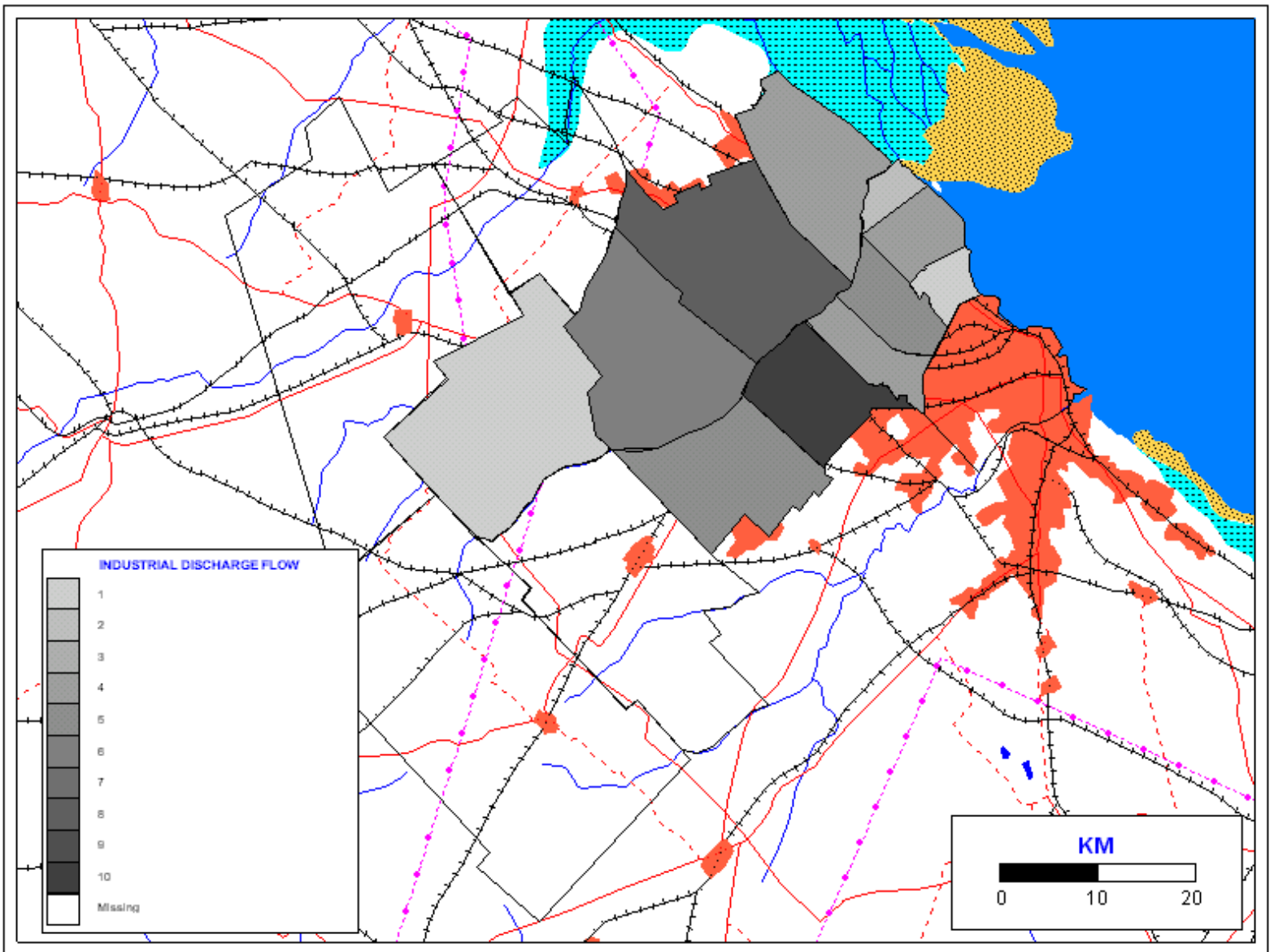
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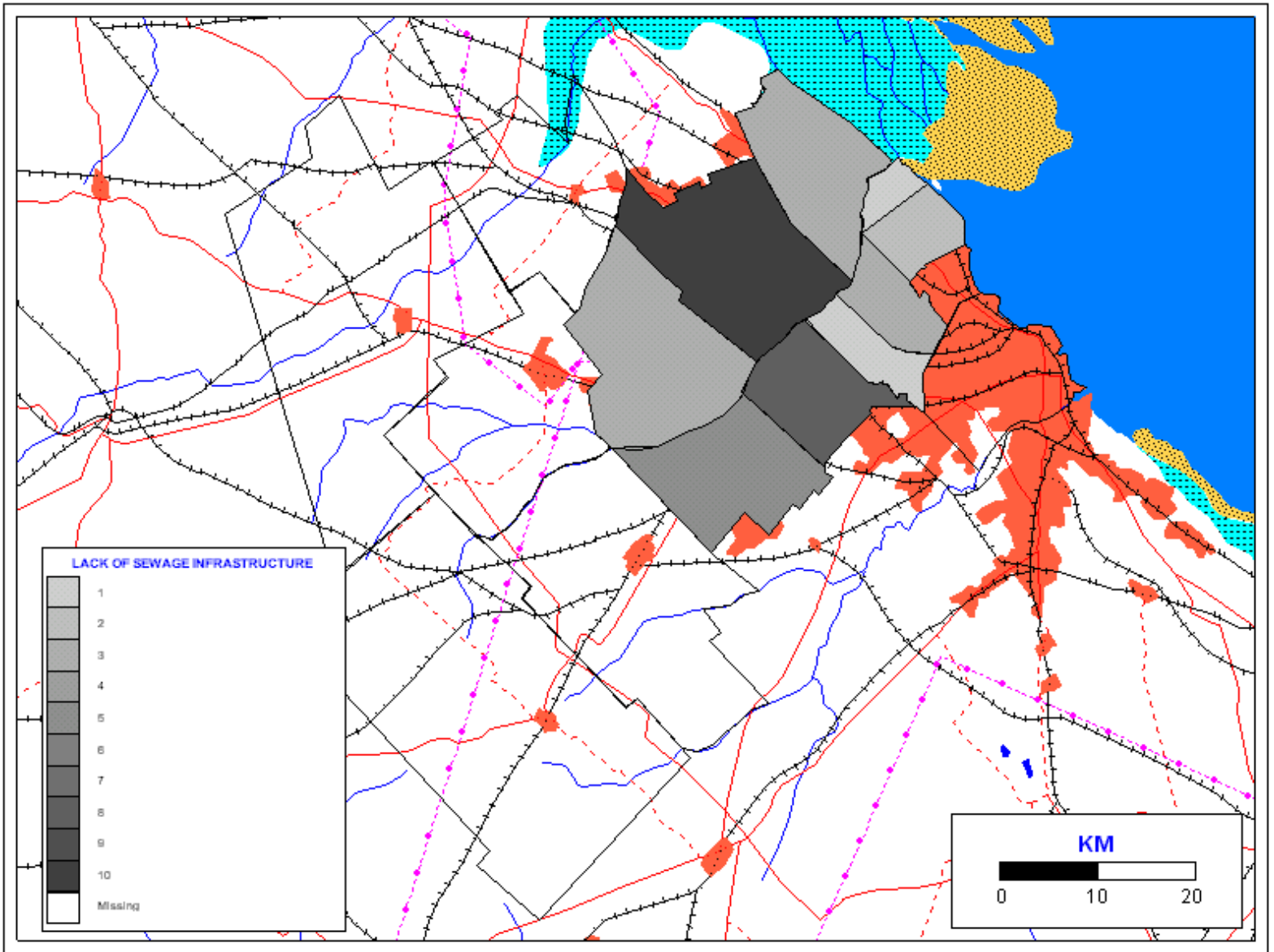
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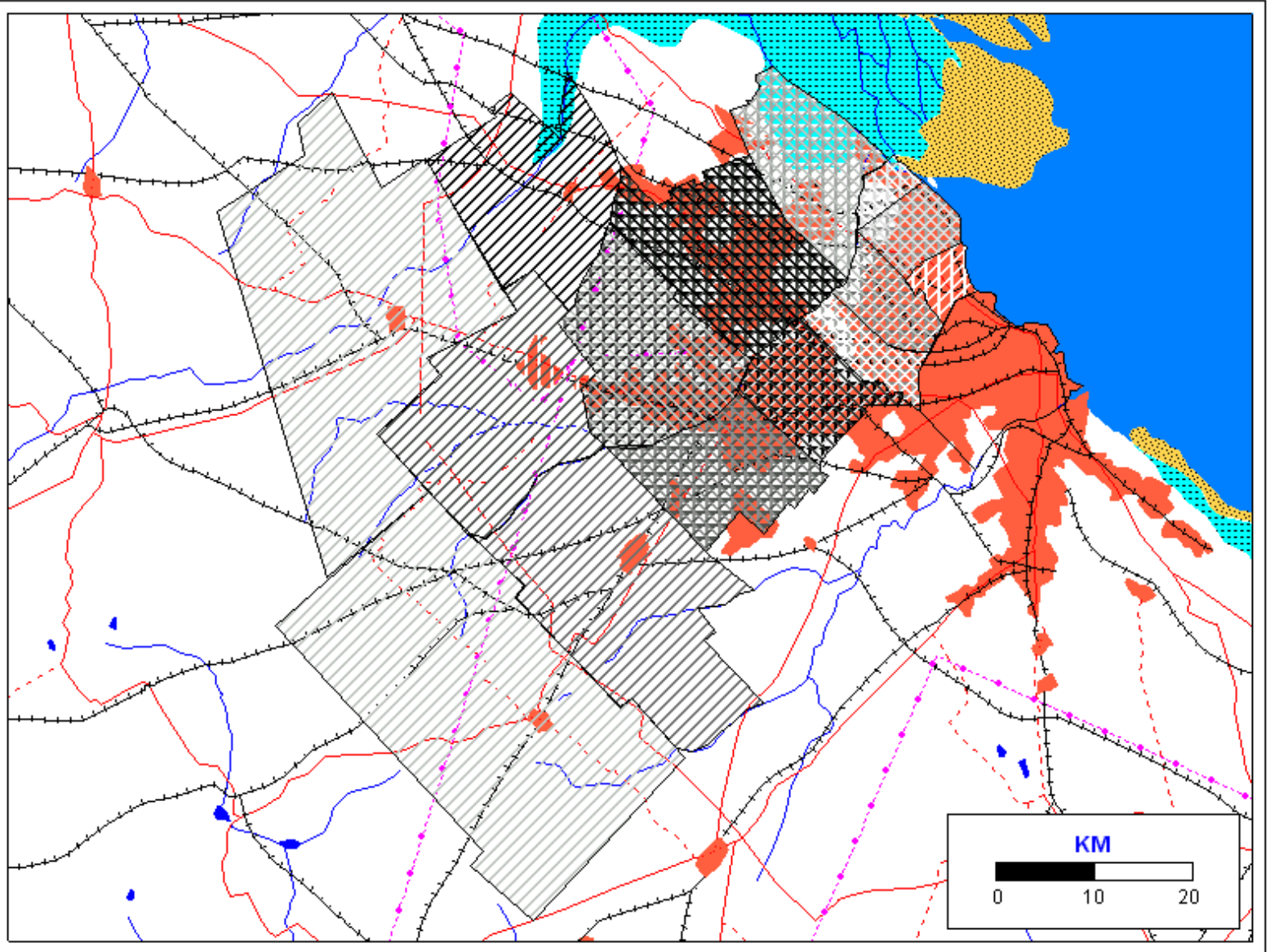
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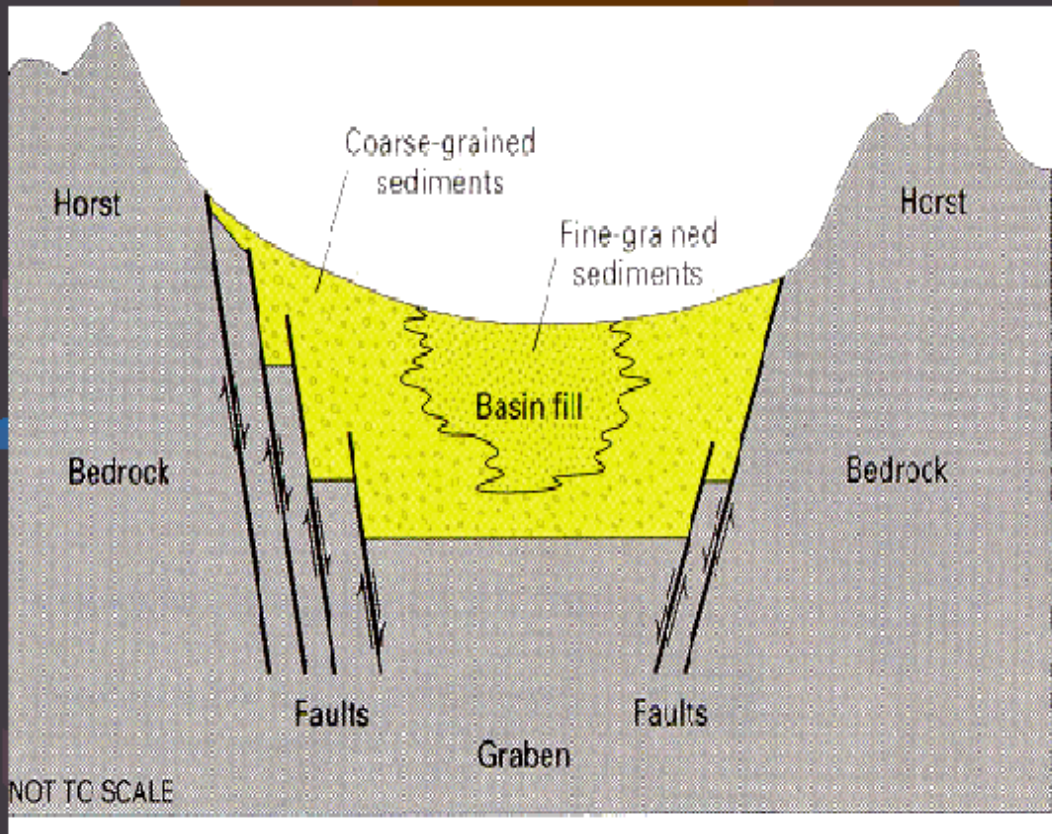








Aquifer Structure



PPT Slide

Overview of Presentation

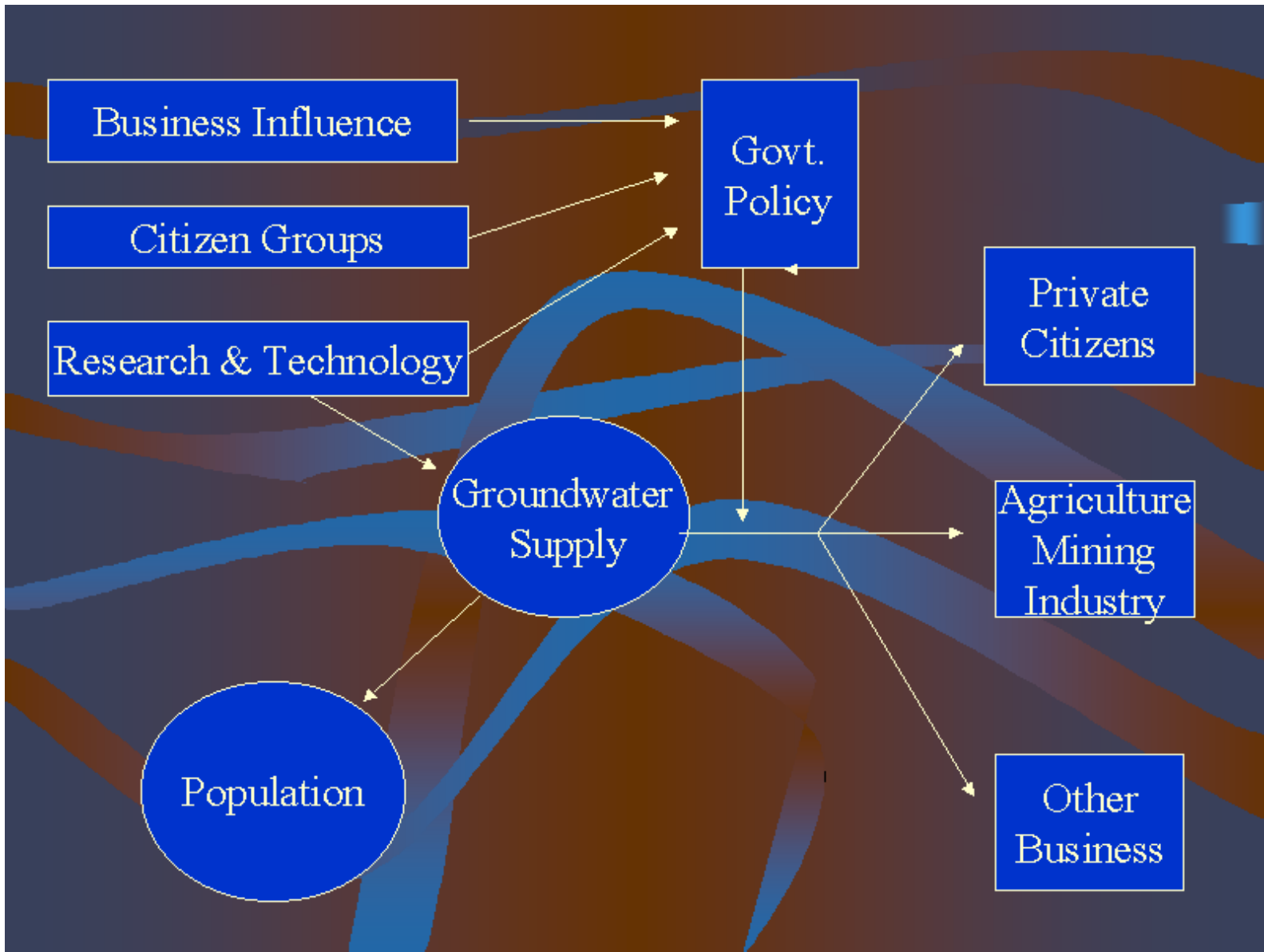
- A. Hydrological Concepts
- B. Tucson Geography and Hydrology
- C. Population Change in Tucson
- D. Tucson's Economic Base
- E. Water Consumption Patterns
- F. Water Management
- G. Other Politics
- H. Central Arizona Project
- I. Solutions?

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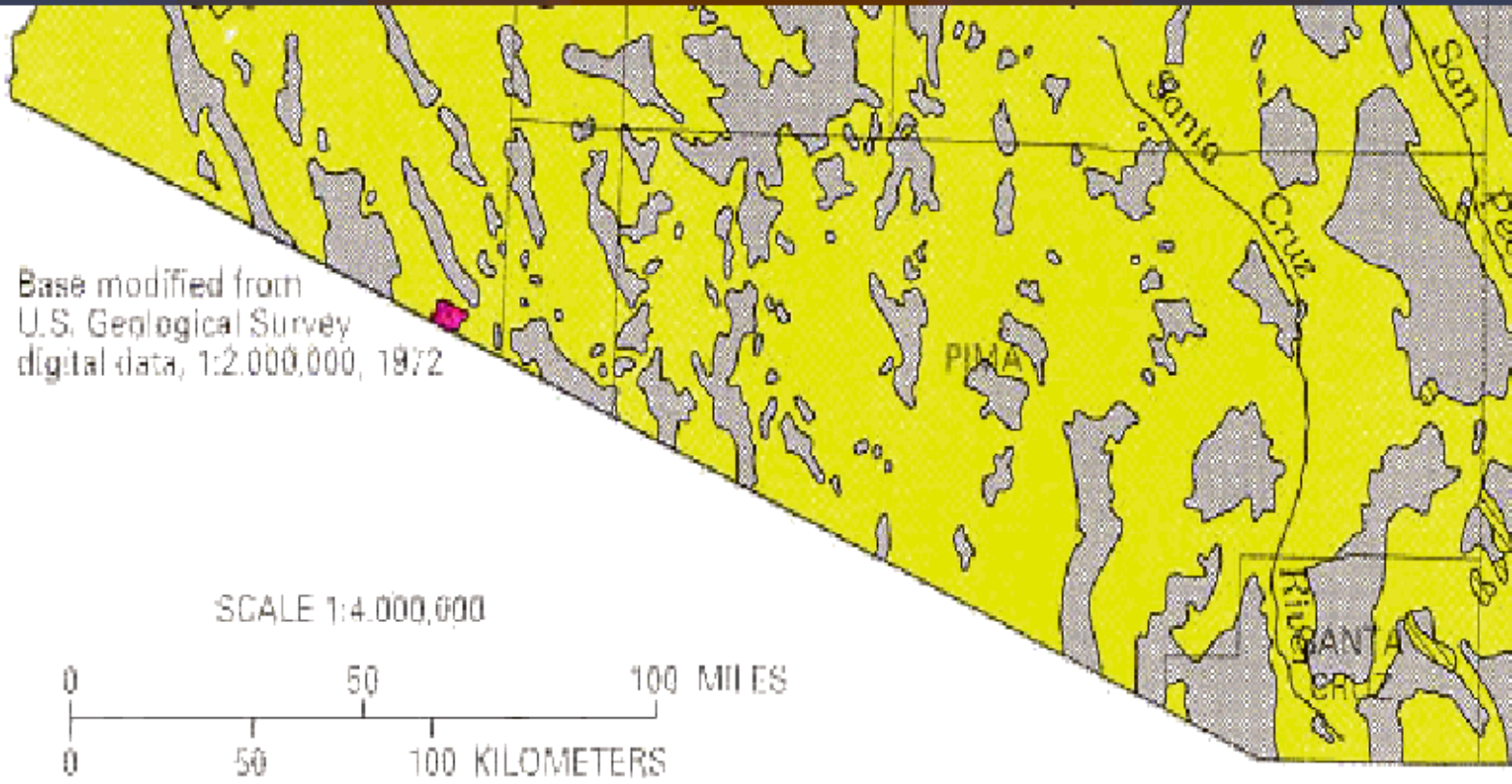
Solutions?

- Find New Resources, Replenish Current Resources
- More Efficient Use of Resources
- Reduce Consumption

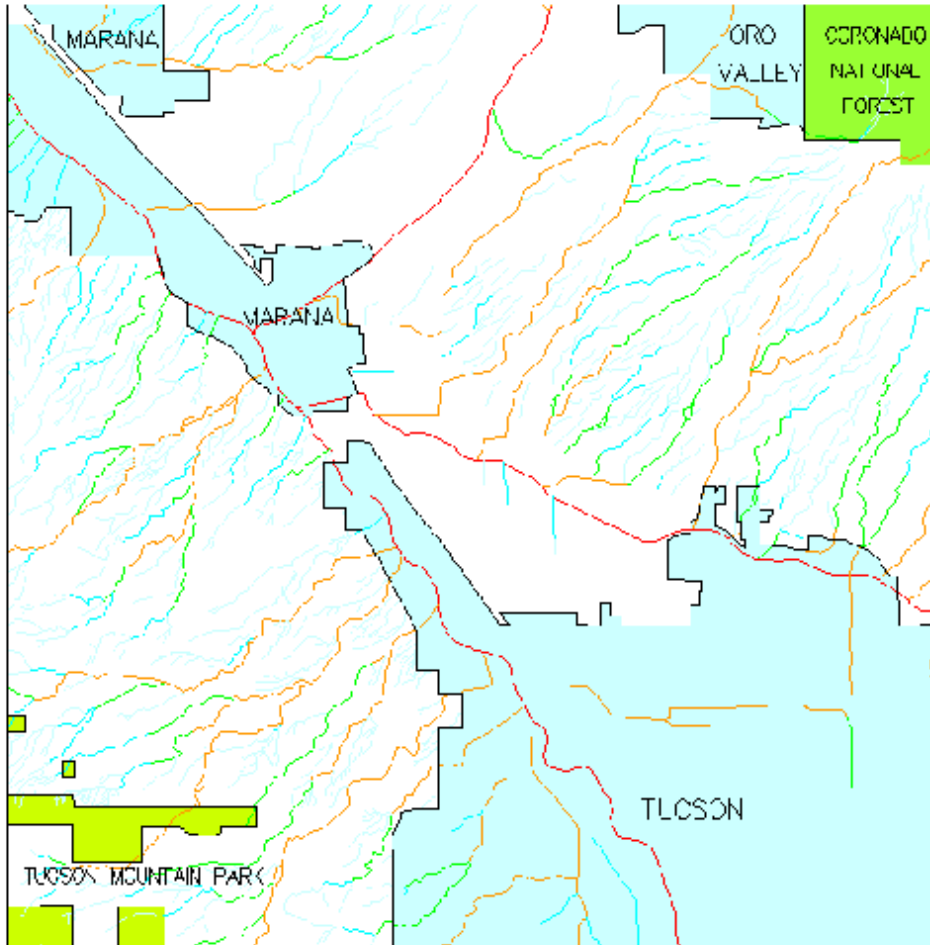
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WATERCOURSE FLOW RATES



-  LESS THAN 500 CFS
-  500 - 1000 CFS
-  1000 - 2000 CFS
-  2000 - 10,000 CFS
-  10,000-25,000 CFS
-  GREATER THAN 25,000 CFS

Source: Pima County Flood Control District

Each reach has been attributed with a flow rate measured in cubic feet per second. Using a logical or Boolean expression, the user can select only the reaches above or below a specific flow rate for display or analysis.



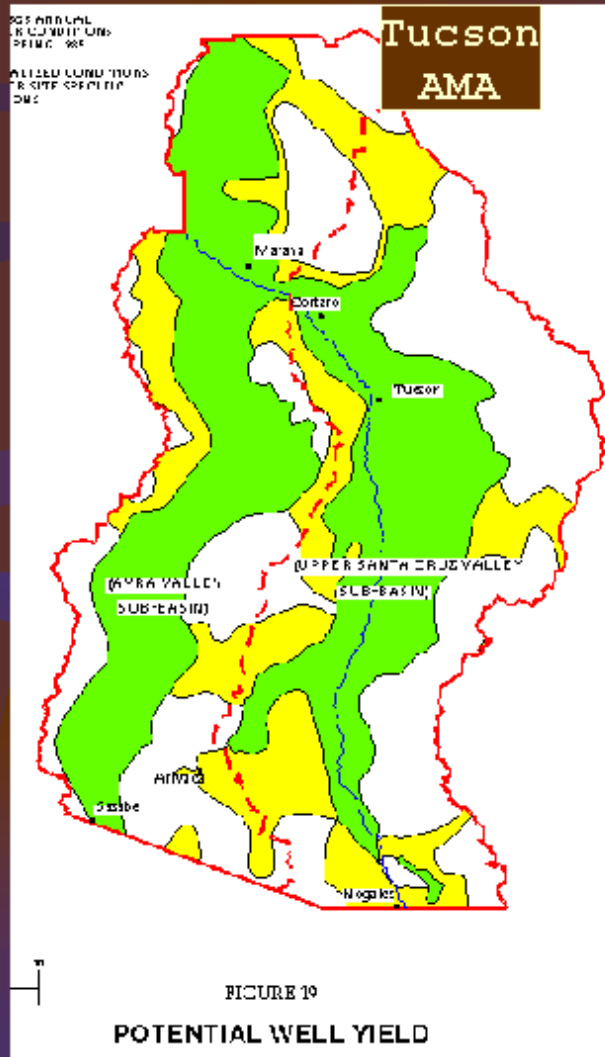
Water Supply

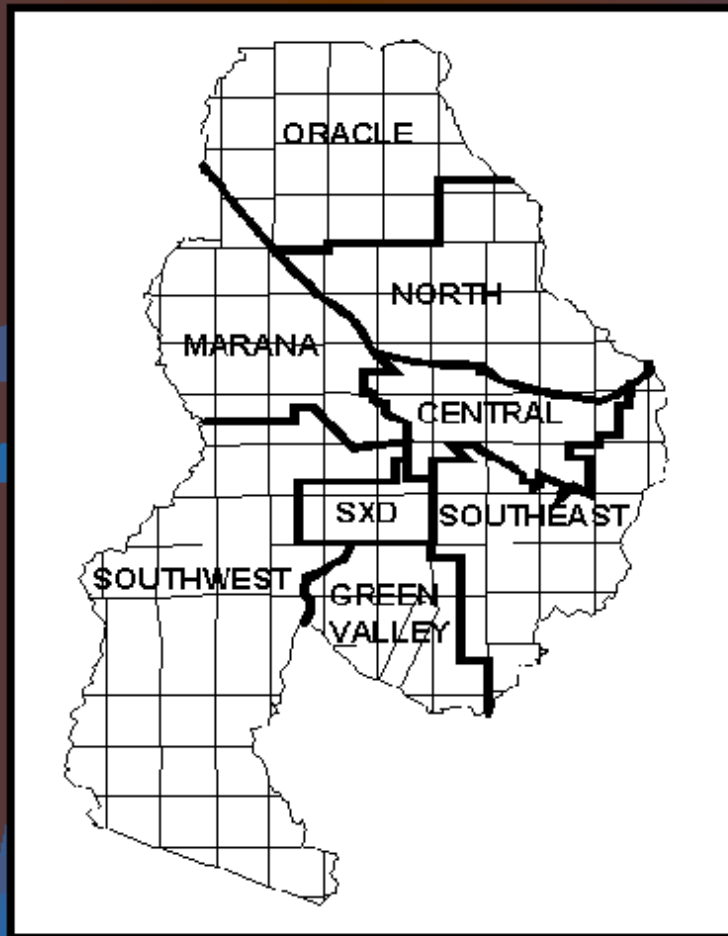
Surface Water

Groundwater

CAP Water

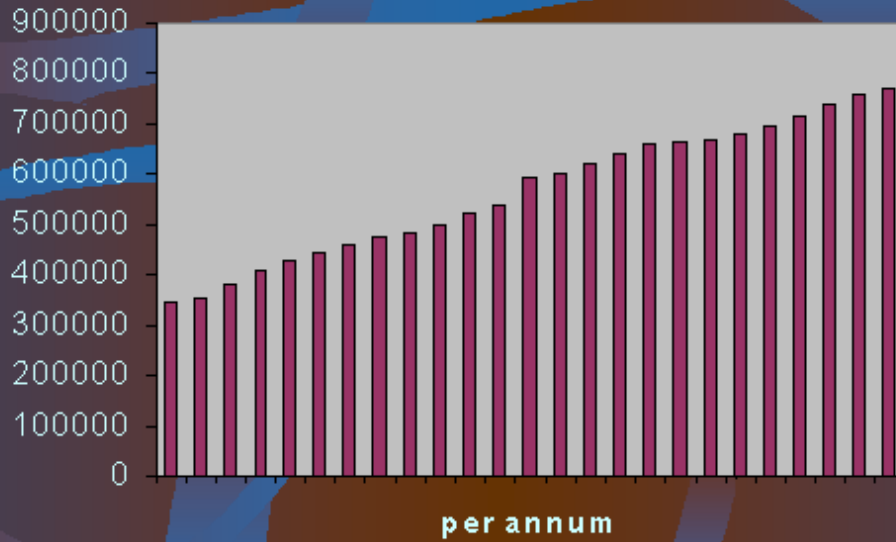






Population Transition

Tucson Population Growth, 1969-1996



Tucson's Economic Base

31 % Service Industry
23% Government
22% Trade
9% Manufacturing
6% Construction
4% TCPU
4% Fire
1% Mining



Groundwater Consumption by Sector

Municipal Groundwater Consumption

1985 112,655 AF

1990 123,165 AF

1995 147,080 AF

Agricultural Groundwater Consumption

1985 111,004 AF

1990 89,815 AF

1995 95,379 AF

Industrial Groundwater Consumption

1985 55,744 AF

1990 47,974 AF

1995 59,422 AF



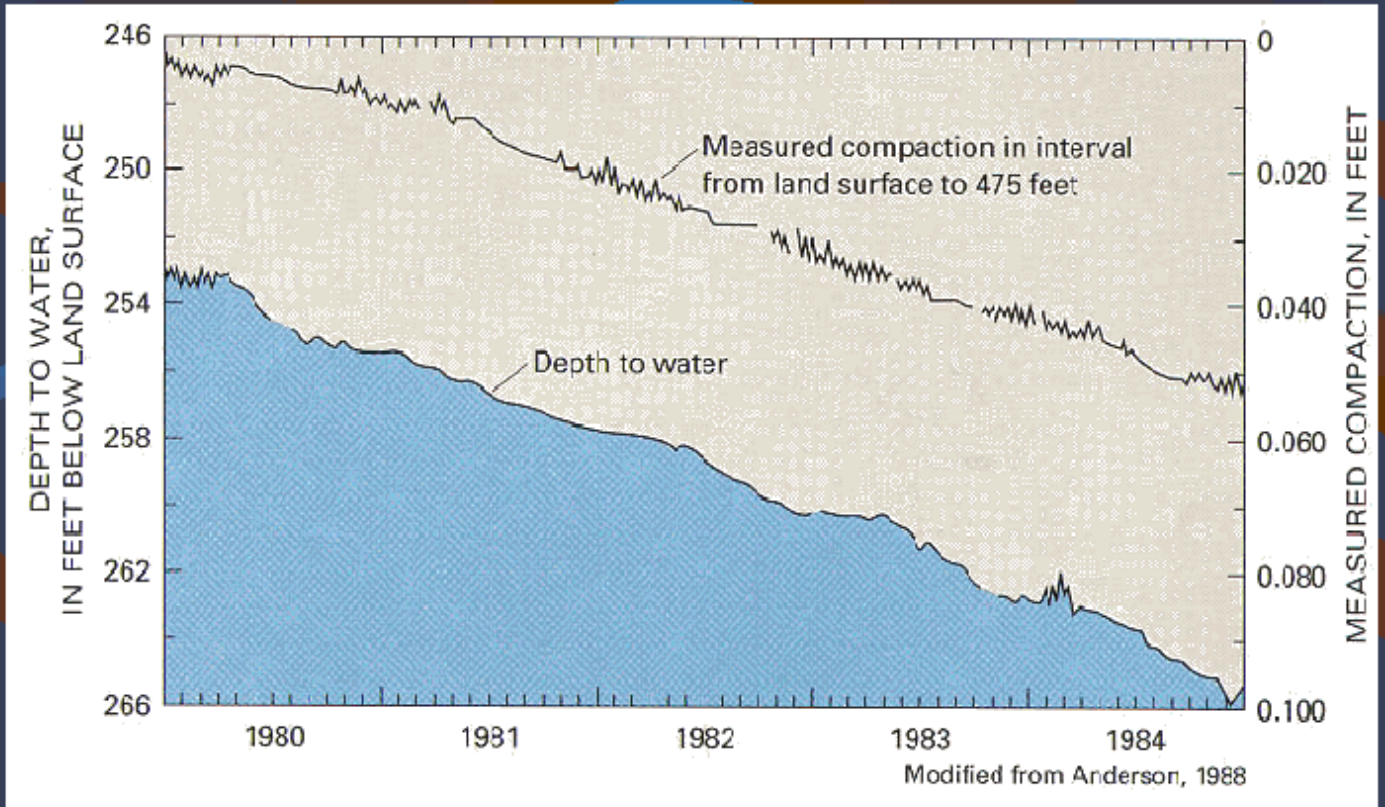
Hydrological Transitions

Effects of drop in water table:

- Reduced Inflow/Outflow
- Altered Inflow/Outflow Patterns
- Compaction of Aquifer
(subsequent decrease in recharge)
- Land Subsidence
- Earth Fissures



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Ecological Transitions

Effects of drop in water table:

- Reduced Streamflow
- Drying stream beds
- Consequences for Riparian Habitats
- General vegetation die-off
- Desertification



Impacts on Society

- Altered Inflow/Outflow Patterns : Effects on local wells
- Land Subsidence and Earth fissures: Damage to well casings, sewage systems, irrigation systems, building foundations.
- Increased salinization/TDS: Poorer water quality
- Problems associated with increased pumping lift



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Economic Transitions

- Residential Developers on the rise
- Environmental Technology on the rise
- Telecommunications Industry rising
- Agriculture Declining



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Policy

Dynamics

Governing Bodies and Present Laws

- ADWR (vs. Pima County or Tucson Planning)
- Groundwater Code of 1980 (safe-yield by 2025)
- Proposition 200



Political “Transitions”

As groundwater supplies run out:

- Increased number of governing bodies managing H₂O
- Increased number and activity of citizen groups
- Increased spending: management, education, technology and research, disputes (govt and legal)
- Increased tension among stakeholders



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Overview



- Bangladesh Introduction
- Demographic Transitions
- Grameen Bank
- Grameen's Impact on Fertility
- Natural Disasters
- Grameen's Resilience
- Conclusions



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Bangladesh Relationships

Grameen

Bank

Population

Growth

Natural

Disasters

Poverty

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Conclusions

- Grameen should integrate family planning into operations
 - Target members are high fertility (rural poor)
 - Essential to mission of alleviating poverty
 - Should focus efforts on Chittagong



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Community Economic Development Comparison

. Grameen Bank

- Developing world
- Entrepreneurship
- No training
- Rural
- Bank goes to members

. Focus Hope

- Developed world
- Wage labor
- Intensive training
- Urban
- Members go to FH

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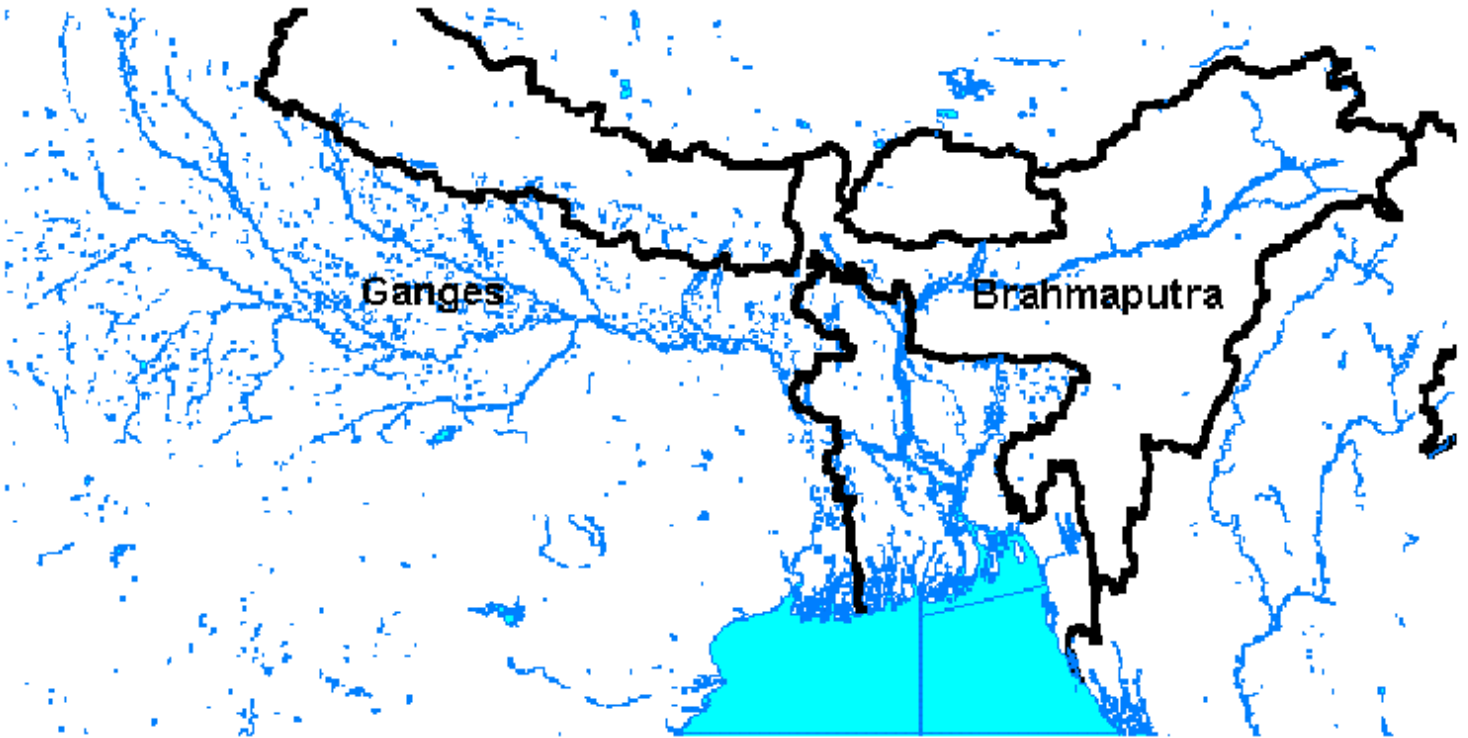
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Bangladesh

- 1971 Independence
- Flat plains
- 3 Seasons

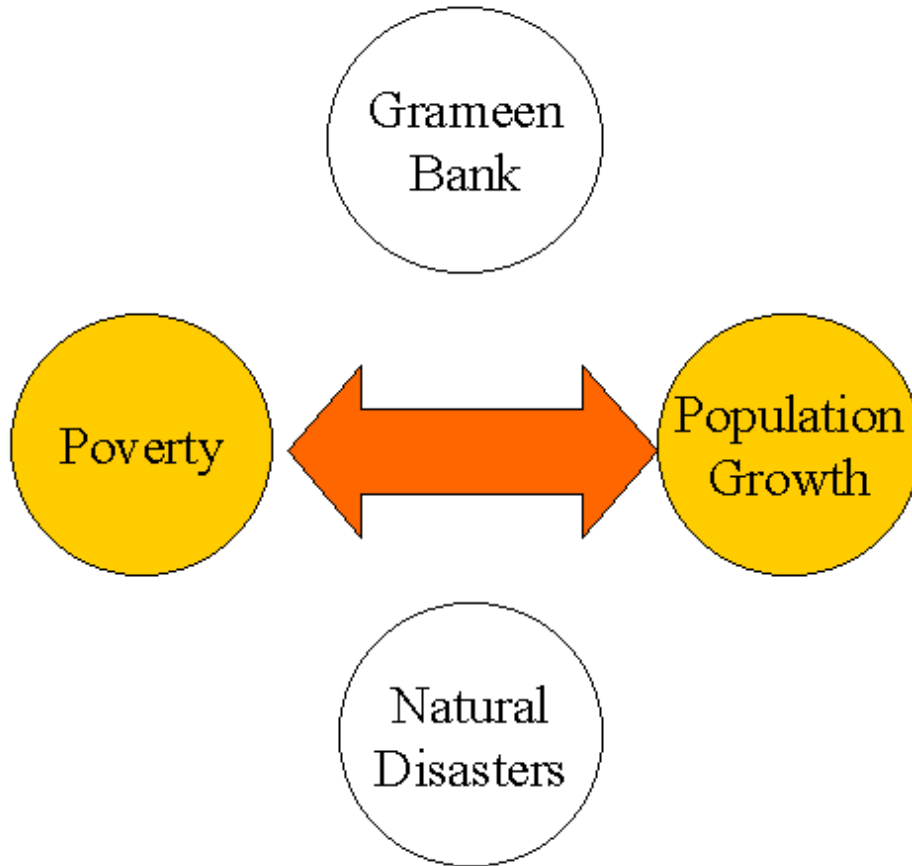


River Basins

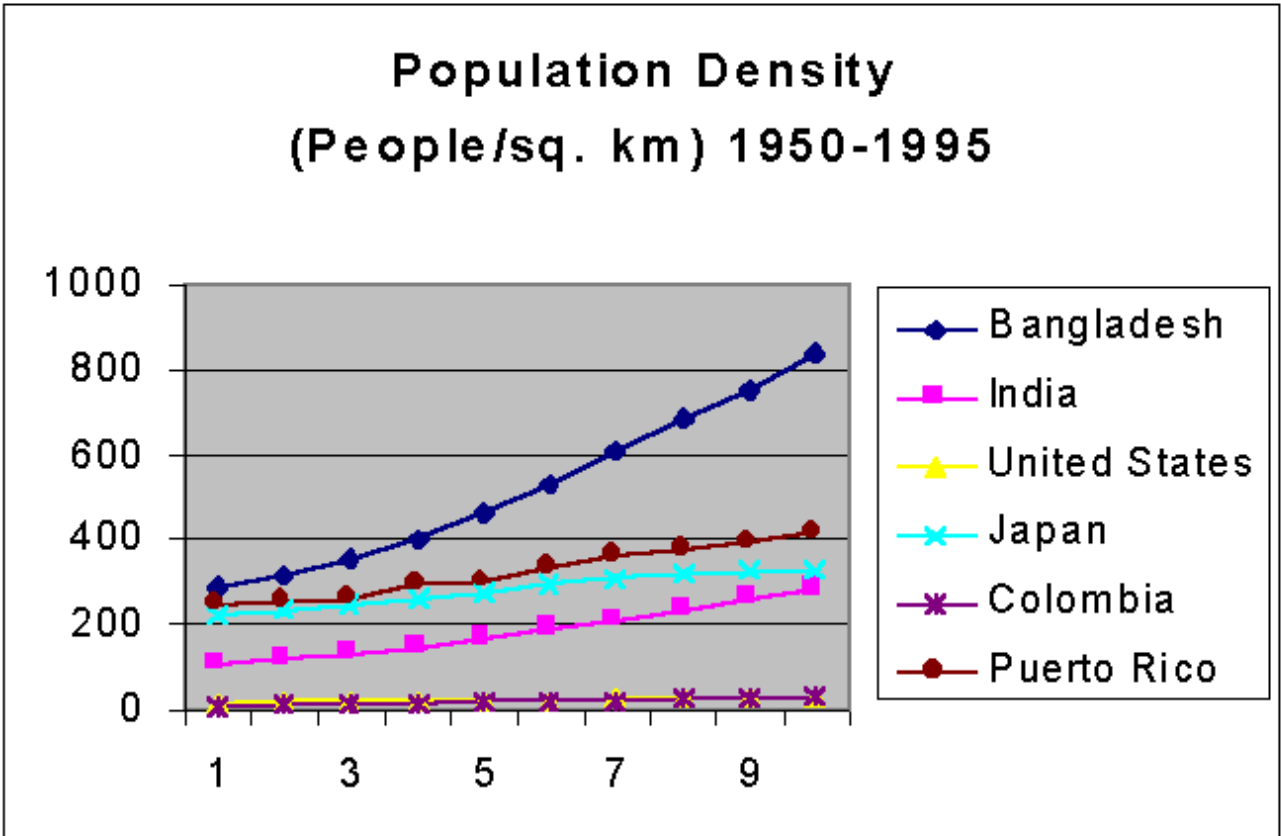


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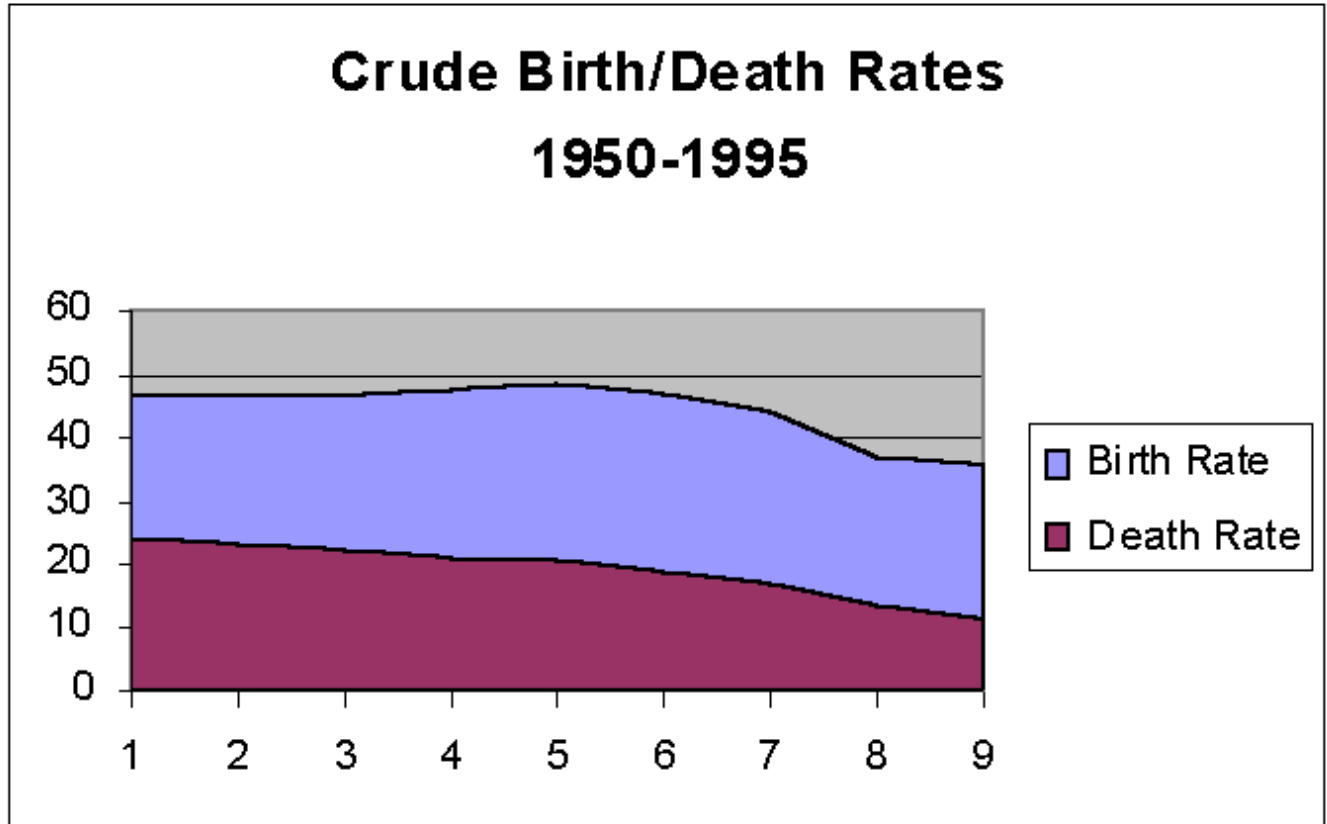
Demographic Transitions



High Population Density

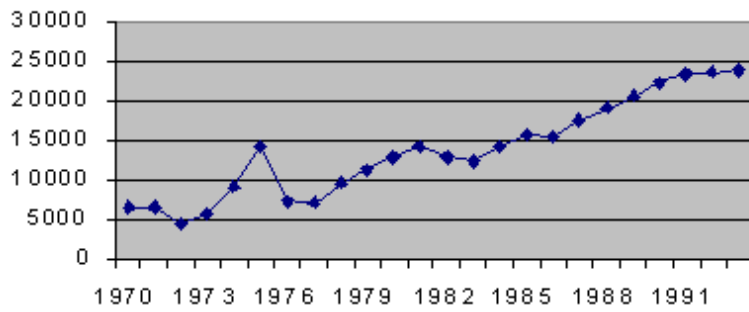


Shifting Births/Deaths

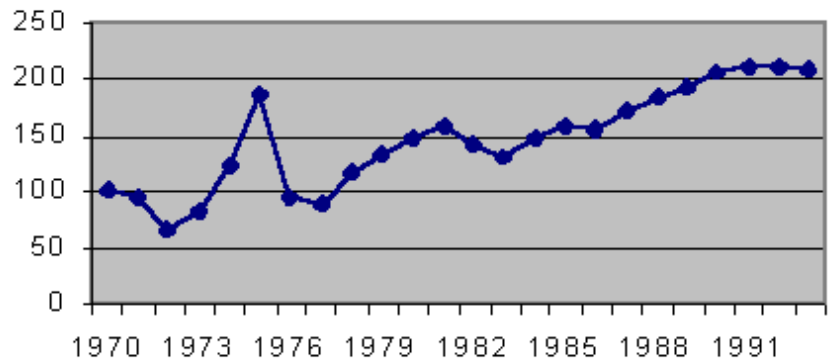


Stagnating GDP

Gross Domestic Product
(U S \$ Millions)



GDP Per Capita (US\$)



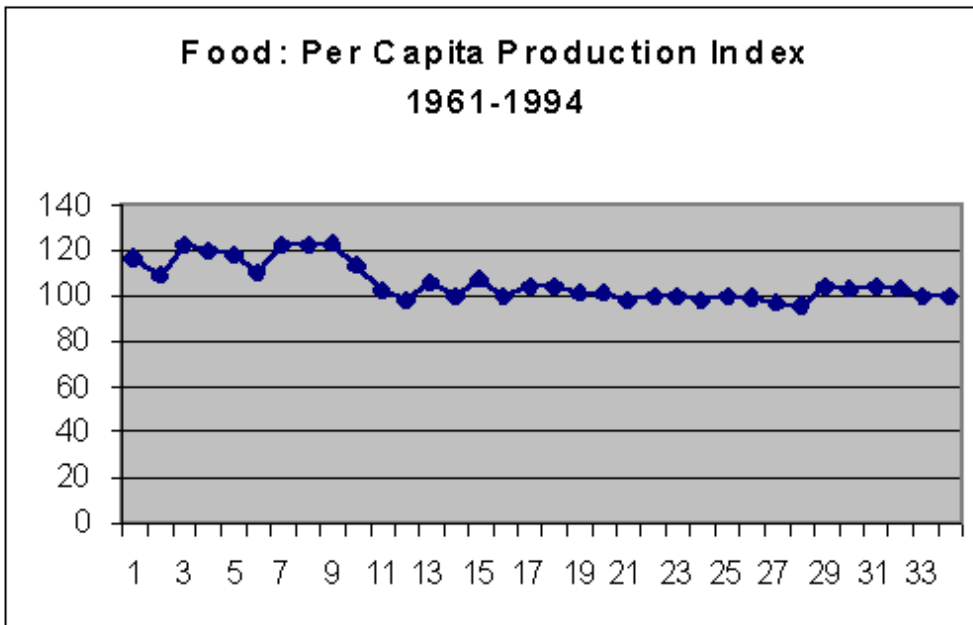
Increasing Landlessness

- Landless
 - 20% around WWII
 - over 50% today
- Agriculture in 1992
 - 73% of labor force
 - 34% of GDP



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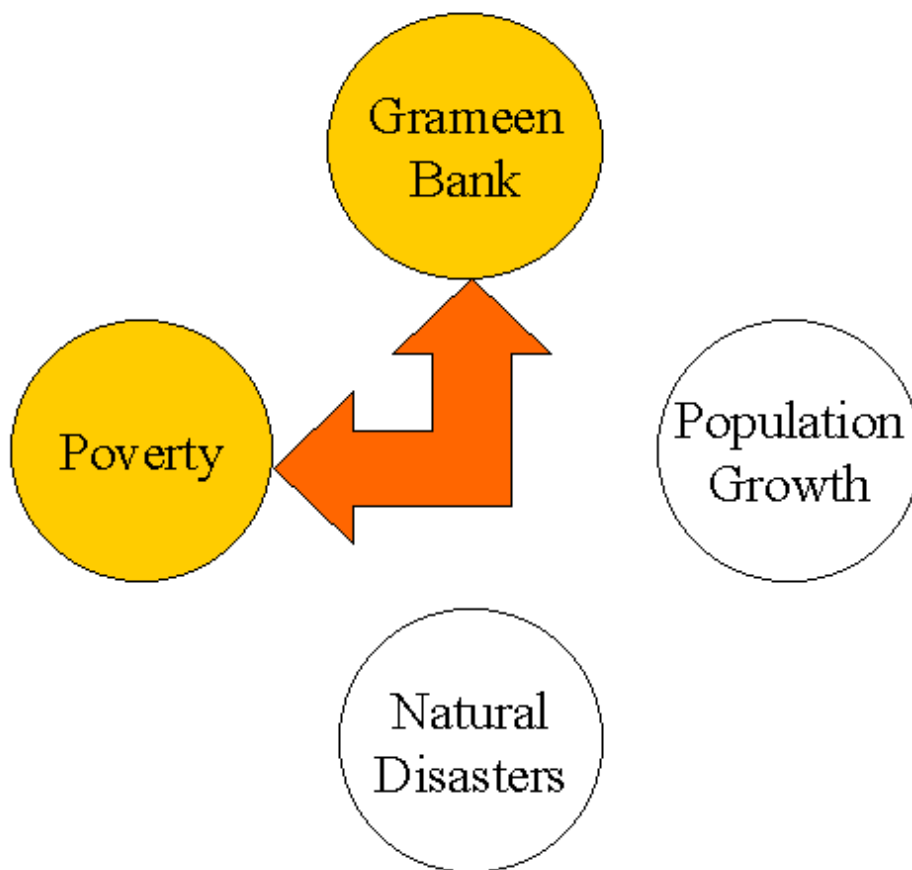
Food Crisis?



- % households meeting calorie requirements
 - 1975 - 41%
 - 1991 - 21%



Grameen Bank



Need for Microcredit

- Microcredit: Small loans to rural poor
- Professor Yunus: Listening to the need
 - 59% of borrowing households are poor
 - Need money for investment and emergencies
 - No collateral or bargaining power
 - Professional money lenders - high rates
 - People know own needs to build assets
- Vision: eliminate poverty



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Grameen Bank Loans

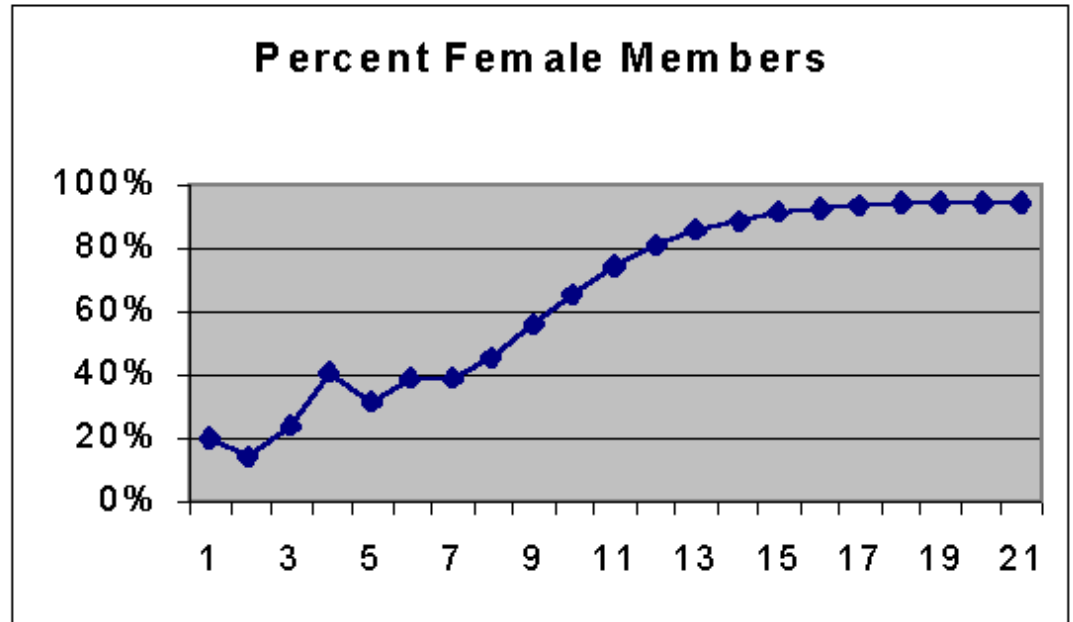
- Members form loan groups
- Social collateral
- Same rate as commercial loans
- Entrepreneurship to build assets
- Safety net requirements
 - Save 1 Taka per week
 - Group loan fund



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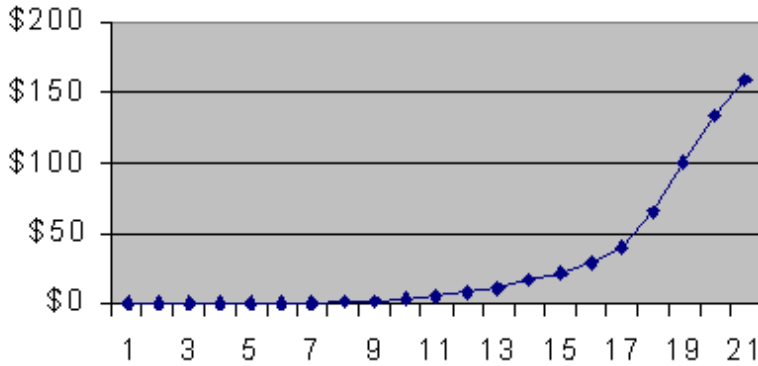
Grameen Targets

- Poorest 50%
- Rural villages
- Landless
- One per family
- Women

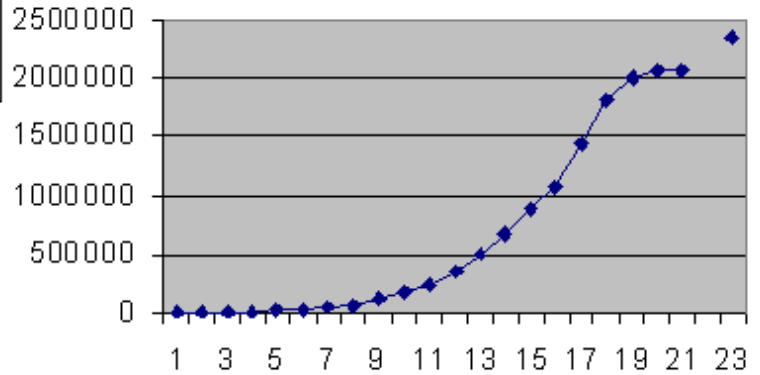


Grameen Growth

**General Loan Disbursements
(US\$ Millions) 1976-1996**



**Grameen Bank Members
1976-1998**



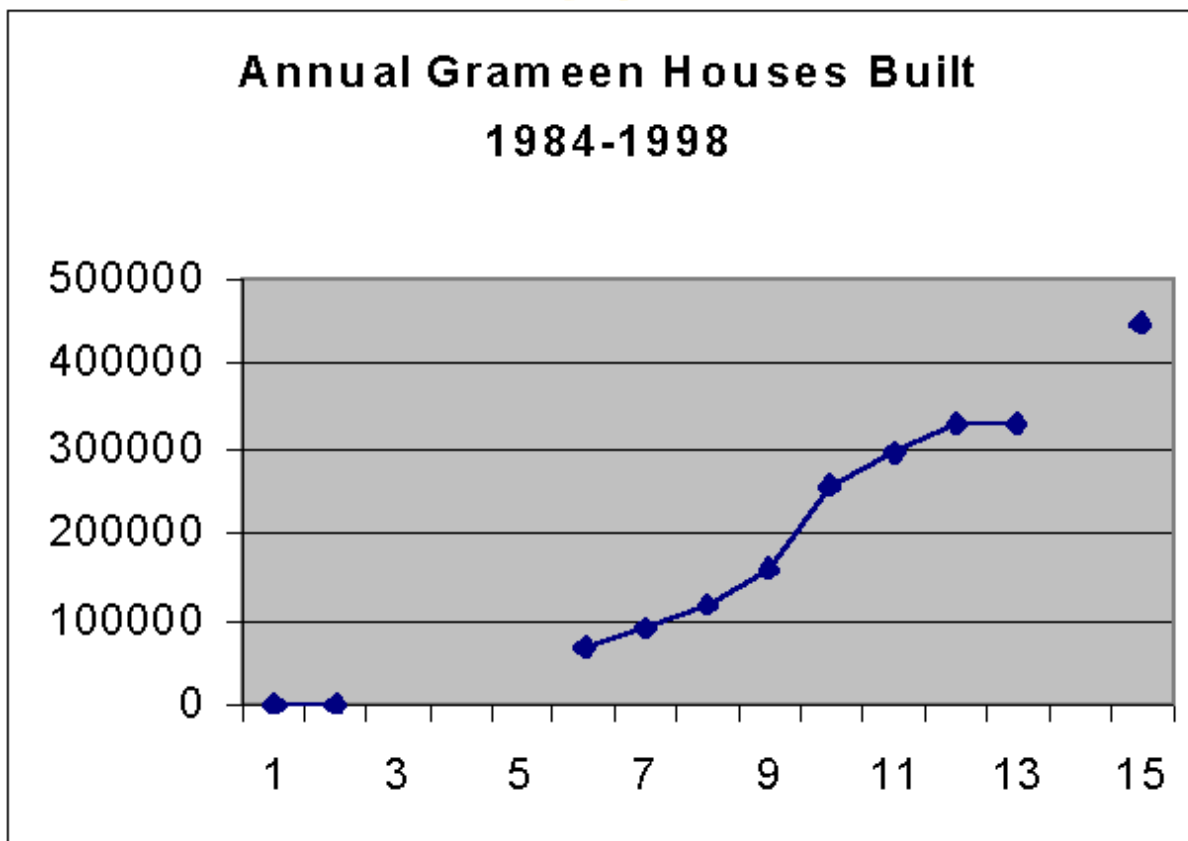
Additional Services

- 1984 - Housing loans
- 1988 - Tubewells
- 1993 - Health program
- 1994 - Fish farming, Venture capital fund (cows and computers)
- 1996 - Handwoven textiles
- 1996 - Telecom, Renewable Energy, Internet



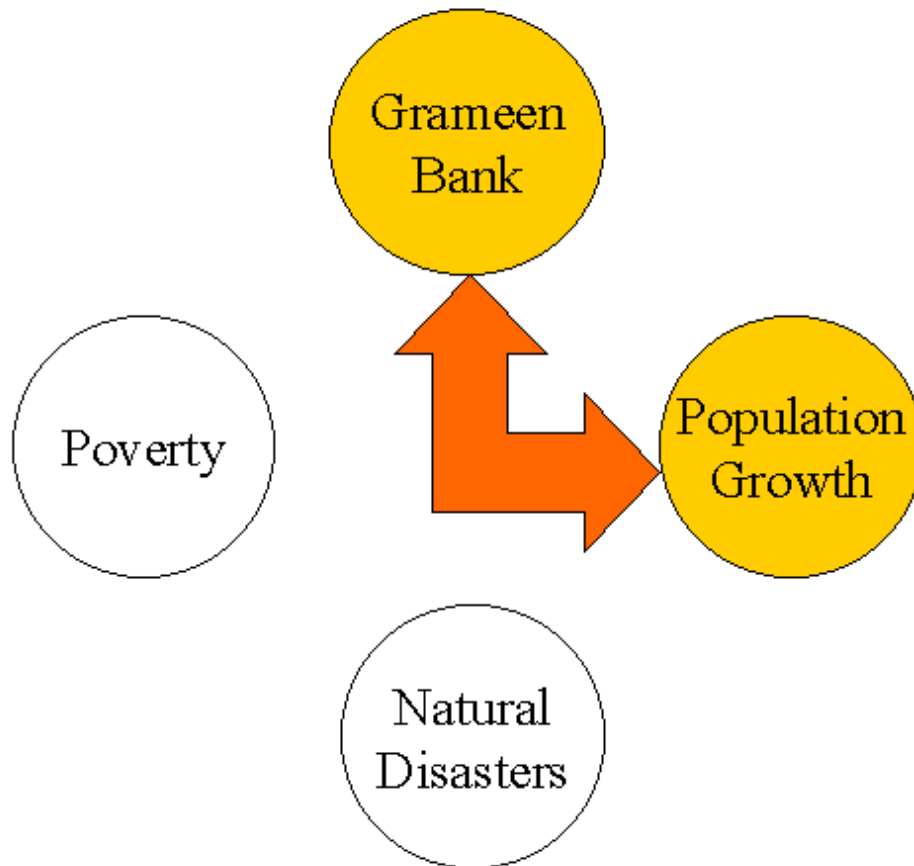
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Grameen Houses



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Grameen's Impact on Fertility



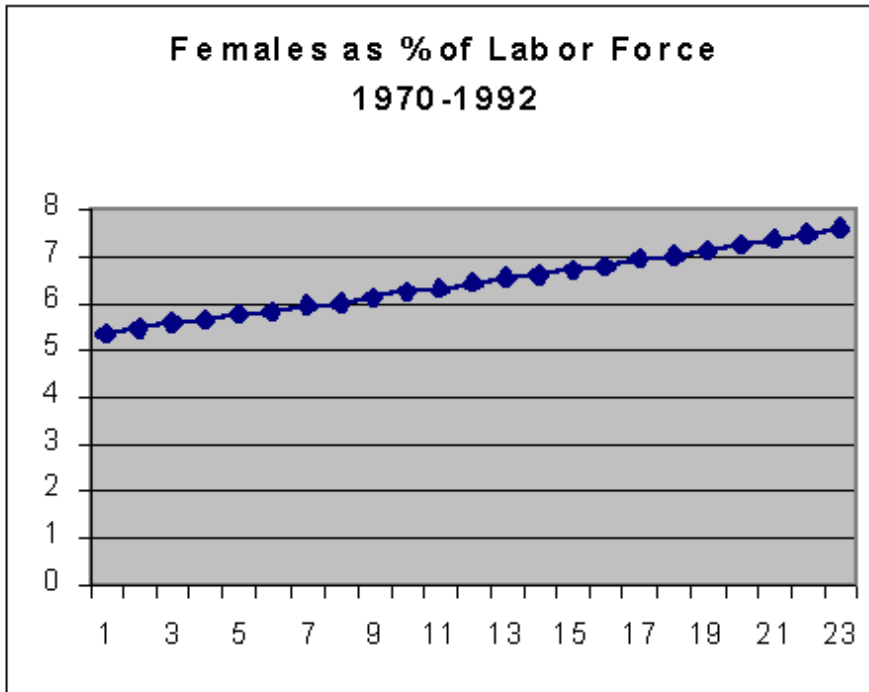
Fertility Factors

■ Youthful age structure	?
■ Contraception	+
■ Status of Women	+
■ Economic position	-
■ Land holdings	-
■ Purdah	+
■ Independent income	+
■ Education, literacy	+
■ Disease	+
■ Urban	+



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Status of Women Improving



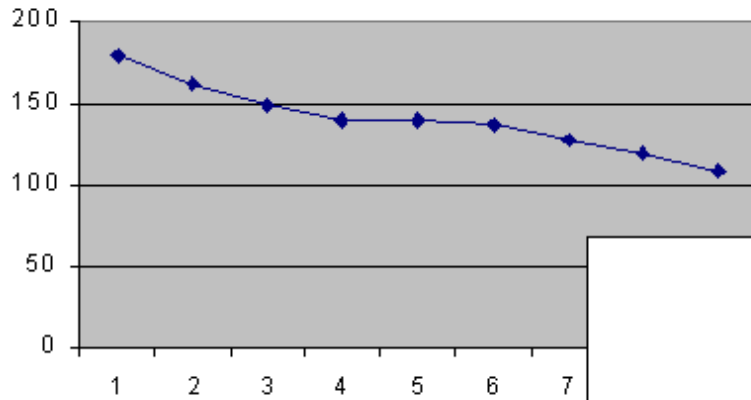
% Females Literate

- 1970 - 12%
- 1990 - 23%

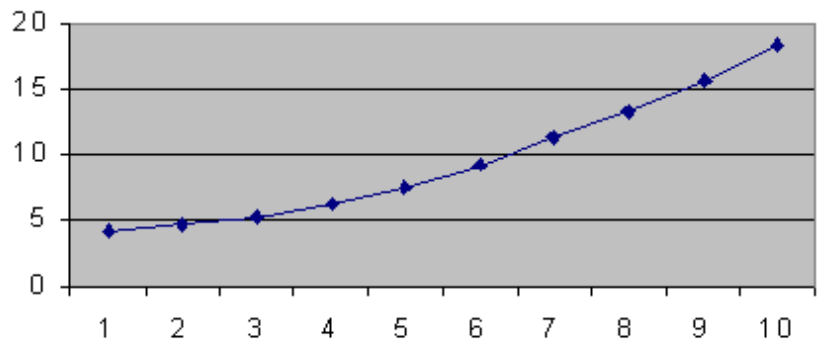


Disease and Urbanization Trends

Infant Mortality Rate 1950-1995



Urban Population Percent 1950-1995



The 16 Decisions

1. The four principles of Grameen Bank -- Discipline, Unity, Courage, and Hard Work -- we shall follow and advance in all walks of our lives.
2. Prosperity we shall bring to our families.
3. We shall not live in dilapidated houses. We shall repair our houses and work toward constructing new houses at the earliest.
4. We shall grow vegetables all the year round. We shall eat plenty of them and sell the surplus.
5. During the plantation seasons, we shall plant as many seedlings as possible.
- 6. We shall plan to keep our families small. We shall minimize our expenditures. We shall look after our health.**
7. We shall educate our children and ensure that they can earn to pay for their education.
8. We shall always keep our children and the environment clean.
9. We shall build and use pit-latrines.
10. We shall drink tubewell water. If it is not available, we shall boil water or use alum.
11. We shall not take any dowry in our sons' weddings, neither shall we give any dowry in our daughters' weddings. We shall keep the center free from the curse of dowry. We shall not practice child marriage.
12. We shall not inflict any injustice on anyone, neither shall we allow anyone to do so.
13. For higher income we shall collectively undertake bigger investments.
14. We shall always be ready to help each other. If anyone is in difficulty, we shall all help him.
15. If we come to know of any breach of discipline in any center, we shall all go there and help restore discipline.
16. We shall introduce physical exercise in all our centers. We shall take part in all social activities collectively.



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Impact on Fertility

- Two research studies confirm:
 - Members vs. Nonmembers
 - | Contraceptive Use - 62% vs. 47%
 - | Desire no more children - 86% vs. 62%
 - Contraceptive use increases with length of membership
 - Nonmembers in village have increased use of contraceptives
 - Contraceptives acquired from government family planning



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Mechanisms of Impact

- Contraception +
- Status of Women +
 - Economic position +
 - Land holdings +
 - Purdah +
 - Independent income +
 - Education, literacy +
- Disease +
- Urban -
- Concern about receiving loans +



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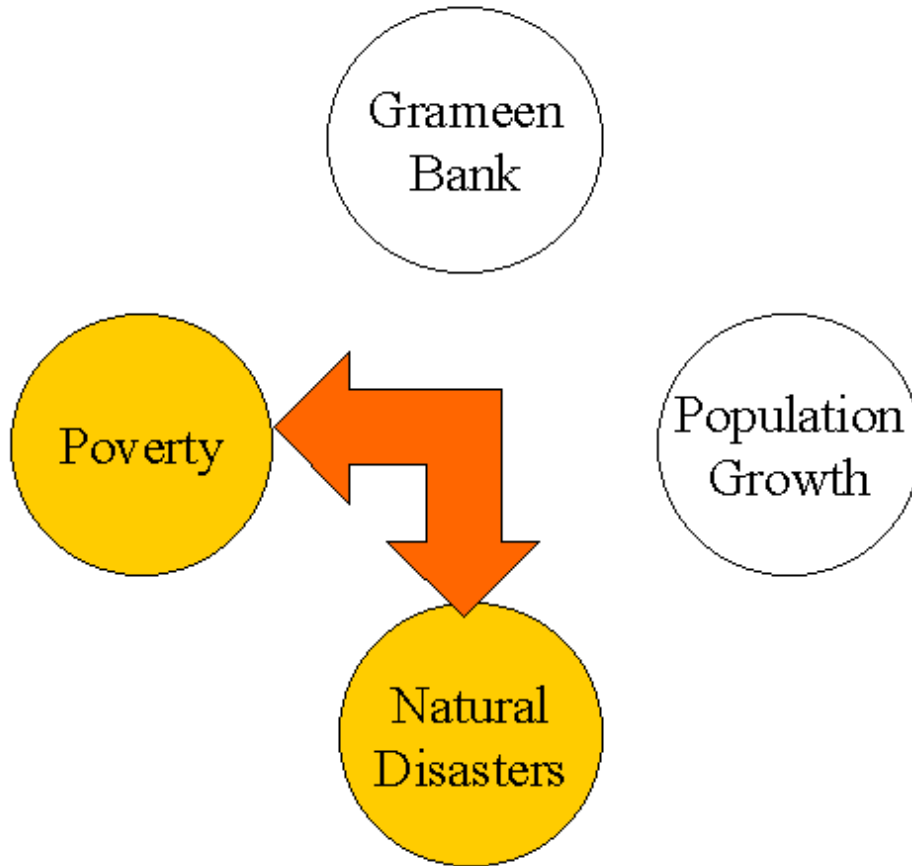
Prof. Yunus Quote

- "Population is not the problem. If you had a lot of land, would you worry? No, you wouldn't. You'd think it was a source of income. If you had a lot of trees, you wouldn't worry. So why worry if there are a lot of people? Because they eat. They take away resources. But you're only looking at one side of the picture; you forget that they also produce. You're not seeing that part of it and that's why you worry. I see the other part. I see that people are creative. You worry because you don't promote that creativity. You don't allow them to produce things. If we provide opportunities for people, we don't have to worry about them."



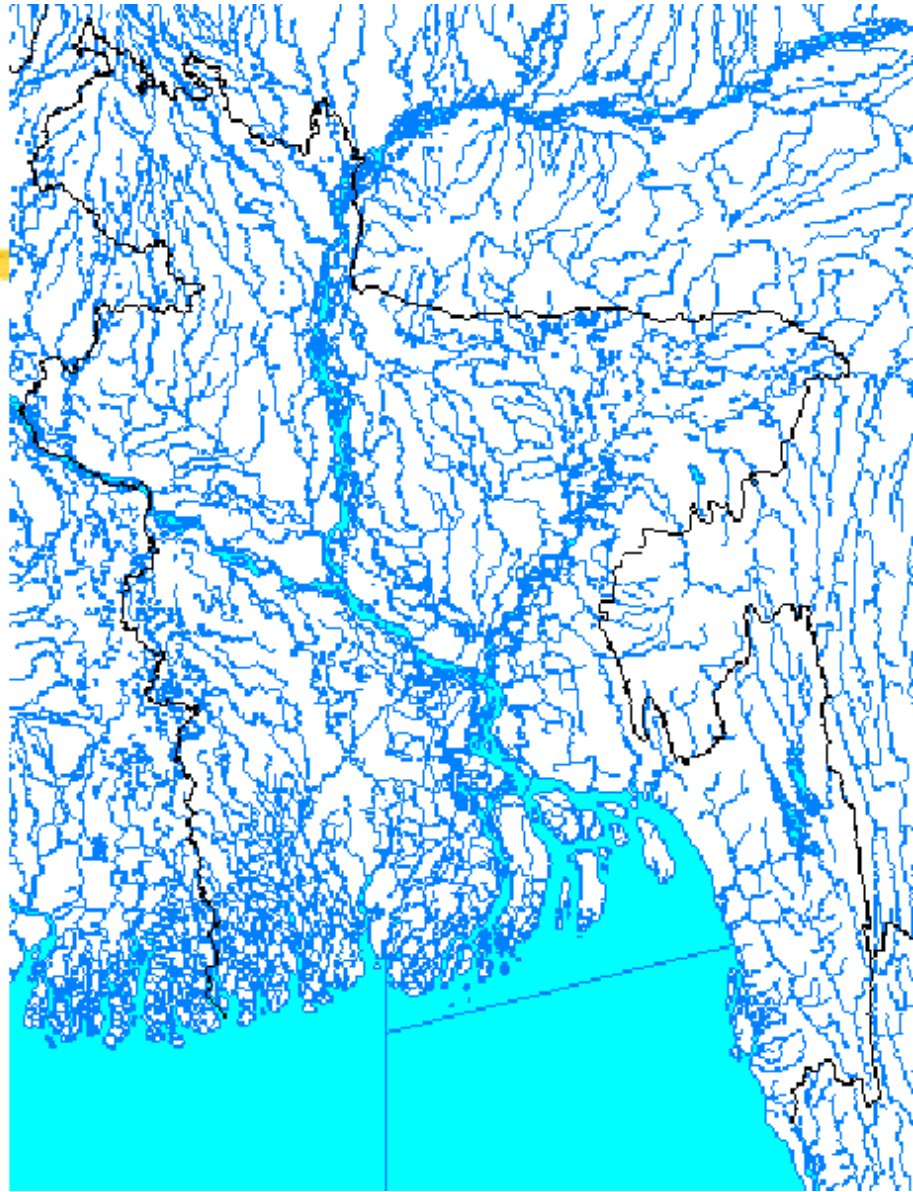
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Natural Disasters



A Wet Place

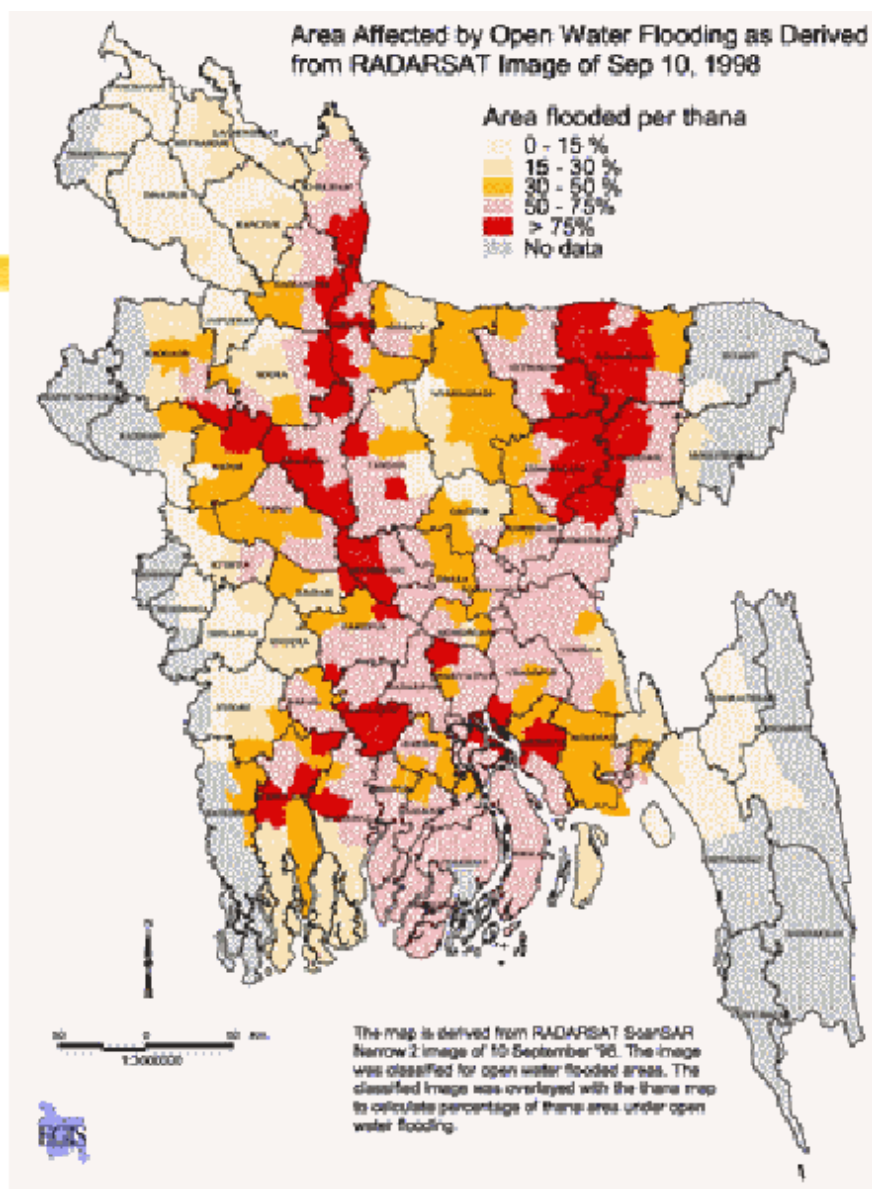
- Annual floods up to 30% land surface
- Fertilize soil
- Catastrophic floods
 - 1987 - 40%
 - 1988 - 62%
- Erosion and river movement



1998 Flood

Prof. Yunus:

"I feel that a grave disaster of catastrophic proportions is in the making. I don't expect everybody to agree with me. But I appeal to everybody, particularly the government, to work on the basis of the worst case scenario drawn up by themselves. Let us not take chances. One life is too many." Sept. 11, 1998



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Human Impact of Flood

- "Inshallah"
- Human death
- Loss of livestock
- Loss of crops
- Disease (diarrhoeal diseases and hepatitis)
- Contaminated drinking water
- Loss of housing, roads, infrastructure
- Economic slow down

- Worst impact on poor landless women



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Other Natural Disasters

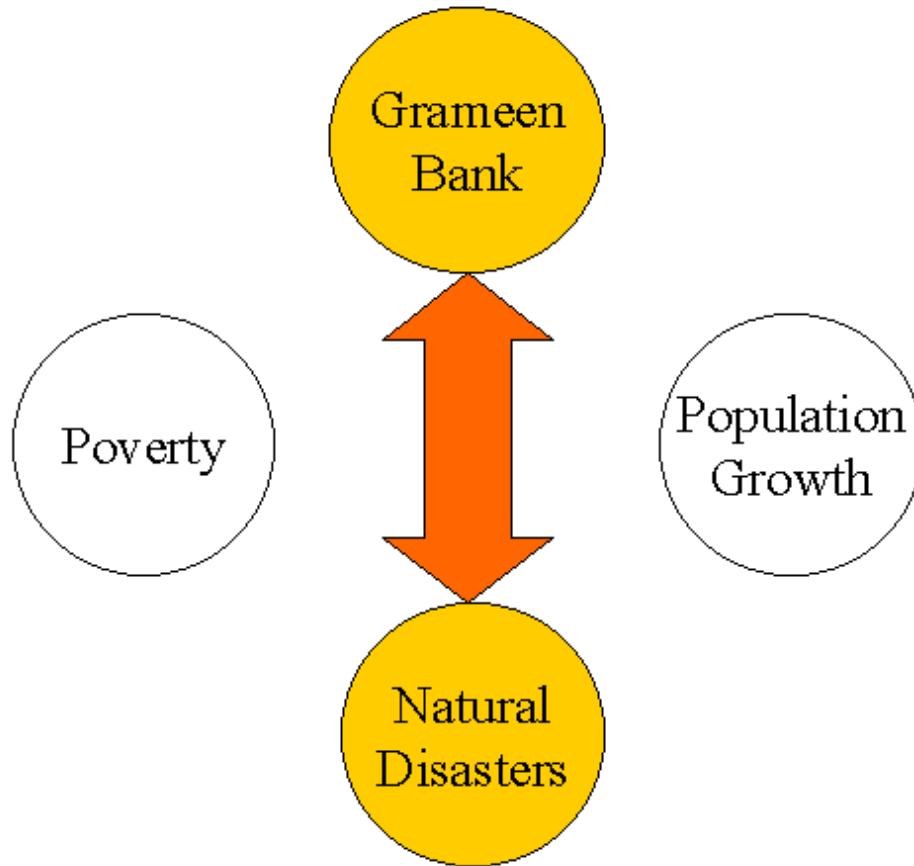
- Cyclones
- Drought
- Earthquakes

- Sea-level change



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Grameen's Resilience



Grameen Response

■ Reactive

- Meet with members
- Reschedule payments
- New loans (food, housing, Central Disaster Fund)
- Distribute saplings, medicine, supplies
- Goat loan

■ Proactive

- Housing loans
- Required savings
- Build relationships



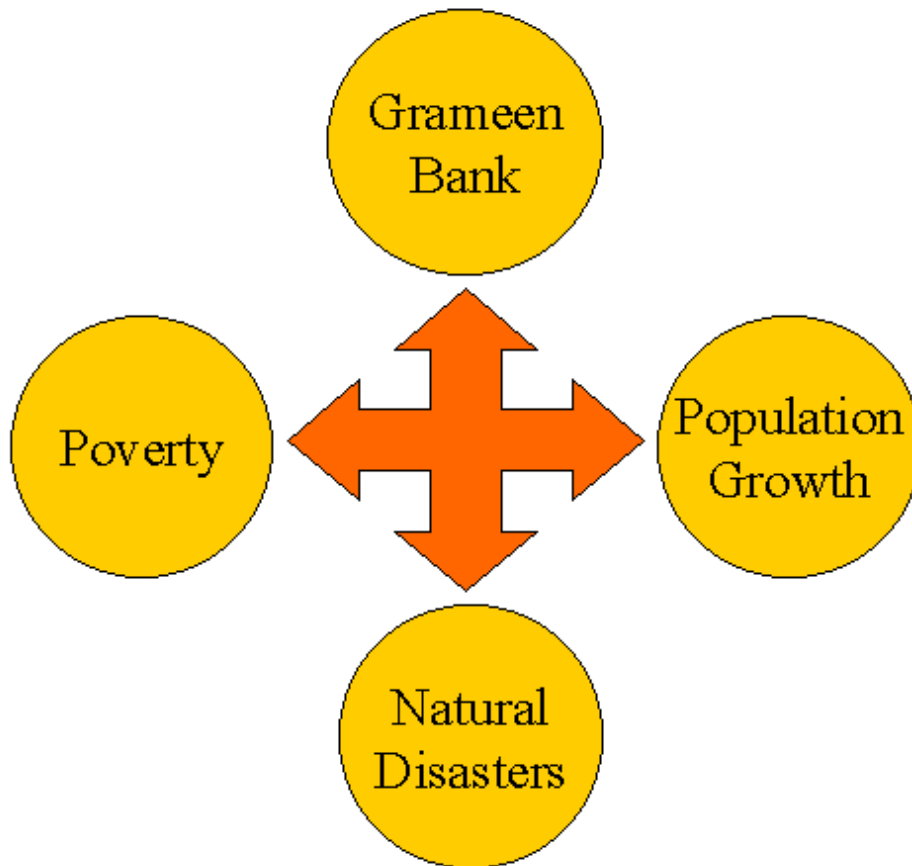
Operate in Flood Plain

- Successful in maintaining loan repayment
- Successful in keeping rural community together



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Conclusions



Conclusions

- Population density creates poverty
 - Landlessness
 - Impact of natural disasters
 - Food shortages
 - Pollution, deforestation
- Grameen contributes to stabilizing population
 - Reduces fertility via status of women
 - Reduces impact of natural disasters



Introduction

- Turkey as a candidate member since 1963
 - Political reasons
 - Socio-economic reasons



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Outline

- . **Introduction**
- . **Basic Issues in Turkey's Joining European Communities**
- . **Turkey**
- . **Urbanization Transition**
- . **Urbanization in Turkey**
- . **Factors Shaping Urbanization Pattern in Turkey**
- . **Future of Turkish Urban Pattern**
- . **Urbanization Transition in European Community**
- . **Comparison Between Turkey and EC Members**
- . **Conclusions and Recommendations**

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Comparison of Turkey and EC Members

- Demographic differences
- Economic differences
- Urbanization differences
 - Rapid increase of urban population
 - Primacy
 - Increase of population in large cities
 - Urban related problems



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Conclusions and Recommendations

- . **Urbanization is a very complex transition and a further detailed research is needed for Turkey as well as EC.**
- . **There is no evident relation between joining the EC and urbanization transition.**
 - o Developed countries may experience different patterns than the developing countries.
- . **If Turkey joins EC, the larger cities will attract more foreign investment and thus more population.**
 - o Primacy will increase in Turkey.
 - o Urban problems (environmental, housing, infrastructure) will remain or increase in large cities.

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Turkey



- At the crossroads of many lands
- 774,000 sq. km.
- Physical disparities among regions
- Socio-economic disparities among regions



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Location of Turkey



Urbanization Transition

- Urbanization Transition in General
 - Stages of the transition
 - Urbanization in developing countries vs. developed countries
 - Urban population increase
 - Rural push-urban pull
 - Primacy and growth of large metropolises
 - Definition of urban
 - Closely knit transition

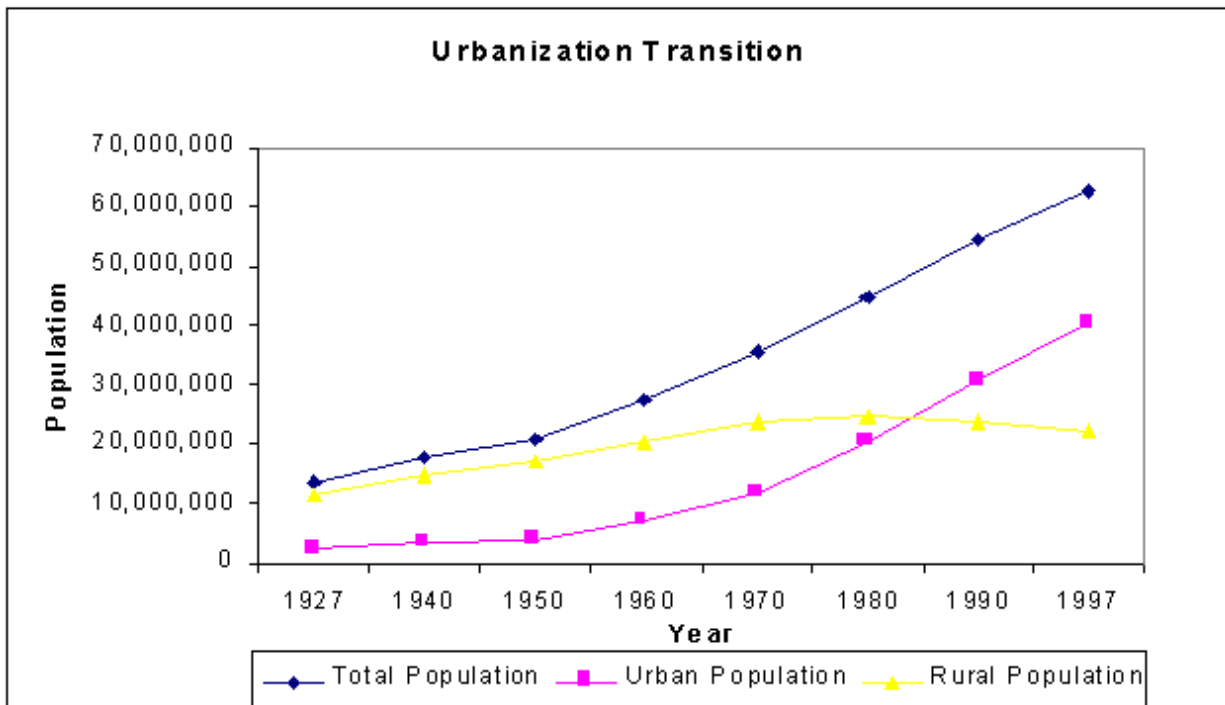


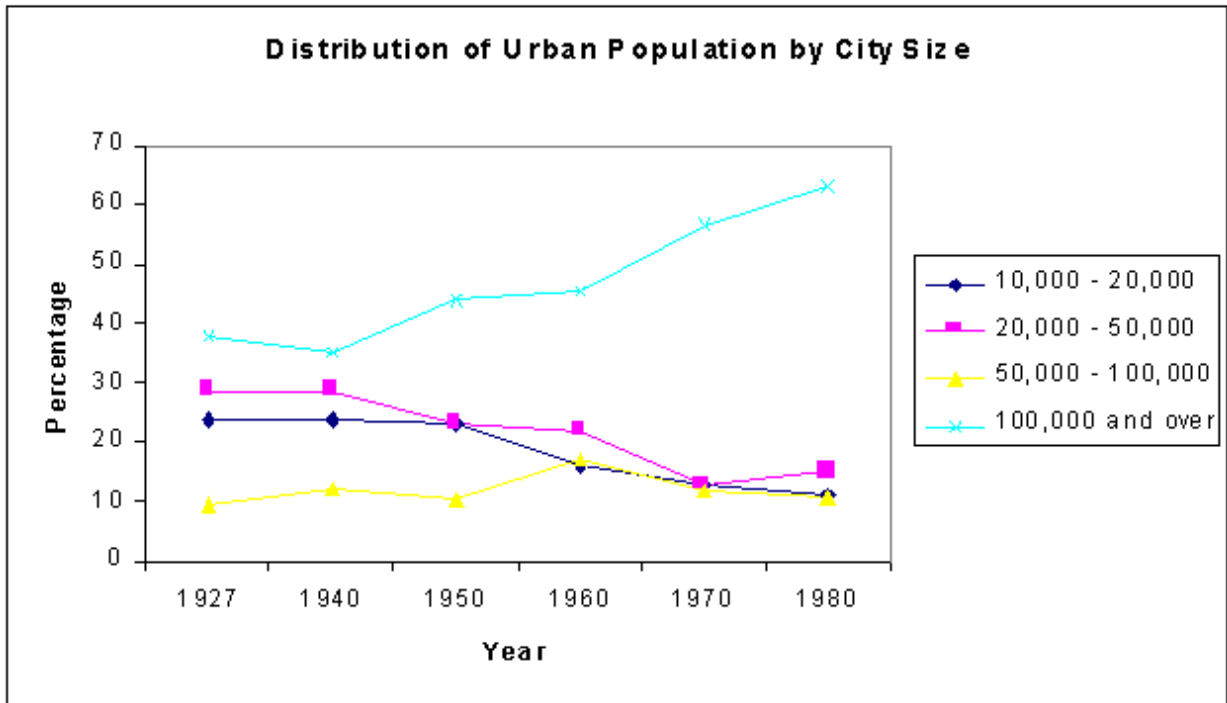
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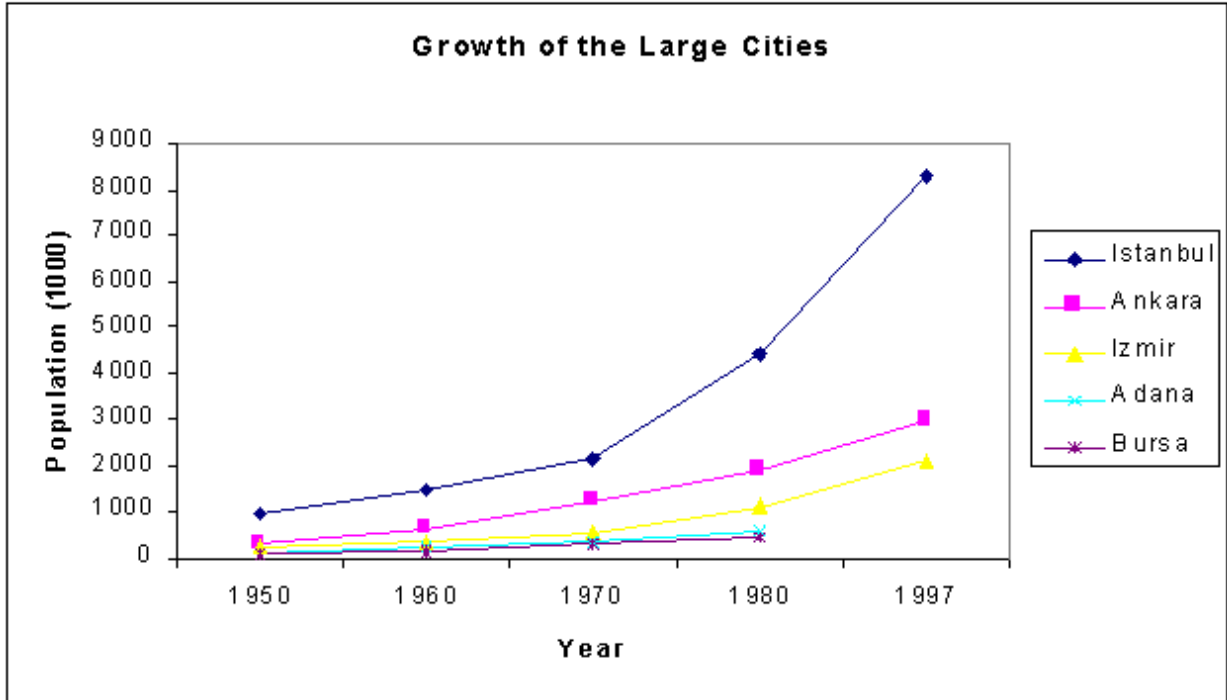
Urbanization in Turkey

- Family of transitions since the Republic
- High rate of urbanization - 65% urban, over 1% increase annually in the urban share of the population
- 75 years - urbanization has quadrupled
- Existence of primacy
- Increase in large city populations
- Earlier stages of the transition





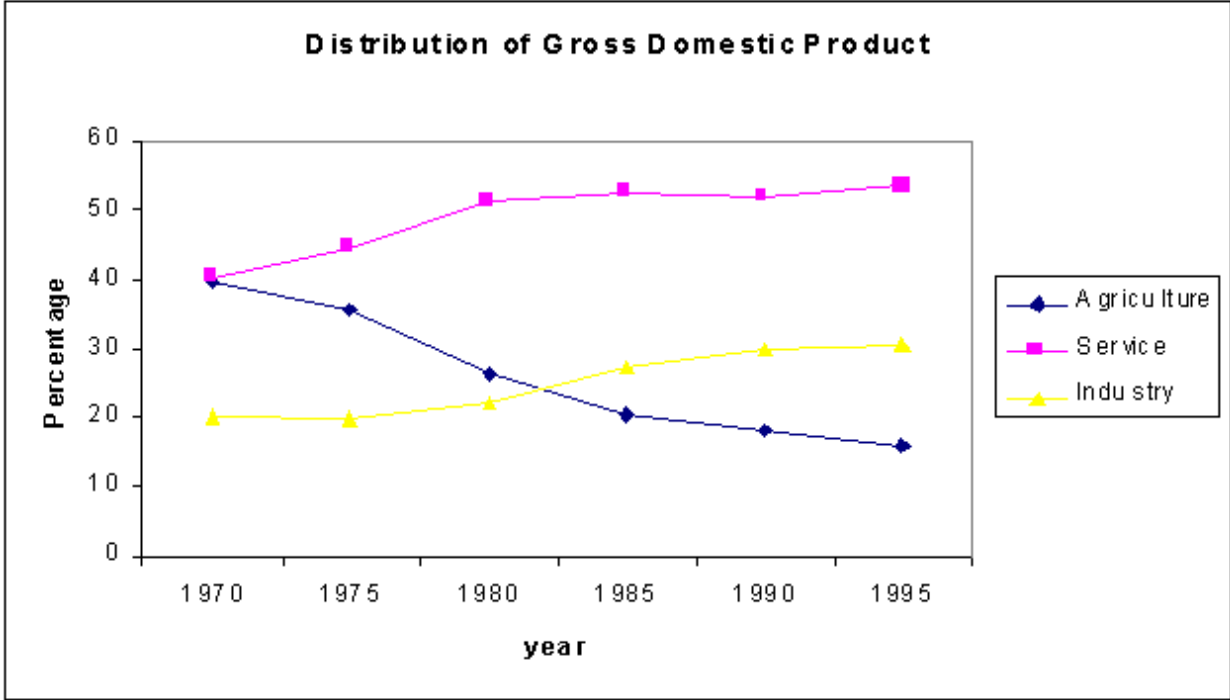


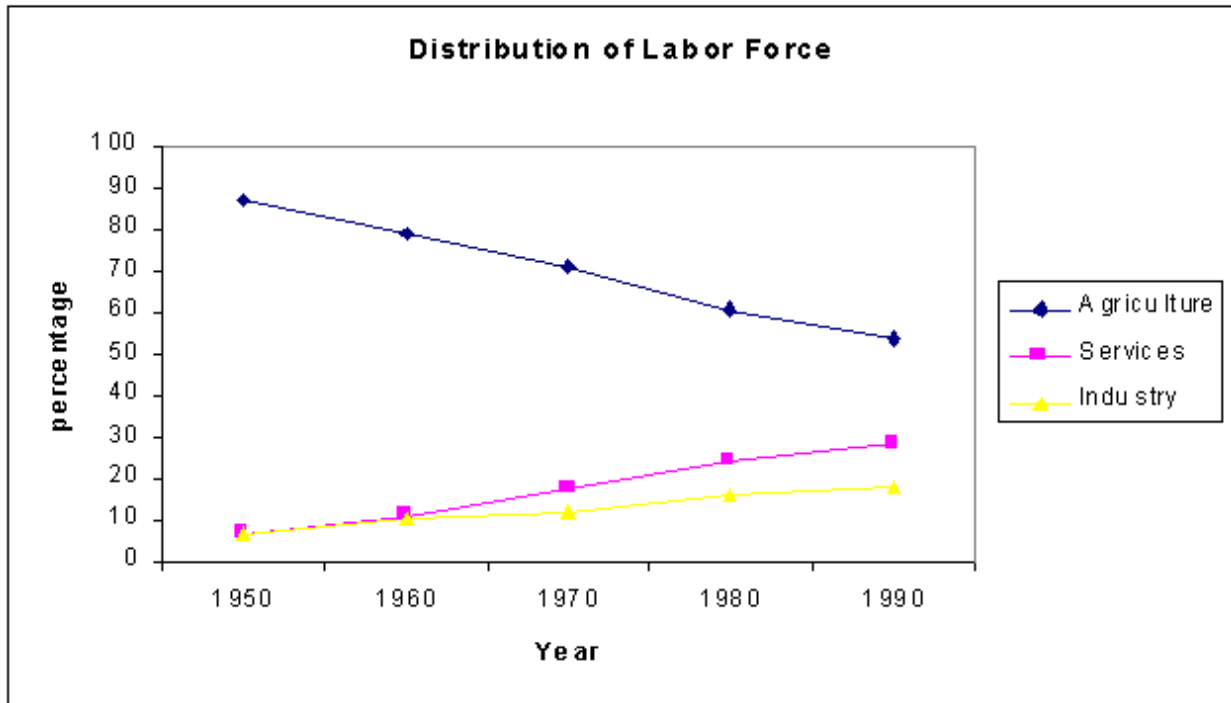


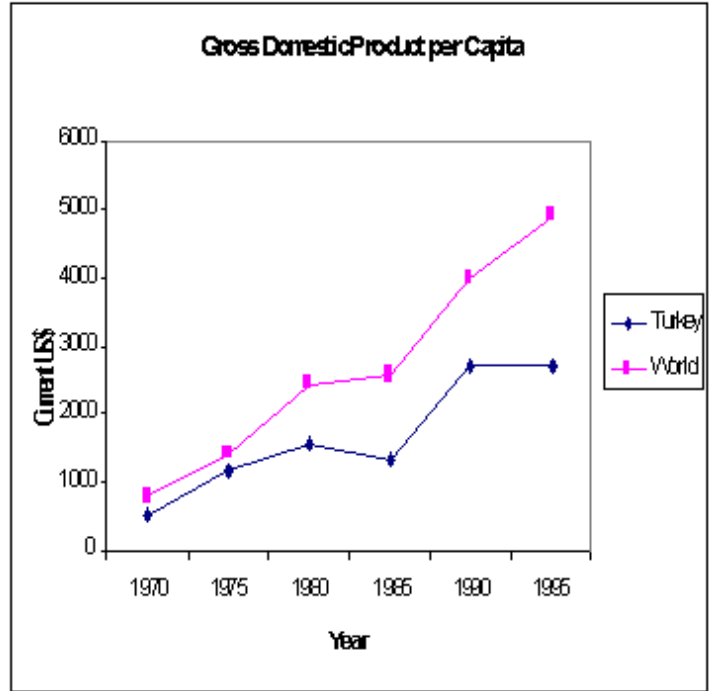
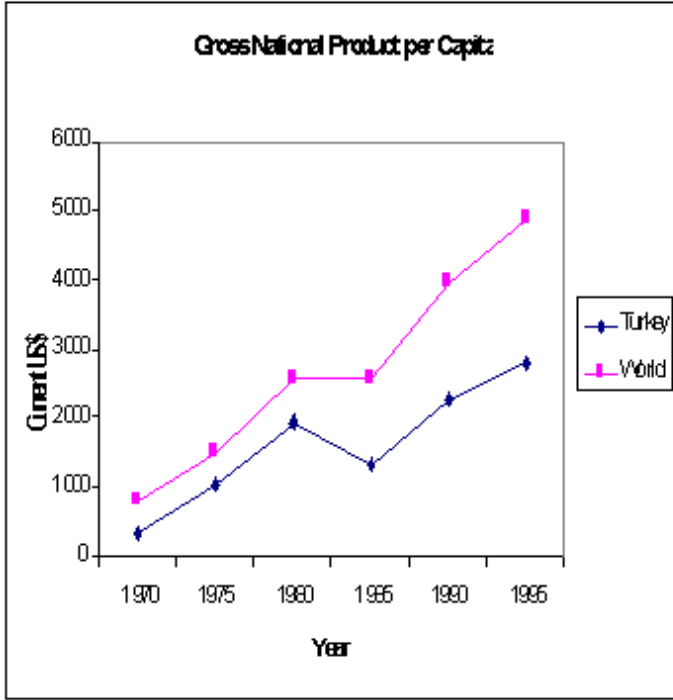
Economic Structure of Turkey

- Change in the economic sectors
- Low GDP and GNP per capita
- Close link with urbanization









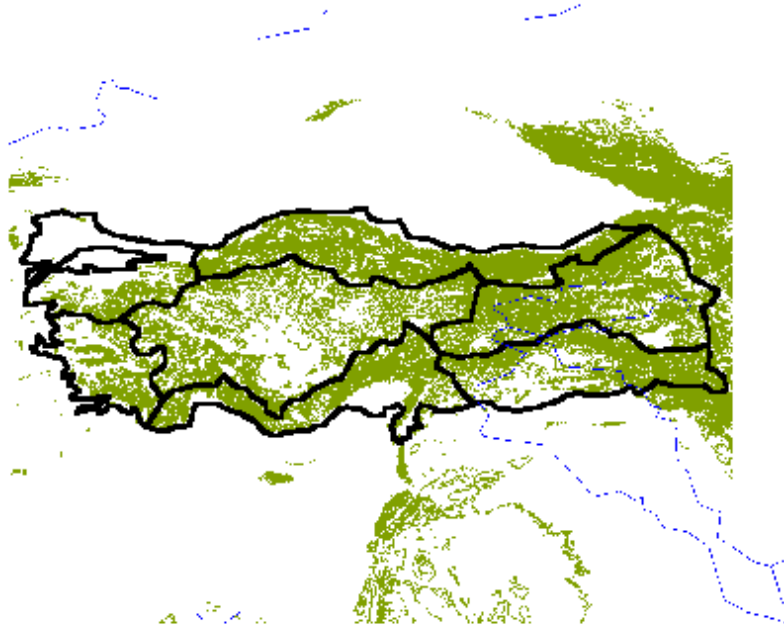
Regional Disparities

- Seven geographical regions
- Disparities among west and east
 - Population distribution
 - Population dynamics
 - Southeastern Anatolia Project

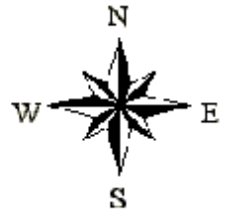


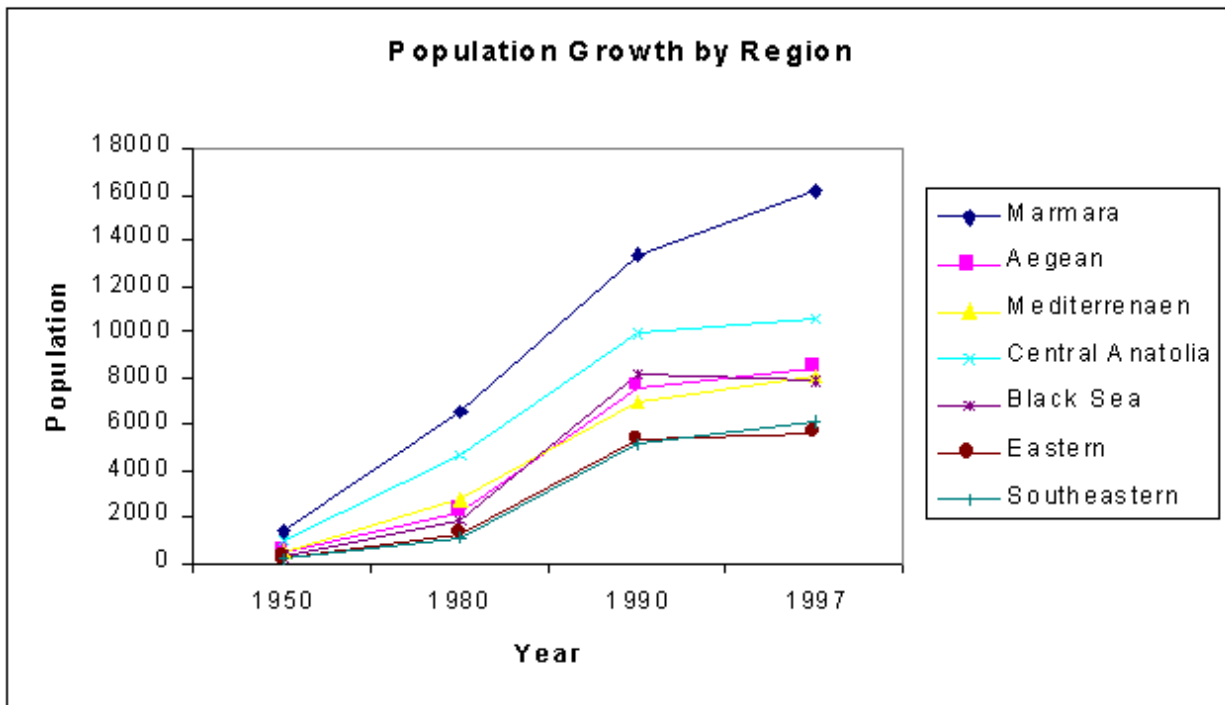
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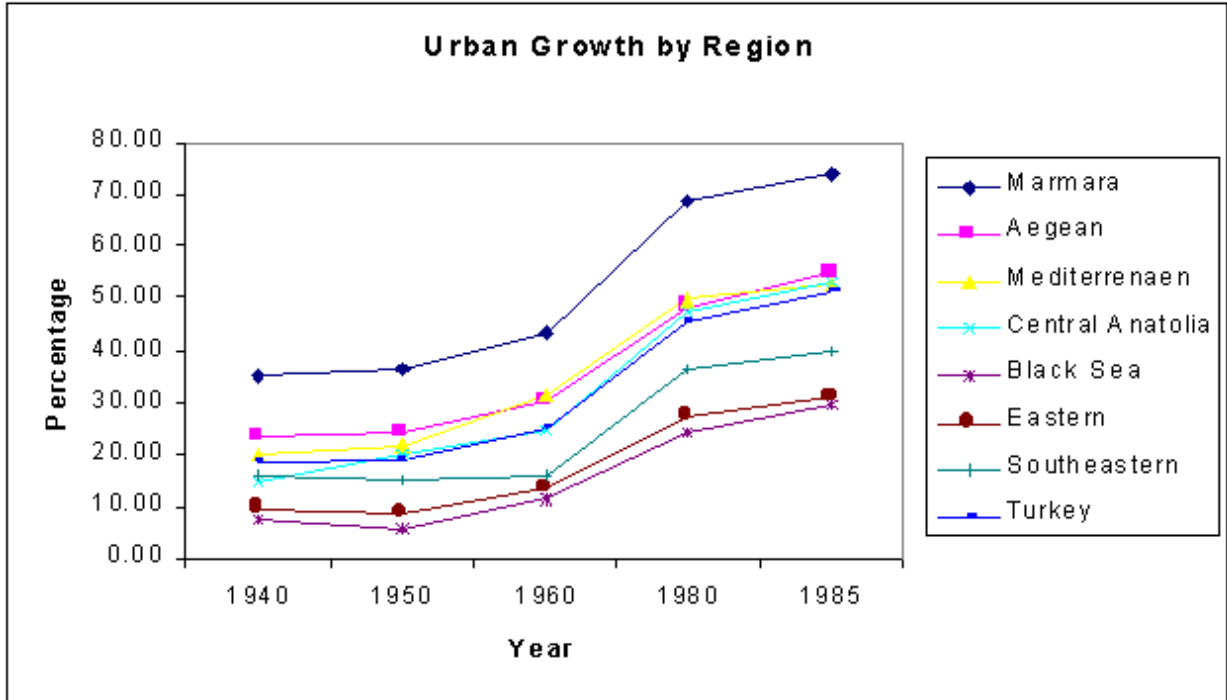
Turkey: regions, topography, and major rivers



Regions and Cities







- In 1985, Istanbul accommodated 49% of the nation's industries where as the entire Eastern Anatolia accommodated 3%.
- In a socio-economic development study in 1980 showed that
 - the Eastern regions have 34% development level compared to 100% Turkey average
 - Istanbul is 11 times more developed than Hakkari
 - Western cities accommodated 70% of hospital beds and 57% physicians, these numbers were 7% and 3% for Eastern Anaolia.



National Urban and Regional Strategies

- Central planning
- Five-year development plans
 - Starting with 1963-67 term
 - Emphasis on large cities in the 2nd term
 - Investments to growth poles in the 3rd term
 - Urban related problems being addressed in the most recent plans.



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Future of Turkish Urban Pattern

- Urbanization will continue to expand but with a smaller rate in Turkey.
- Migration patterns will change
 - Southeastern Anatolia will gain population.
- Unless national strategies promote smaller cities, larger cities will gain more importance.



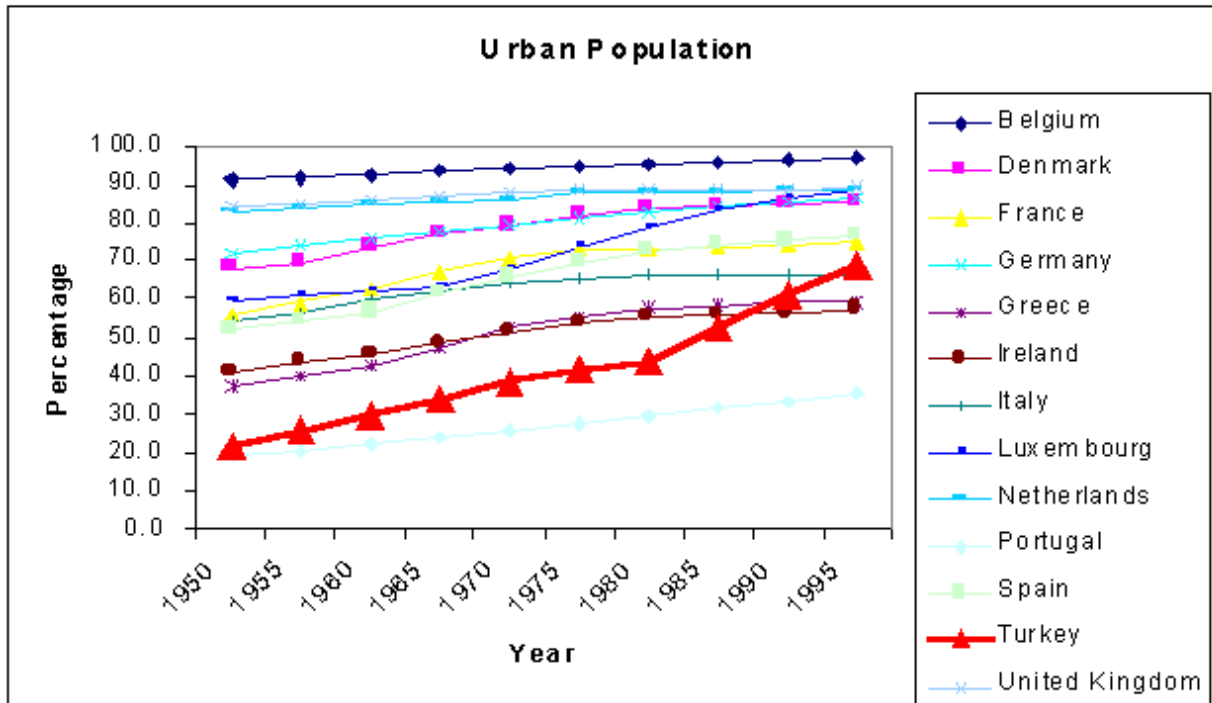
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Urbanization Transition in European Community

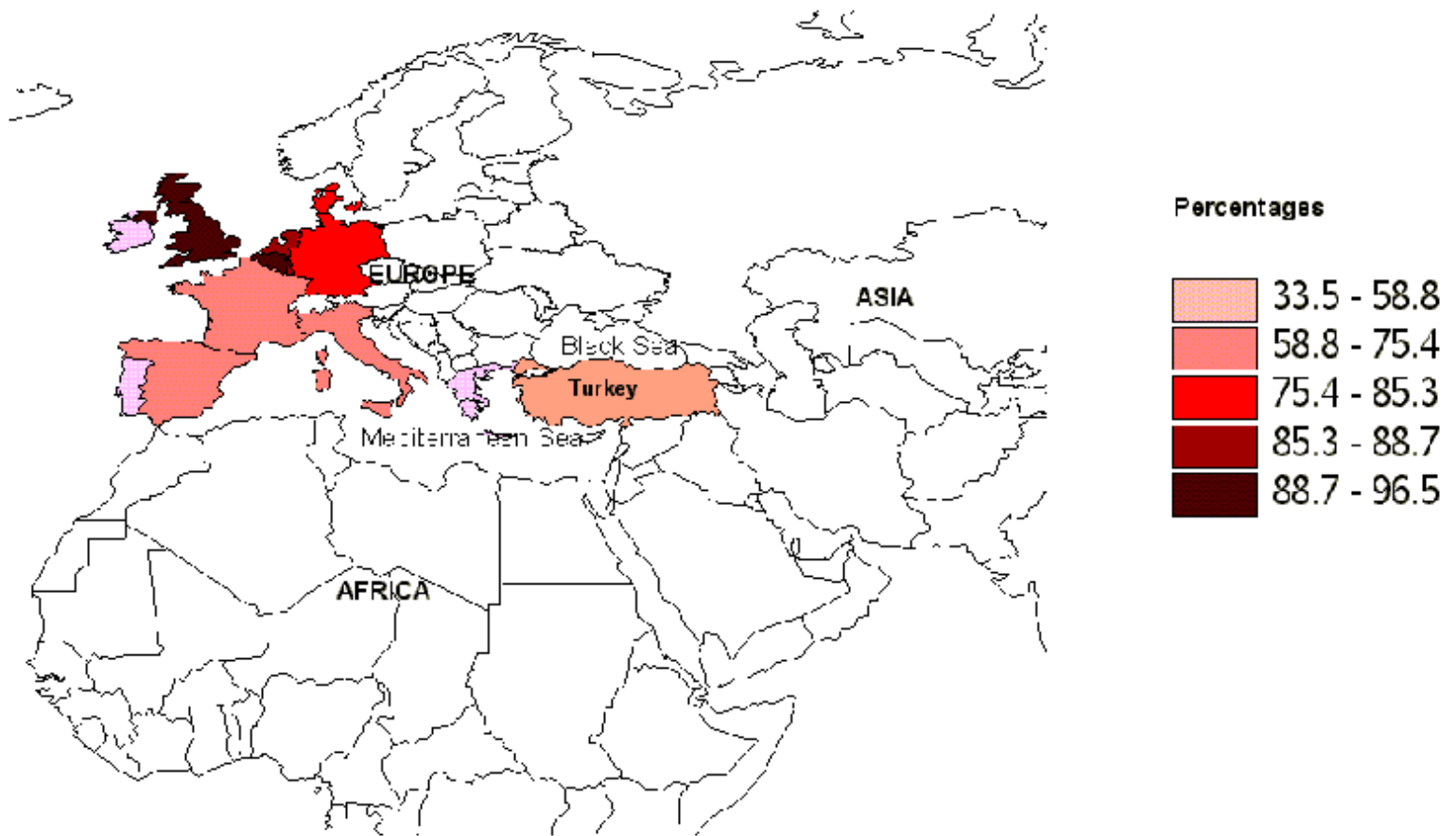
- Difficulty due to the intricacy of the transition and number of members.
- Later stages of transition among most members
- High urbanization rates
- Not significant impacts of joining the Community
-

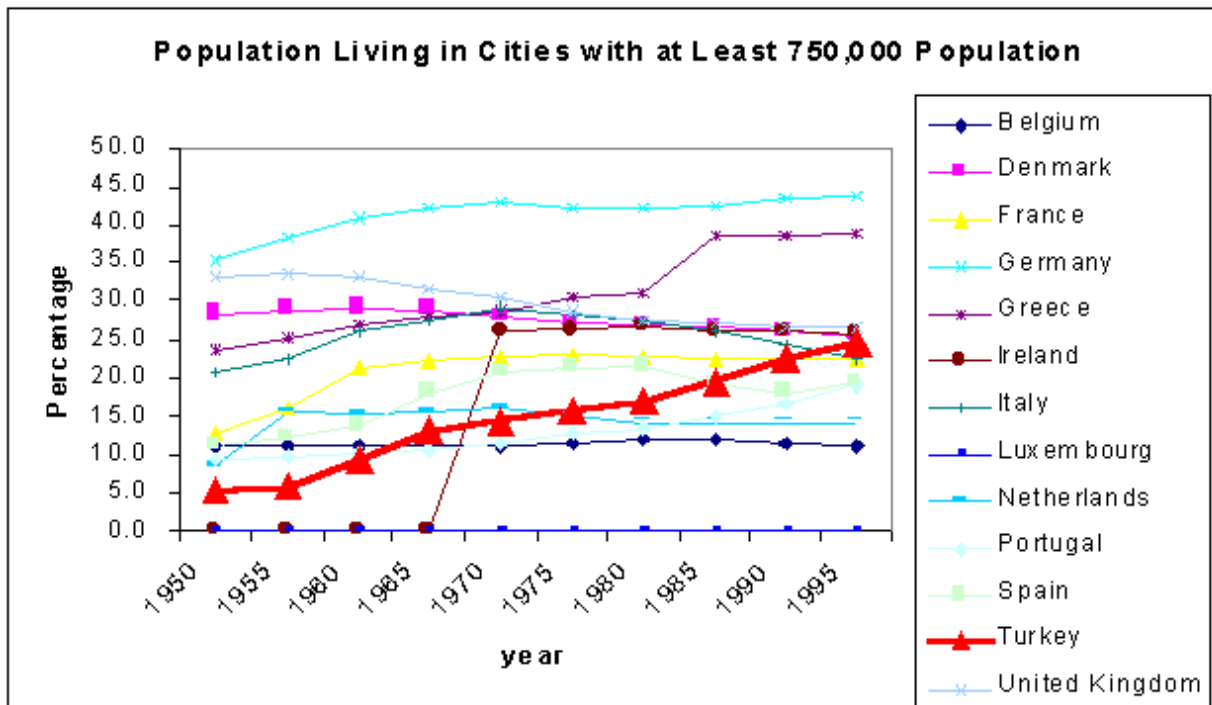


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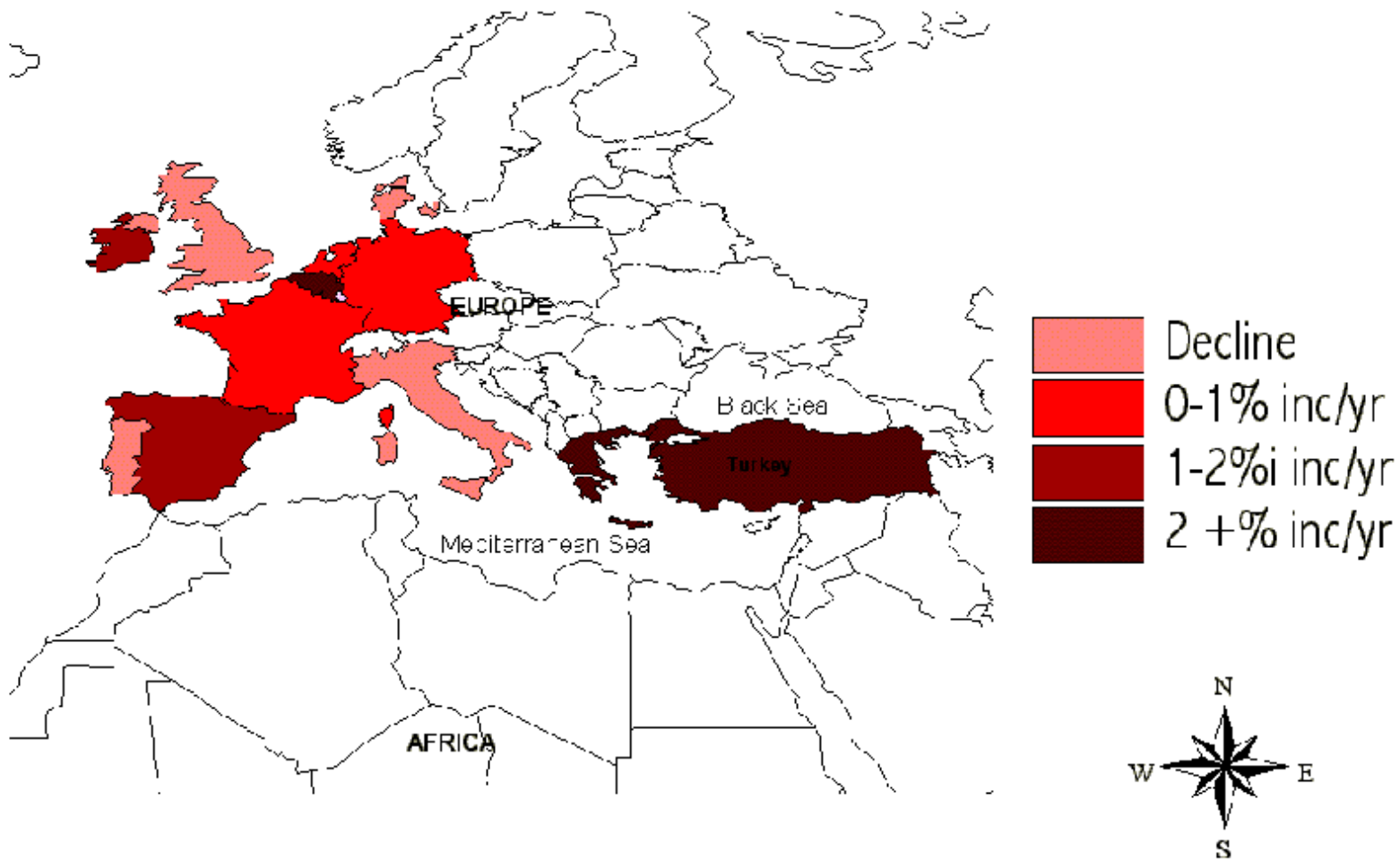


Urbanization Levels





Growth of the Large Cities

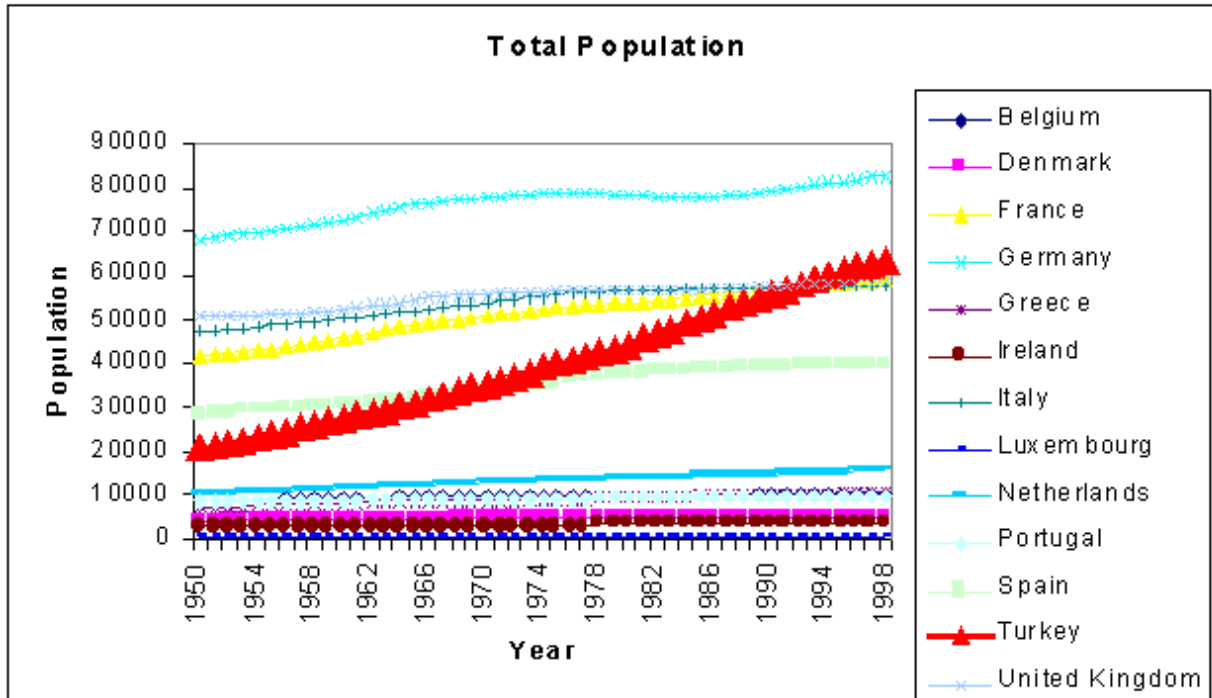


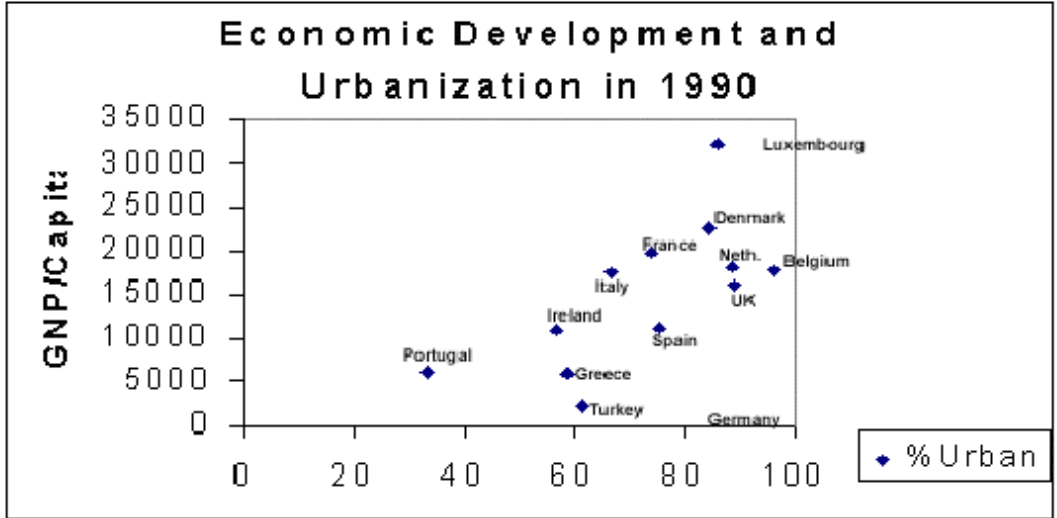
Family of transitions in European Community

- Industrialization
- Correlation between GDP and GNP per capita and urbanization levels



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Outline

- Indonesia: An Overview
- Concepts: Decentralization and Sustainability
- Indonesian Health Delivery System
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- Concluding Observations and Policy implications



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Purpose

To assess the extent of decentralization efforts in Indonesia and its impacts on sustainability of health care services at local levels.

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Implications: Cost Recovery

Cost Recovery Ratio in Health Services, 1983/84-1985/86

Type of Service	Revenue as % of Recurrent Expenditure		
	19883/84	1984/85	1985/86
Hospitals	20.2	22	19
Health Centers	3.8	1.6	3
Communicable Disease Control	0	0	0
Training	0	0	0
Other	9.6	8	6
Total	<u>8.7</u>	<u>11.5</u>	<u>10.2</u>

Source: Ministry of Health



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Concluding Observations and Policy implications

- . **Decentralization of Development Planning**
- . **Fiscal Decentralization**
- . **Equity**
- . **Efficiency**
- . **Cost Recovery**

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Indonesia: An Overview

- Geographical characteristics
- Demographic
- Economic
- Social and Demographic: International comparisons
- Government Structure



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Geographical characteristics

Map of Asia



Geographical characteristics

Indonesia



Total area:
1,919,317 Km²

Number of Islands:
more than 13,000

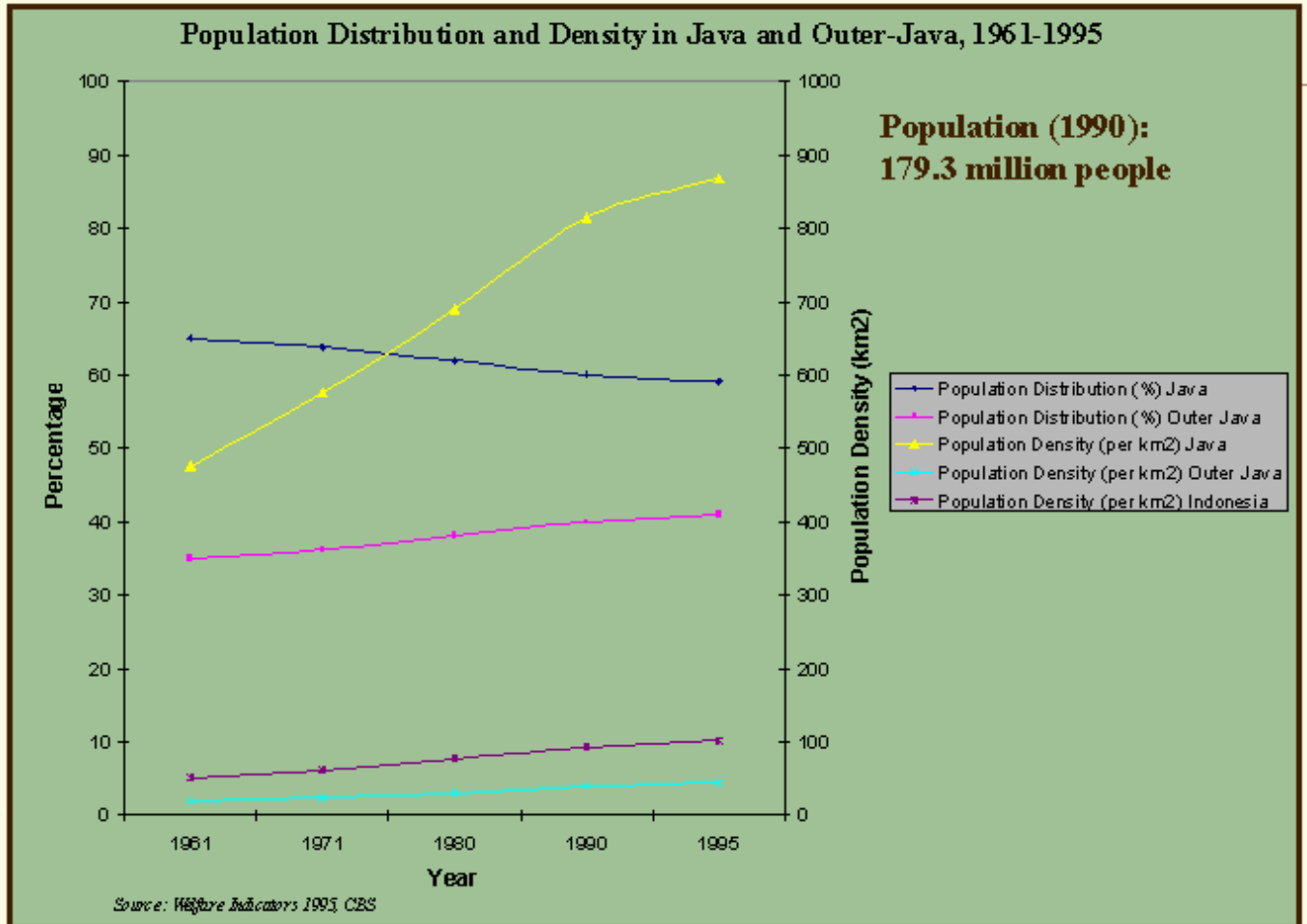
The largest archipelago
Country in the world

About 300 ethnic groups and local languages

National language:
Indonesia

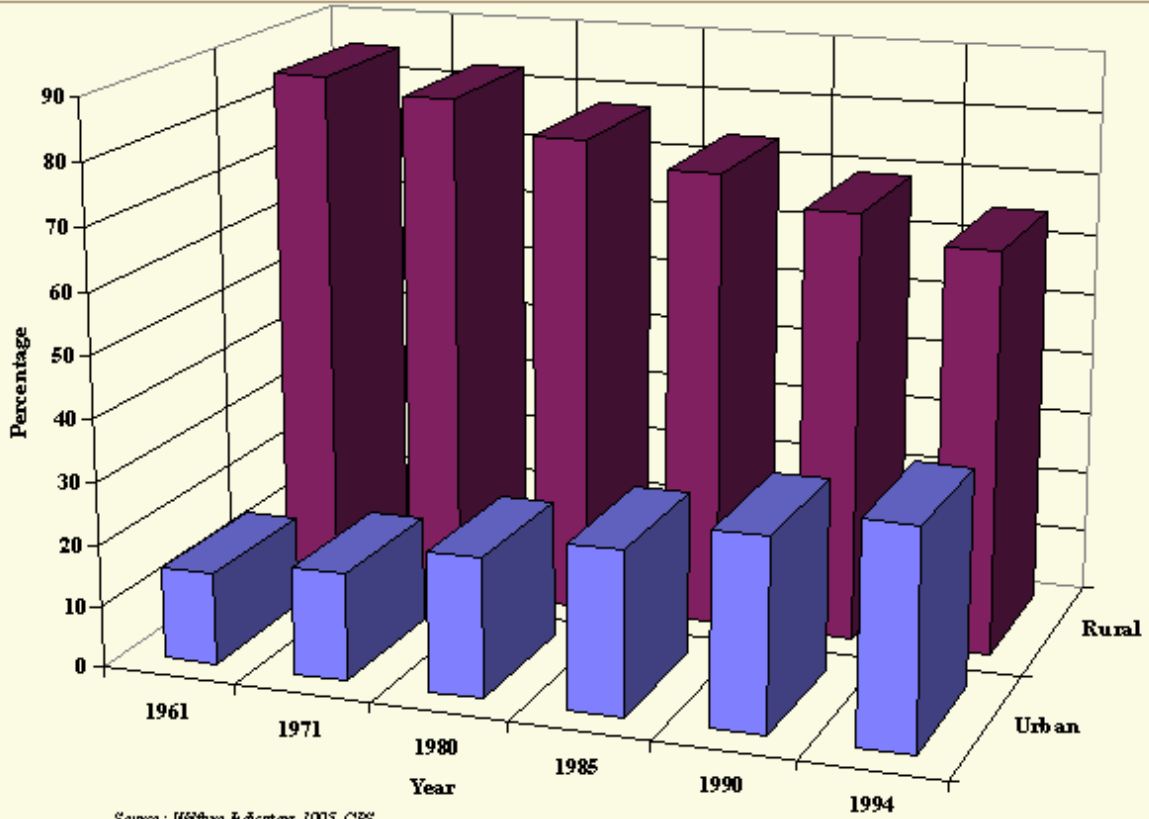


Demographic



Demographic

Population Distribution by Urban and Rural (%), 1961-1994



Source : *Human Development Indicators 1995*, CBS



Economic

- GDP (1994): US\$ 175 billions
- GDP per capita (1994): US\$ 950

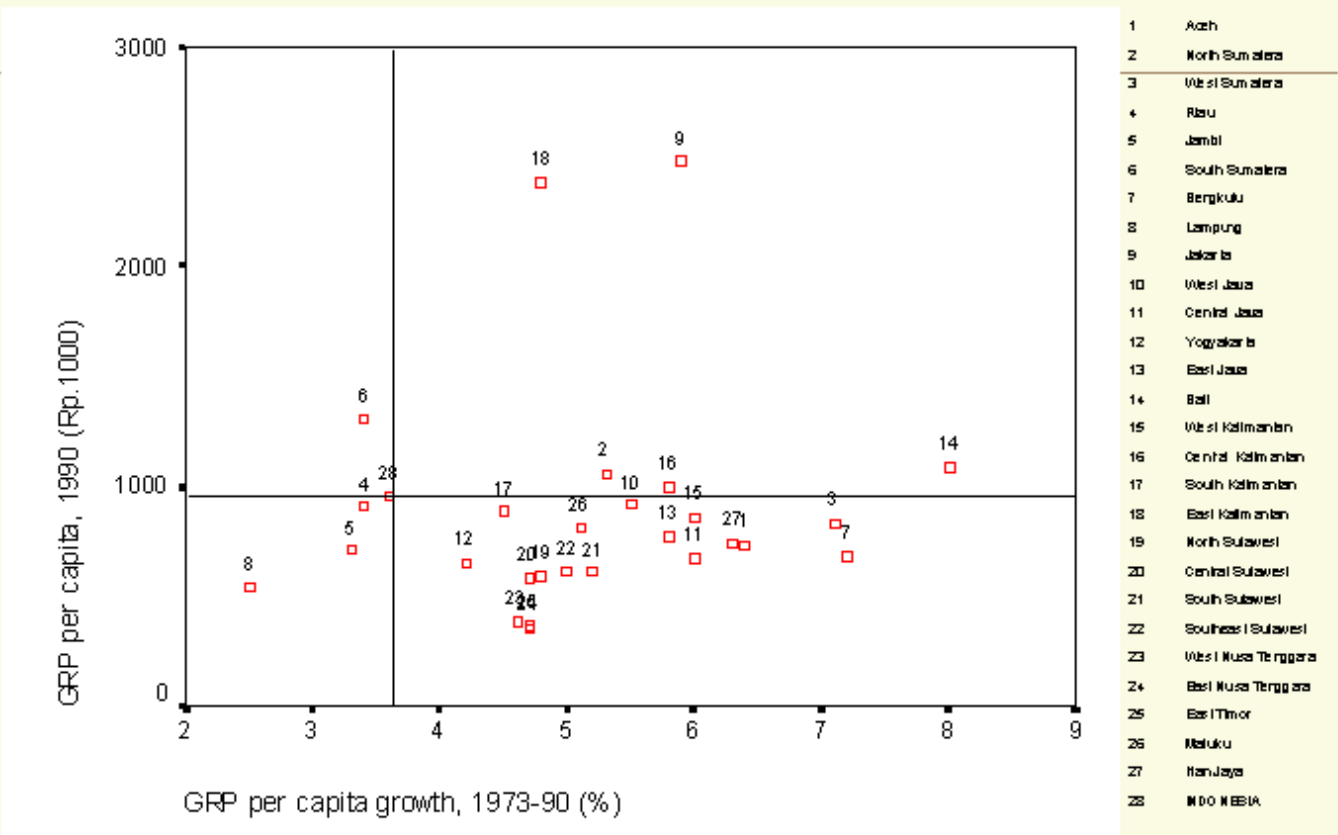
Growth of Real GDP/Growth of Real GDP Per Capita, 1966-1995

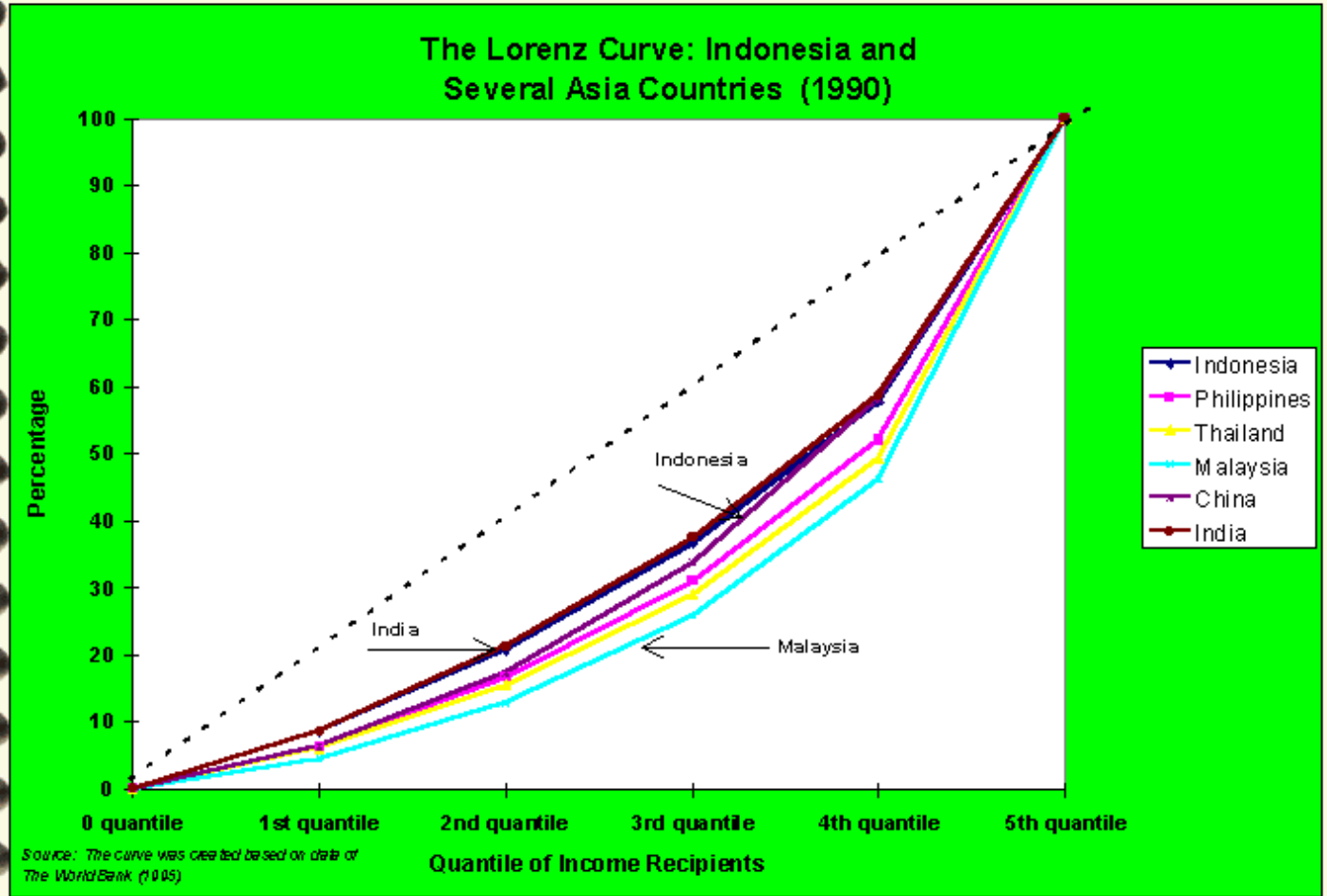
	1966-73	1974-90	1991-94	1994	1995 (estimate)
Indonesia	6.4 3.9	6.7 4.7	7.6 5.8	7.3 5.7	7.5 6
World	5.1 3.0	3.0 1.2	1.5 -0.1	2.9 1.3	2.8 1.4
High Income Countries	4.8 3.8	2.8 2.1	1.7 1.0	3.0 2.3	2.5 1.8
Low- and Middle Income Countries	6.9 4.3	3.6 1.6	1.0 -0.7	2.5 0.8	3.9 2.3

Source: *Global Economic Prospects and Developing Countries, World Bank (1996)*



Economic





Social and Demographic: International Comparisons, 1994

Country	Crude Birth Rate	Crude Death Rate	Fertility Rate	Infant Mortality Rate
1 Indonesia	24	8	2.8	56
2 Brunei	27	3	3.4	11 *)
3 Malaysia	28	5	3.5	14
4 Philippines	30	7	3.8	39
5 Thailand	20	6	2.1	34
6 Singapore	17	5	1.8	5
7 Cambodia	38	14	4.4	112
8 Myanmar	32	11	4.1	78
9 Vietnam	29	8	3.8	35
10 Laos	43	15	6.4	94

Note: *) 1991

Source: ESCAP population Data Sheet, 1993, 1994



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**Government Expenditure for Social Sectors as
a Share of Total Government Expenditure (%):
Indonesia and Several Asia Countries (1980 and 1992)**

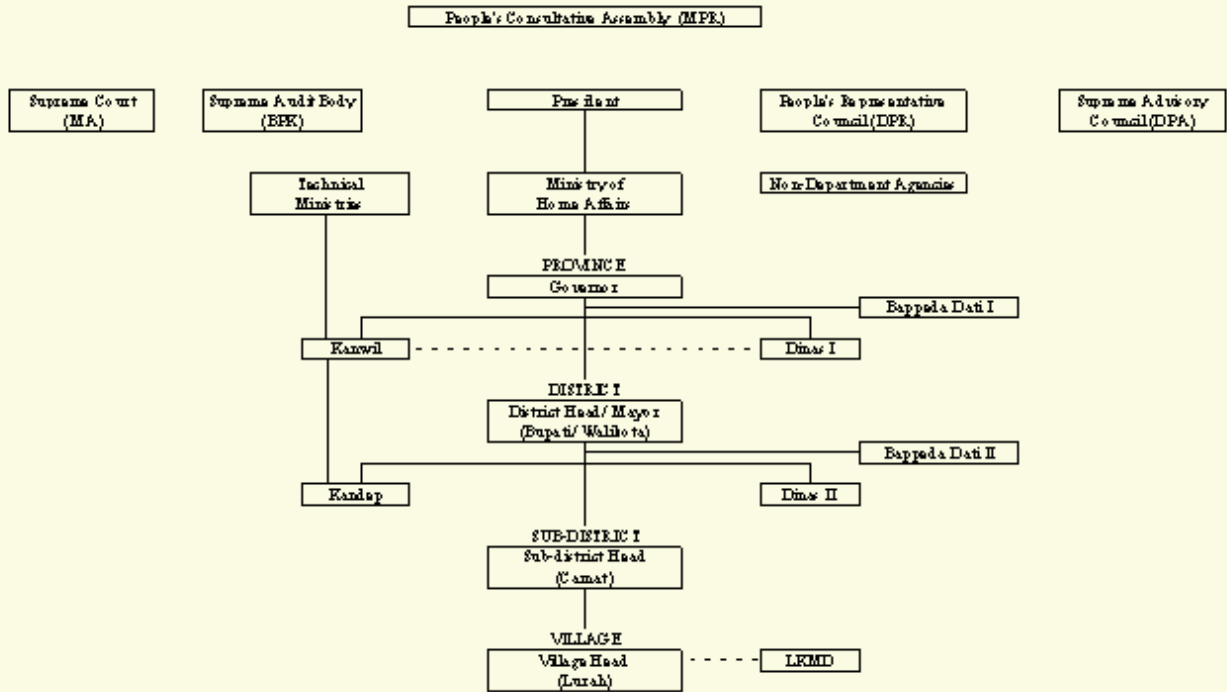
Country	Education		Health		Other Social Sectors	
	1980	1992	1980	1992	1980	1992
Indonesia	8.3	9.8	2.5	2.8	1.8	2
Philippines	13	15	4.5	4.1	6.6	4.4
Thailand	19.8	21.1	4.1	8.1	5.1	6.7
Malaysia	18.3	19.6	5.1	5.9	7	11.6
India	1.9	2.1	1.6	1.6	4.3	5.7
Sri Lanka	6.7	10.1	4.9	4.8	12.7	16.1

Source: *The World Bank (1994)*



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Government structure



Note:
 MPR: Majelis Permusyawaratan Rakyat, DPR: Dewan Perwakilan Rakyat, DPA: Dewan Pertimbangan Agung,
 MA: Mahkamah Agung, and BPK: Badan Pemeriksa Keuangan
 Dinas I local government service departments, which Dinas II is responsible directly to
 Gubernur and Dinas III is responsible directly to district head/mayor
 Bappeda Dist I and Bappeda Dist II are Local Development Planning Agency
 at provincial level and district level, respectively
 Sub Dinas I and II have indirect link to the relevant central/technical ministry
 Kantorwil and Kantorkep are provincial and sub-provincial level office of central government ministry
 LKMD is village planning board



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Concepts: Decentralization

Definitions:

- A subject with many dimensions and commonly associated with various interpretations and contexts for instance administrative, economic, and political decentralization in both developed and developing countries (Wolman, 1990 and Smith, 1980);
- The transfer of responsibility for planning, management, and the raising and allocation of resources from the central government and its agencies to field units of government agencies, subordinate units or level of government, semi-autonomous public authorities, or non-governmental private or voluntary or organization (Rondinelli, 1989); and
- The various perceptions of decentralization have something in common i.e., to shift authority with respect to planning, decisions making, and managing of public functions from the central level to individual, organization or agency at sub-national level (Conyers, 1985).



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Concepts: Decentralization

A typology of decentralization: (Rondinelli, 1981)

- Deconcentration: a transfer of power to local administrative offices of the central government;
- Delegation: the transfer of power to parastatals, organizations which are not fully controlled by the central government ministries;
- Devolution: the transfer of power to subnational political entities; and
- Privatization: the transfer of power or responsibilities to private institutions.



Concepts: Decentralization

Objectives of Decentralization: (Wolman, 1990)

- Promoting efficiency through the maximization of social welfare;
- Improving the responsiveness and accountability of policy makers to the citizen;
- Promoting diversity in public policies;
- Strengthening political participation of the citizen;
- Strengthening a national unity;
- Improving territorial equity through national grant equalization systems to support the local government which have relatively low regional income or high need; and
- Improving the allocation system.



Concepts: Decentralization

How to measure decentralization

Conyers (1985) suggests five indicators to measure decentralization:

- (1) the governmental functions which are transferred from central government to sub-national level;
- (2) the kind of delegation, authority, and powers which are transferred in relation to each governmental function;
- (3) the level(s) or area(s) which obtains the delegation, authority or power;
- (4) the individual, organization or agency at each level which obtain the authority; and
- (5) the legal means used to transfer the authority.



Concepts: Decentralization

Challenges of Decentralization:

- It can produce some disadvantages, for instance inefficiencies and diseconomies in either developed or developing states, and capitalist or socialist economies (Smith, 1980);
- The role of decentralization in development has many dilemmas, with quoting of Larmour's expression on the role of decentralization as follows : (Conyers, 1985)

“Many of the arguments for, and against, decentralization are as Hebert Simon pointed out ' like proverb..... for almost every simple one can find an equally plausible and acceptable contradictory principle' Decentralization promotes efficiency and reduces it. Decentralization enhances national unity and inhibits it”.



Concepts: Sustainability

Definitions:

- The ability of a project to maintain an acceptable level of benefit flows through its economic life (Valadez and Bamberger, 1994);
- The difference between host country and donor perspectives of sustainability is suggested by the Director of the External Aid Coordinating Committee in the Ghanaian Ministry of Health as cited in La Fond (1995):

Sustainability is important principle to both the Government of Ghana and the donors but it probably does not mean the same thing to both. Usually donors define sustainability to mean being able, after a period, to withdraw completely and have the system remain operational. We must remember that Ghana is not a rich country and that for a while yet we are going to need significant external support. With this proviso, we have no alternative but to consider sustainability in terms of organizational development and systematic growth, confidence building and improved efficiency in the use of resources.



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Concepts: Sustainability

How to measure sustainability:

- Honadle and Van Sant (1996):
 - (1) **the proportion of program-initiated goods and services that are still delivered produced and maintained five years past the termination of external assistance,**
 - (2) **the continuation of local participation stimulated by the program, and**
 - (3) **the expansion of the services and efforts as a results of program-built local capacity.**
- Valadeze and Bamberger (1994):
 - (1) **continued delivery of services,**
 - (2) **maintenance of physical infrastructure,**
 - (3) **long-term institutional capacity, and**
 - (4) **support from key stakeholder s**



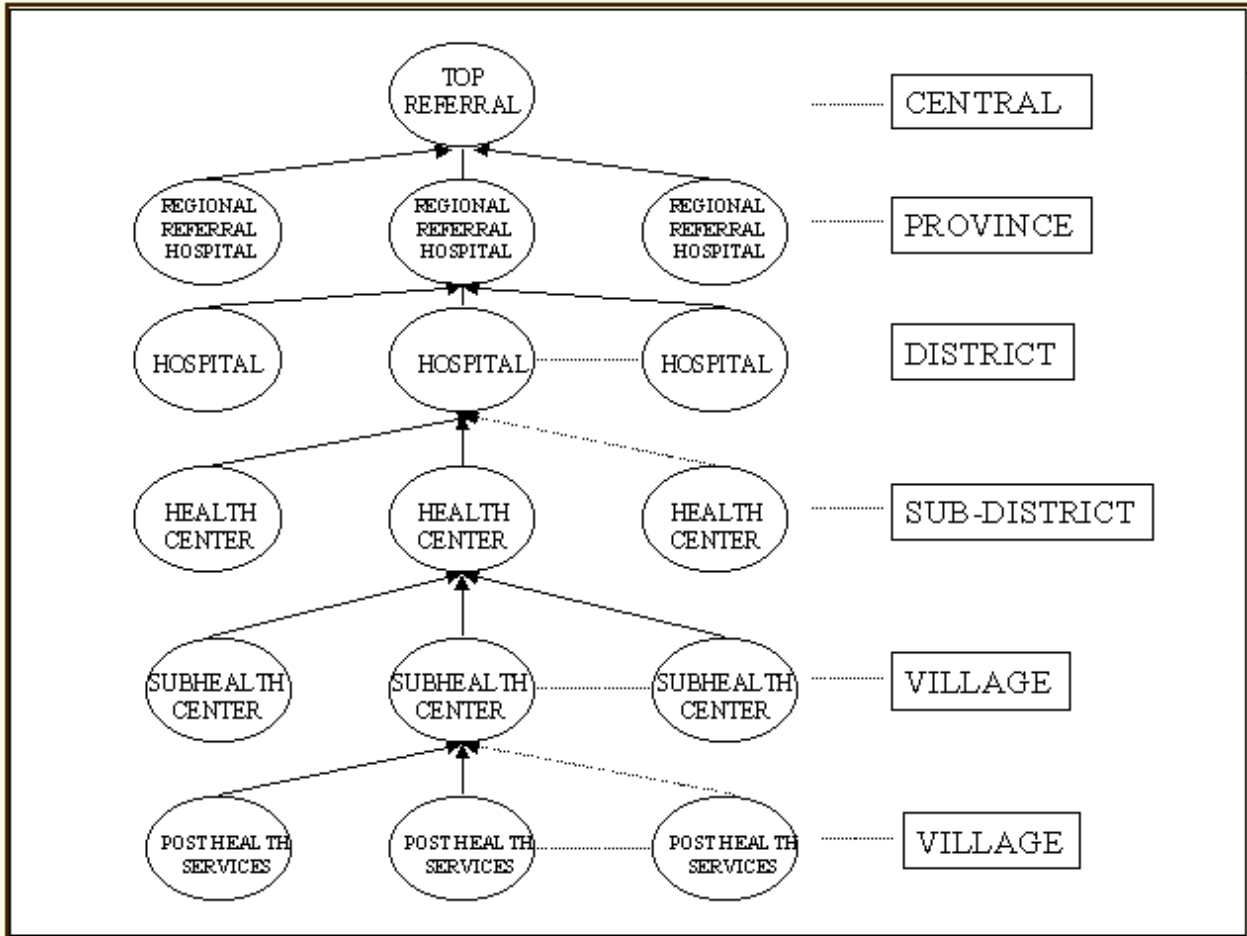
Outline

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Indonesian Health Delivery System



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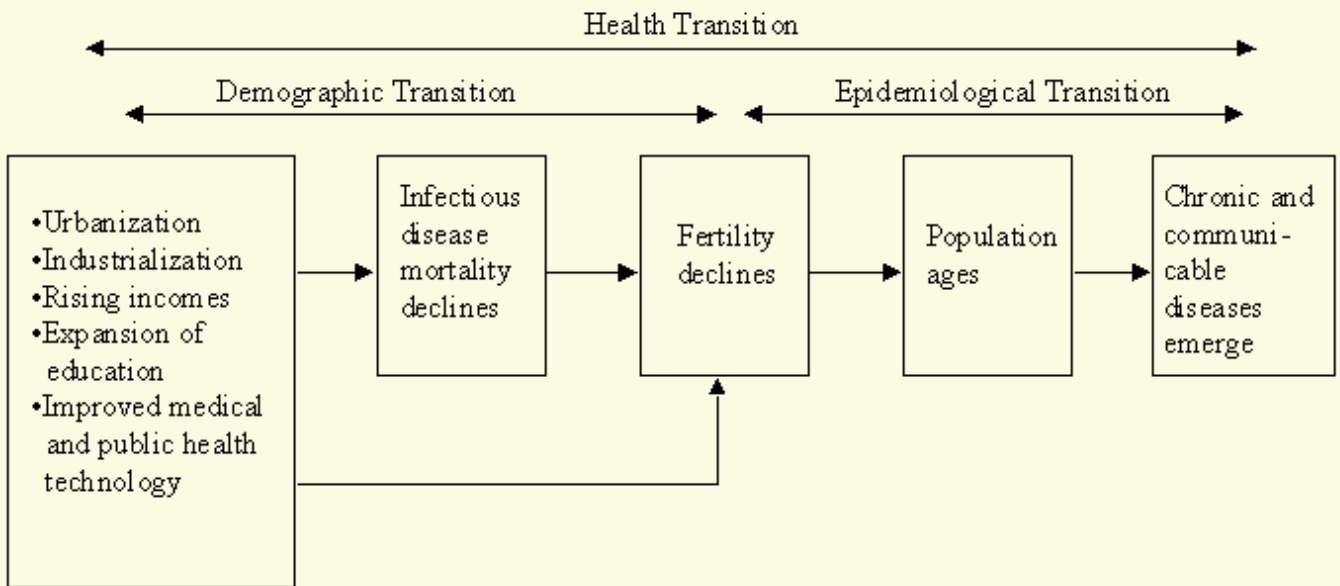
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The Rationales of Decentralization Initiatives

- ❑ Demographic transition
- ❑ Economic transition
- ❑ Epidemiological transition
- ❑ Unity consideration
- ❑ Efficiency consideration



Relationship between Economic, Demographic, and Epidemiological, and Health Transitions

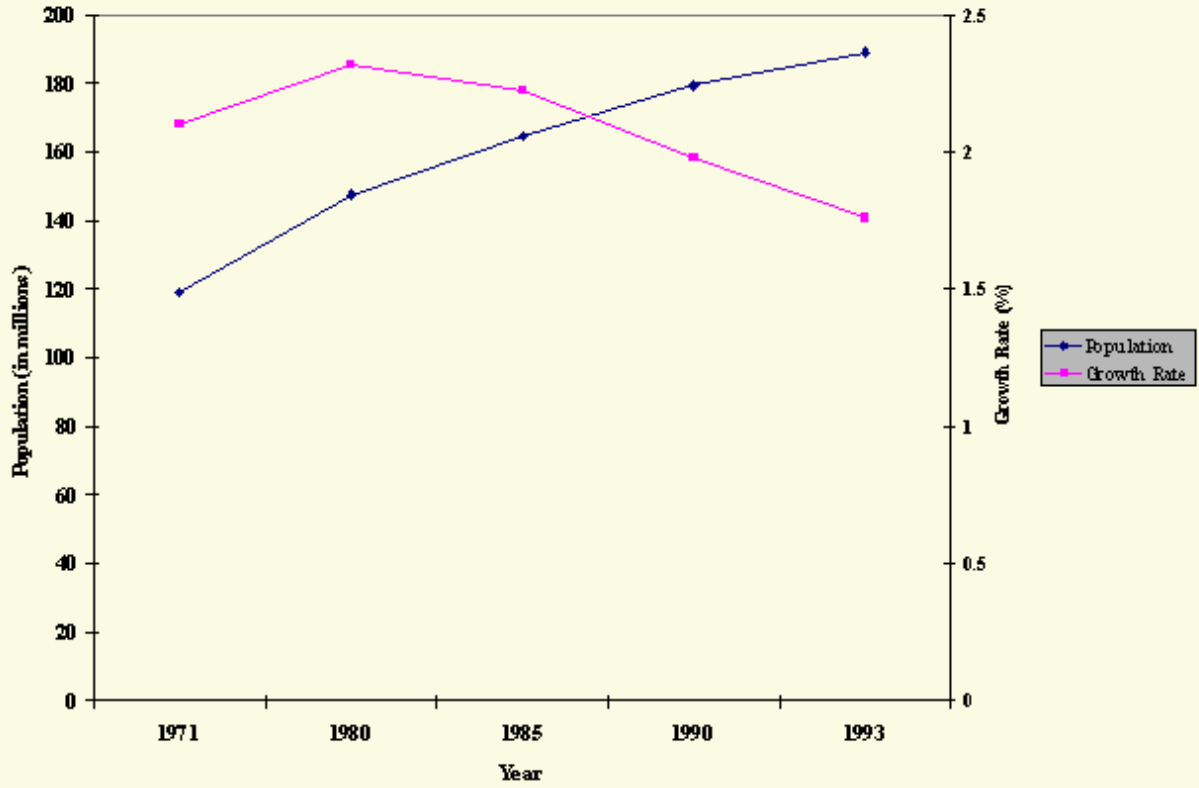


Source: Jamison (1993), p.4.



Rationale: Demographic Transition

Population and Growth Rate, 1971-1993

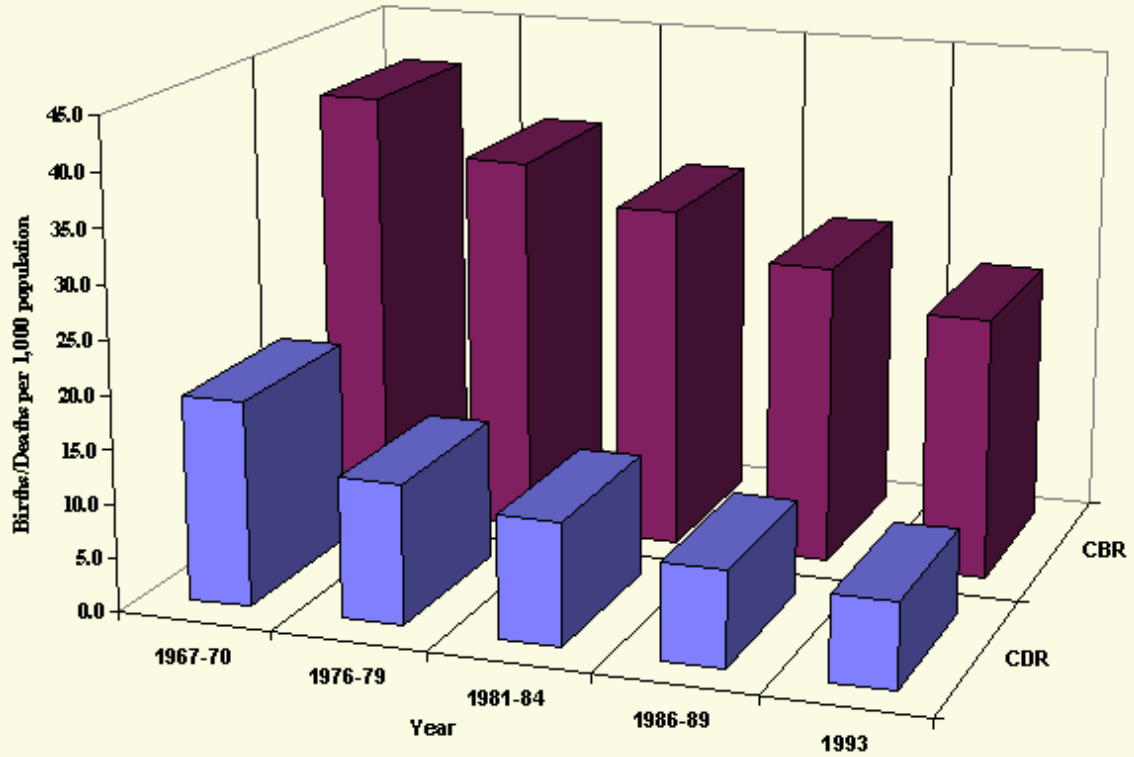


Source: Indonesia Demographic and Health Survey 1994, CBS, MoH, and SMPN/FPCB



Rationale: Demographic Transition

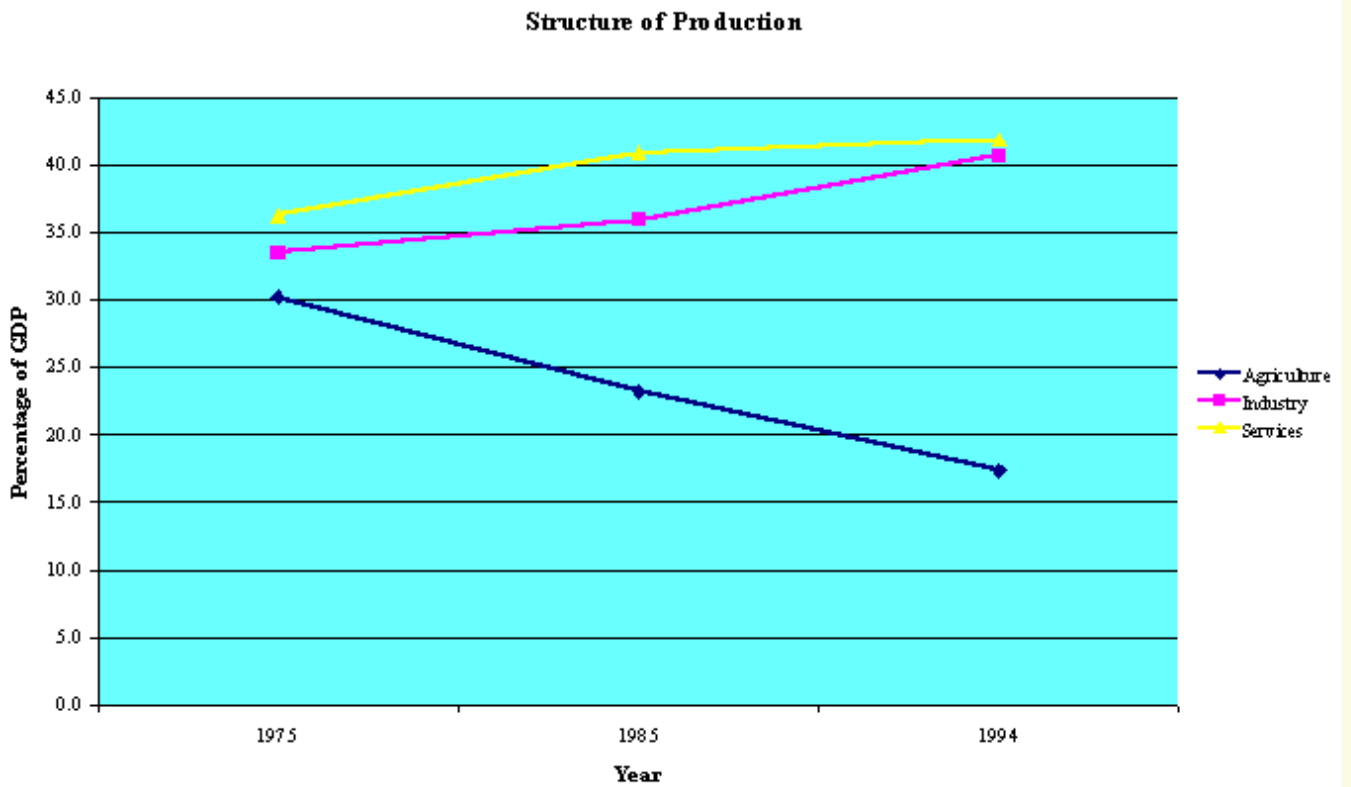
Crude Birth Rate (CBR) and Crude Death Rate (CDR), 1967-1993



Source: Indonesia Demographic and Health Survey 1994, CBS, MoH, and SMP/INFP/CE

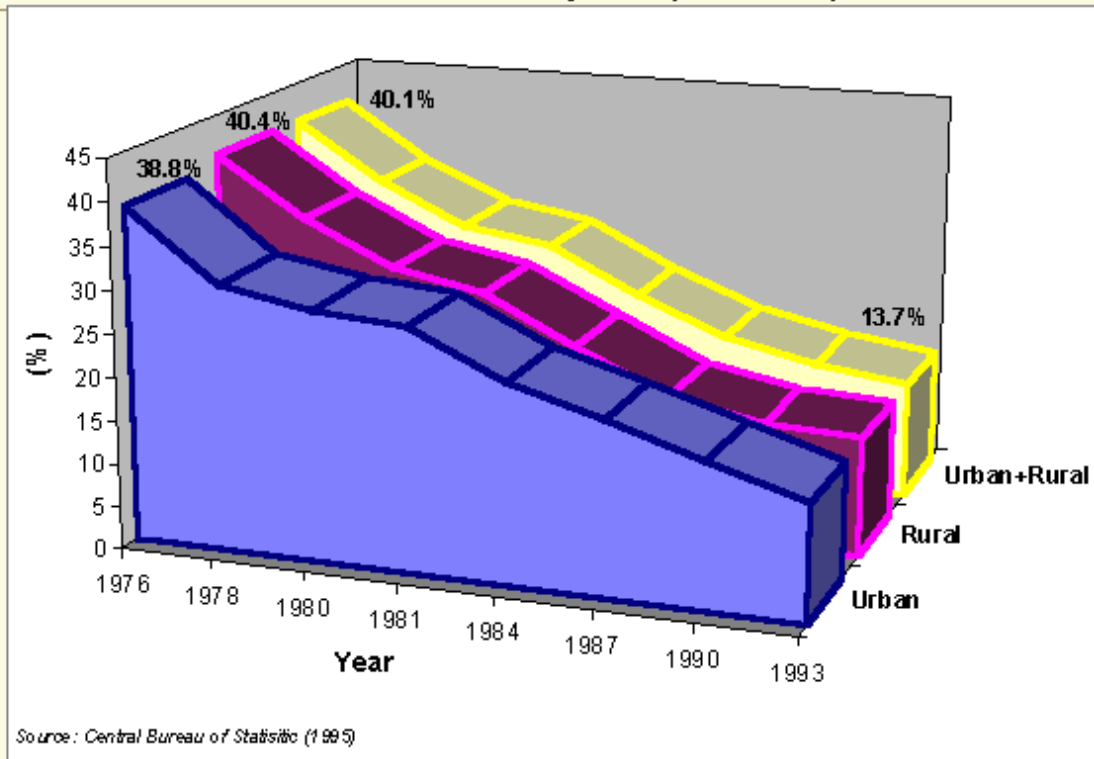


Rationale: Economic Transition



Rationale: Economic Transition

Trend of Proportion of Population below the Poverty Line (1976-1993)



Rationale: Epidemiological Transition

- ❑ There is a significant increase in chronic degenerative disease. For example: cardiovascular diseases have become an important cause of death; and
- ❑ There is still “unfinished agenda” of combating infectious diseases such as diarrhea, tuberculosis, respiratory infections, and tetanus.



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Rationale: Economic and Political Justifications

□ Economic justification

- A one-size-fits-all approach adopted by the centralized planning system leads to the government to provide a bundle of public goods different from the preference of citizens of particular regions, provinces, or districts (Oates, 1971). The preferences vary geographically, the uniform policy is likely to force some localities to consume more or less than they would prefer to consume.
- Decentralization contributes to more efficient provision of local public services by allowing a better matching of expenditures with local priorities and preferences;

□ Political Justification

- The 27 provinces of the country vary greatly in natural and human resource endowments, in religious, cultural and ethnic. The Decentralization policy can provide political glue to maintain the national unity.



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Implementation of Decentralization Policies

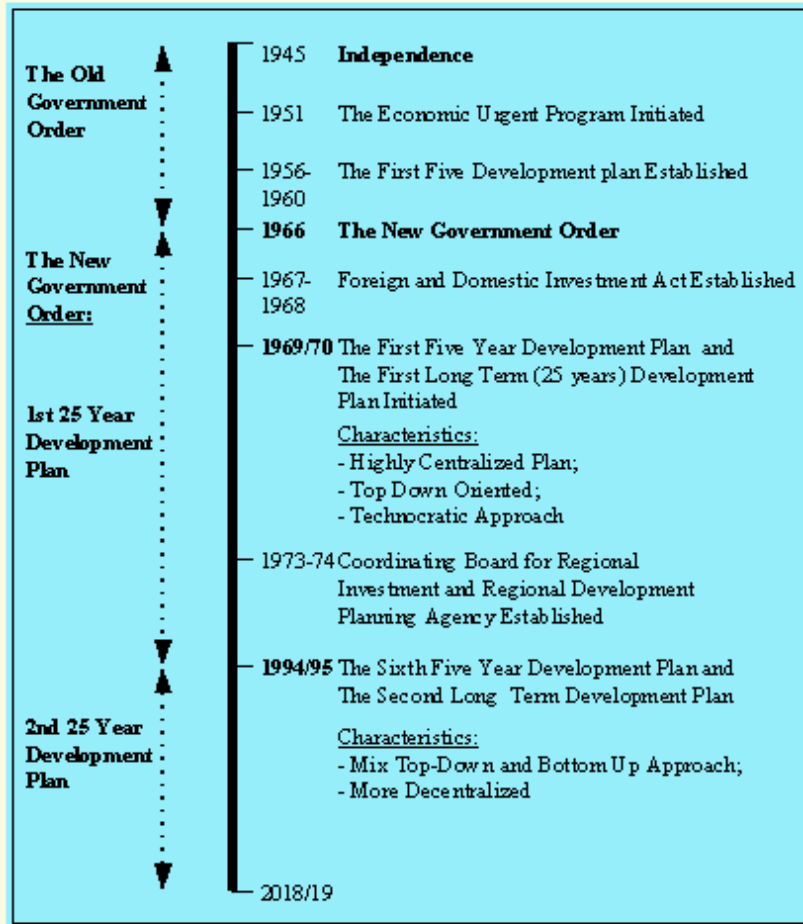
- ❑ Decentralization of Development Planning
- ❑ Fiscal Decentralization



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Decentralization of Development Planning

Historical Perspective of Development Planning Policies

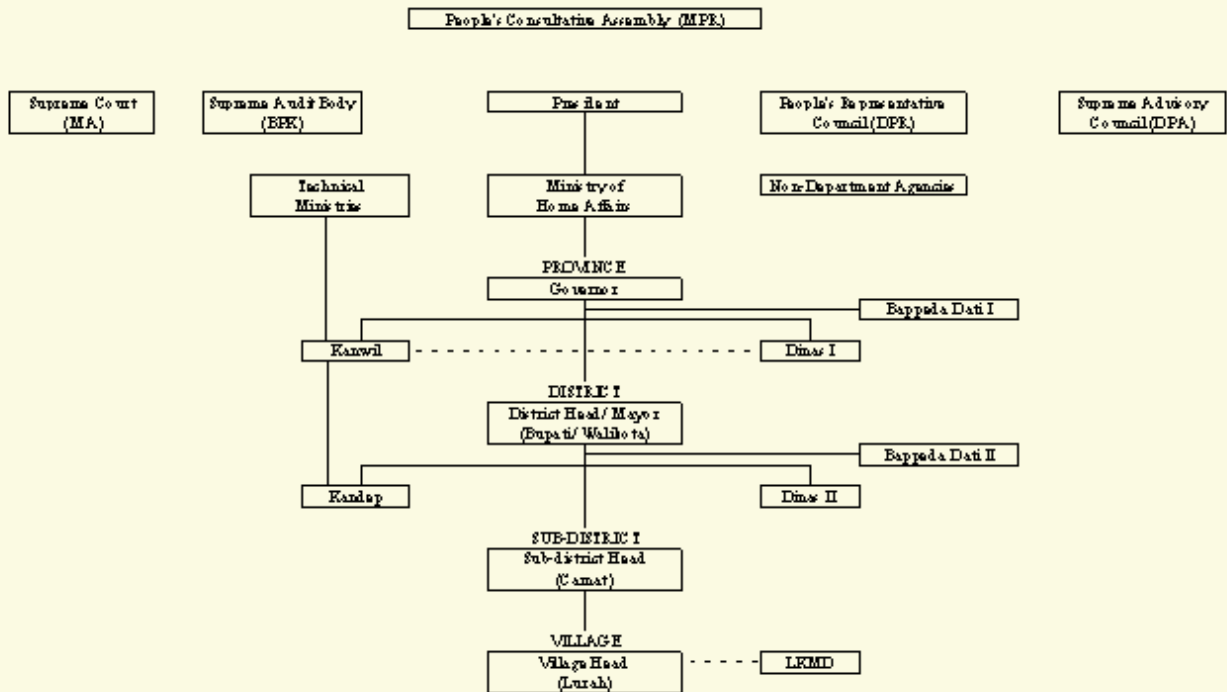


The legal means:

- **Article 18 of the Constitution**
Respect would be paid to regional autonomy
- **The law 5 of 1974**
Outlining the main principles for the development of regional autonomy including for broad involvement of local government in provision of public services
- **Establishments of Provincial Development Planning Agency (1976) and District Development Planning Agency (1981)**
- **The Presidential Instruction 1970s**
Provision of a broader grant to local governments



Government structure



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 at provincial level and district level, respectively
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 Kanwil and Kandep are provincial and sub-provincial level office of central government ministry
 LKMD is village planning board



Fiscal Decentralization

The Presidential Instruction (1970s): Grant Program

- The primary objectives:

Assisting the attainment of the main national development objectives, improving the equity, and strengthening local autonomy.

- Types of Grant:

- **General purpose block grant**

It is intended to promote local autonomy and improve local infrastructure. The local authorities have higher degree of flexibility to spend the funds.

- **Specific block grant**

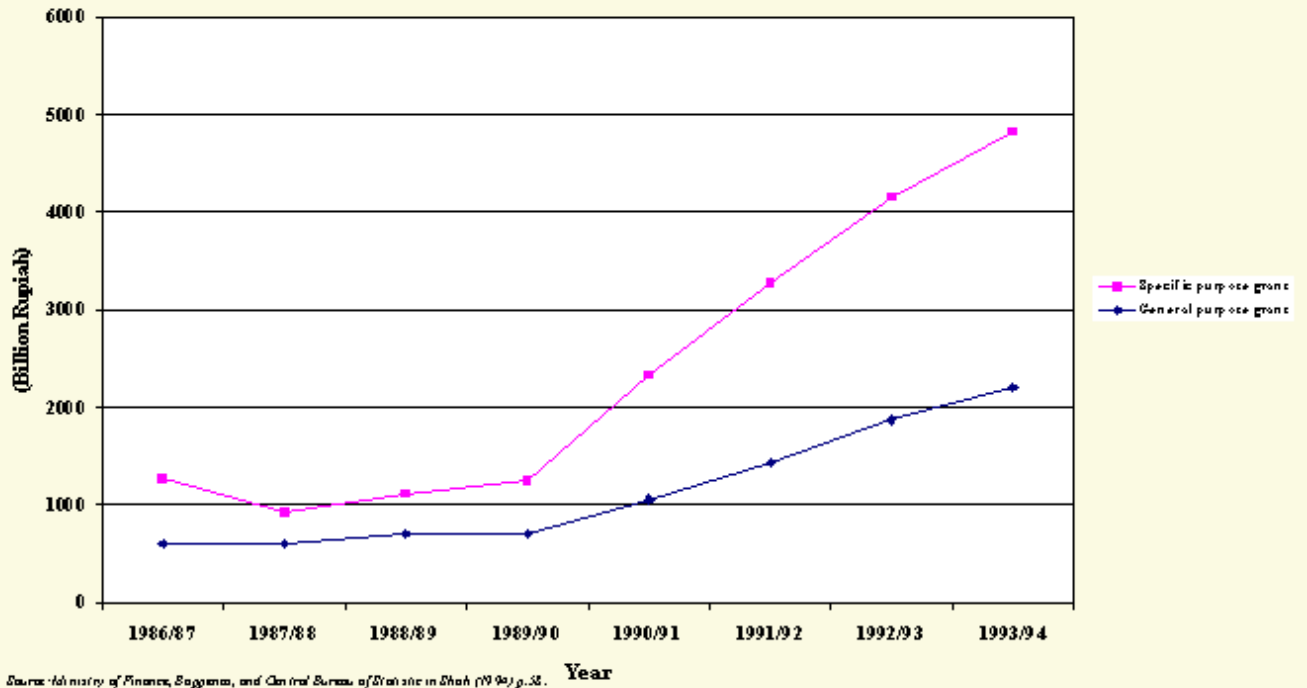
It is created primarily to accelerate the achievements of national development targets such health status and education. The grant is earmarked by the central government for specific uses such as: public health and universal primary education.



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Fiscal Decentralization

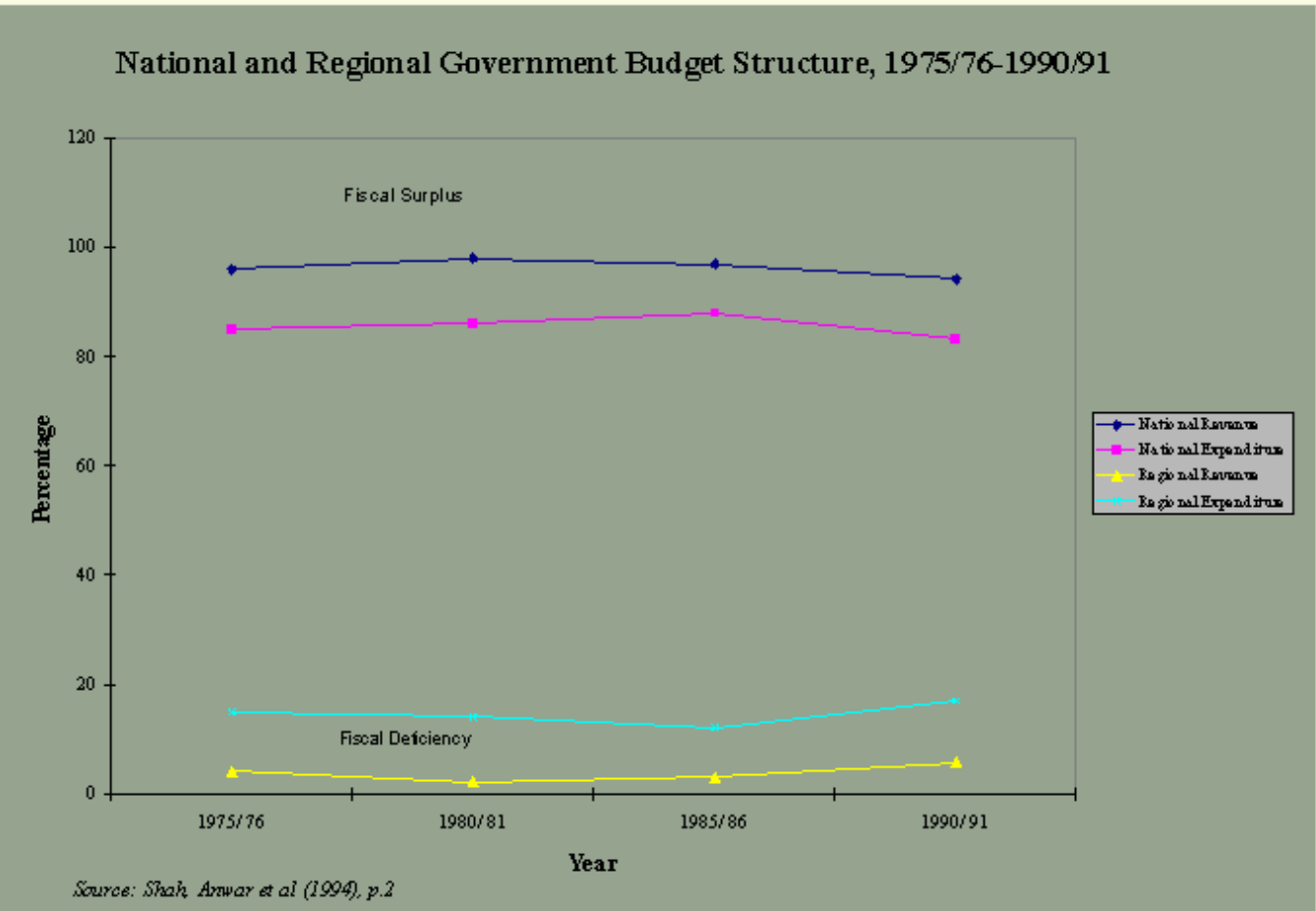
General Purpose and Specific Grants, 1986/87-1993/94



Source: Ministry of Finance, Budgets, and Central Bureau of Statistics in Oman (1994) p. 33.



Fiscal Decentralization



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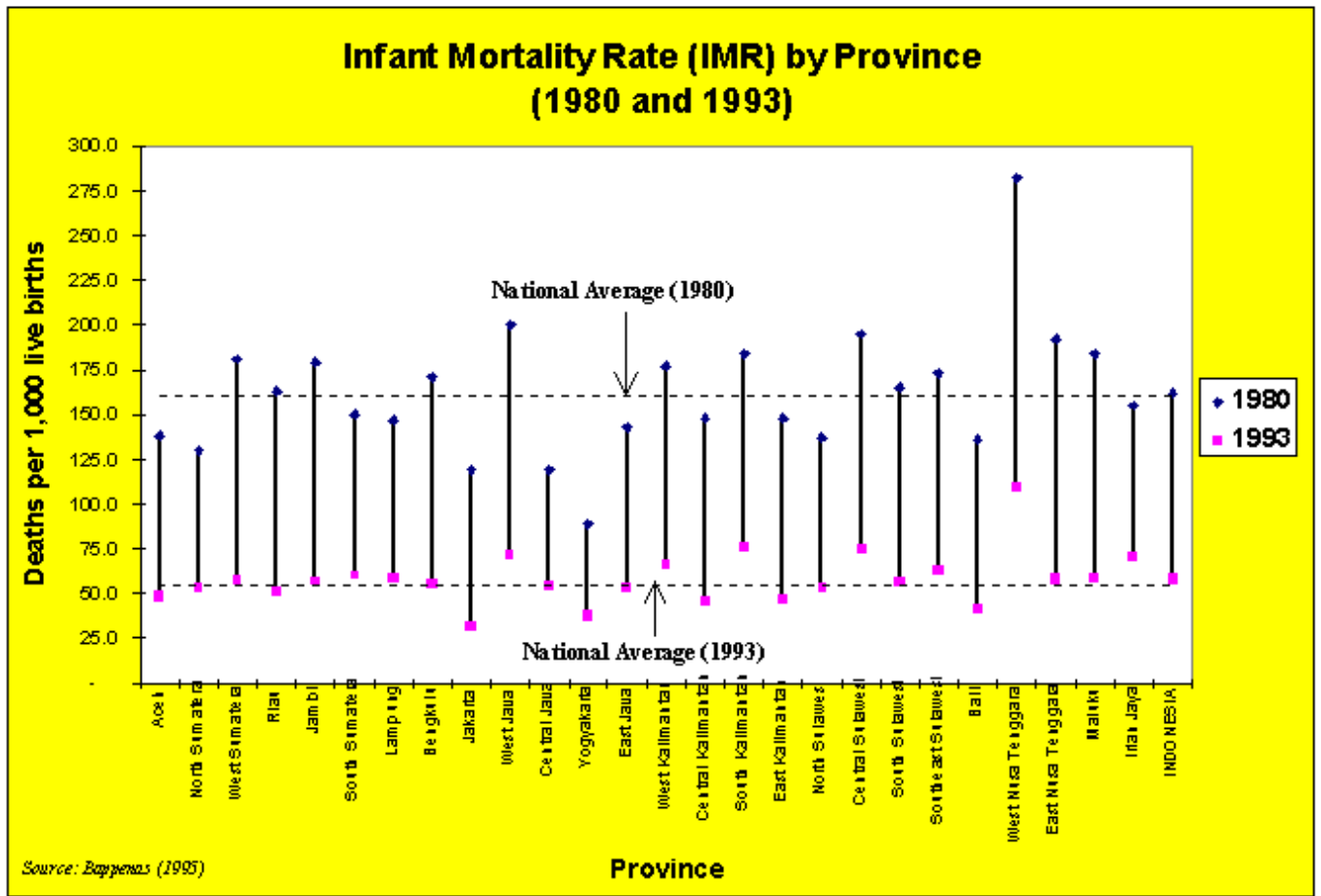
Implications of Decentralization Efforts on Sustainability of Health Care

- Equity
- Efficiency
- Cost Recovery



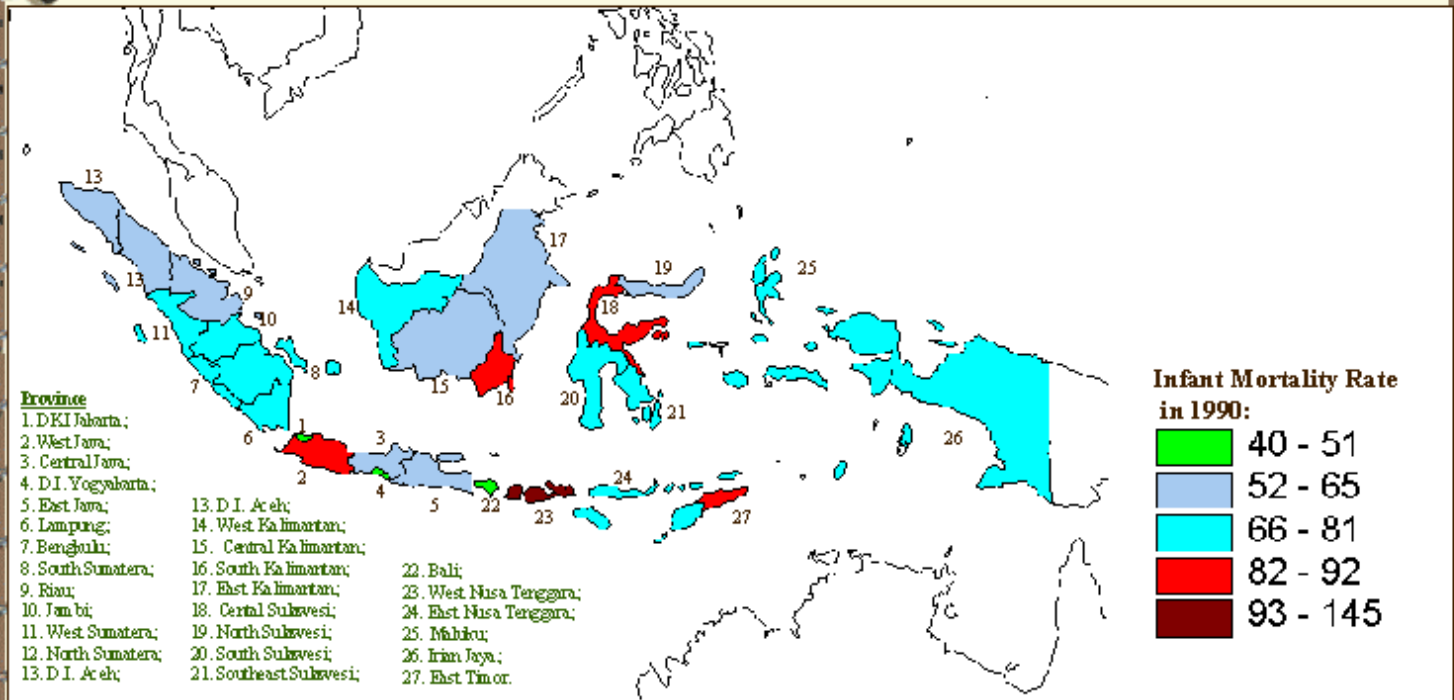
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Implications: Equity



Implications: Equity

Infant Mortality Rate by Province in 1990



Implications: Equity

Utilization of Modern Providers by Expenditures Class, 1987

	Urban			Rural			Total		
	Poor	Nonpoor	Total	Poor	Nonpoor	Total	Poor	Nonpoor	Total
Total Visits ^{a)}	0.23	0.33	0.32	0.25	0.38	0.35	0.25	0.37	0.35
Doctor	0.03	0.12	0.11	0.01	0.05	0.04	0.01	0.07	0.06
Hospital	0.03	0.05	0.05	0.01	0.03	0.02	0.01	0.04	0.03
Health Center	0.12	0.12	0.12	0.14	0.18	0.17	0.14	0.16	0.16
Clinic	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Paramedic	0.05	0.03	0.03	0.07	0.10	0.10	0.07	0.08	0.08

^{a)} per person

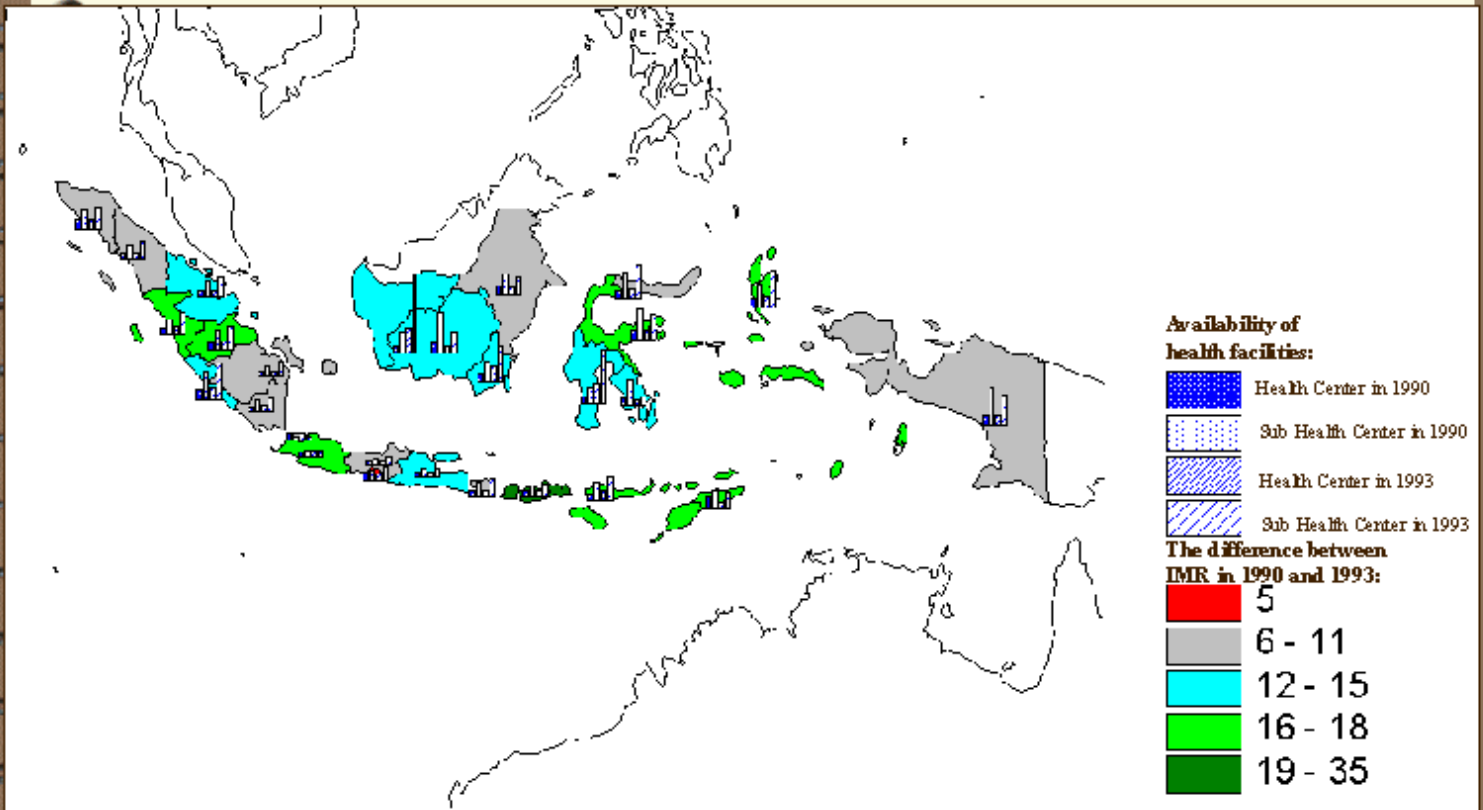
Source: *The World Bank, 1991*



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Implications: Efficiency

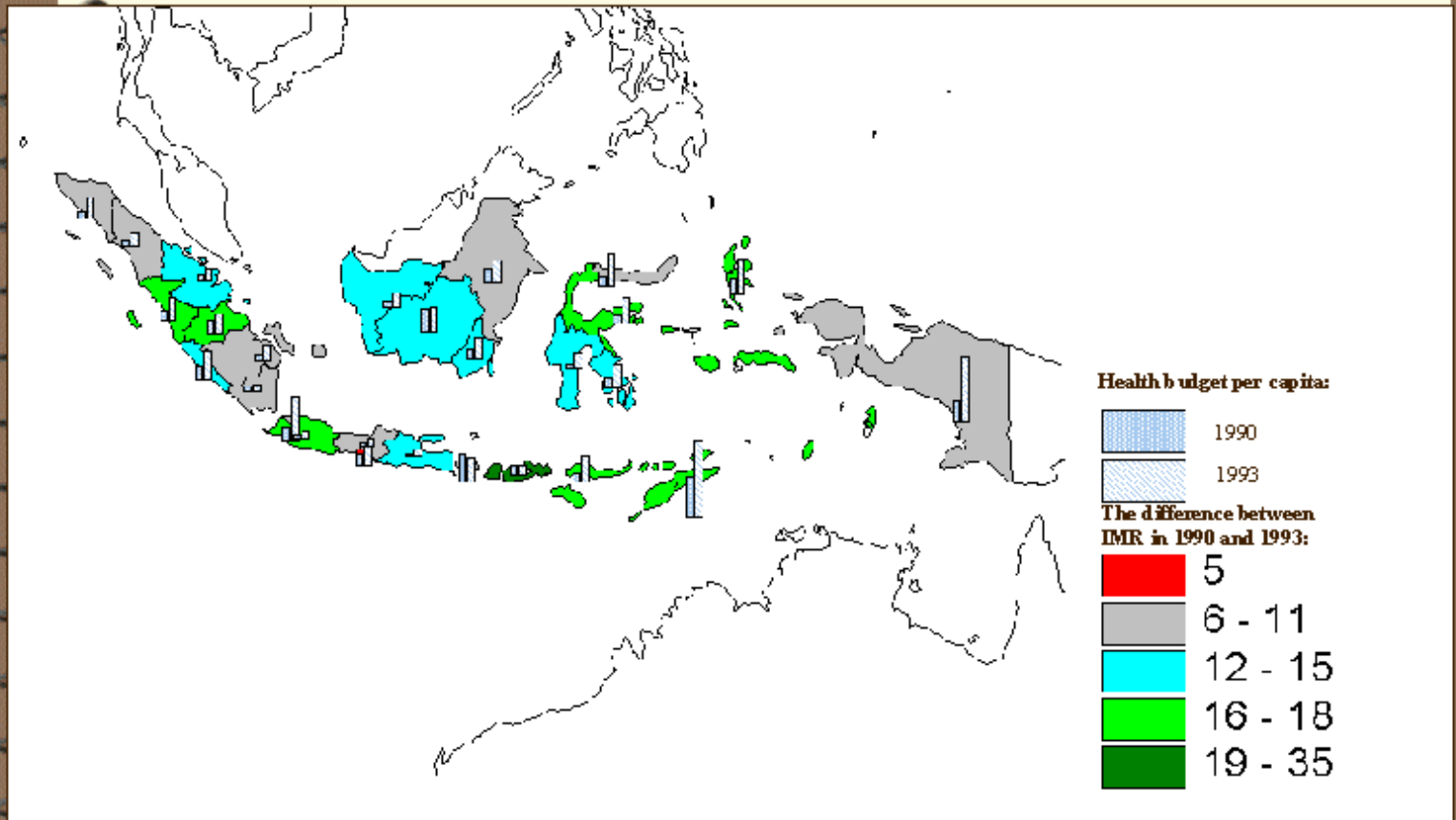
The Relationship between Improvement in IMR and Availability of Health Facilities, 1990-1993



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Implications: Efficiency

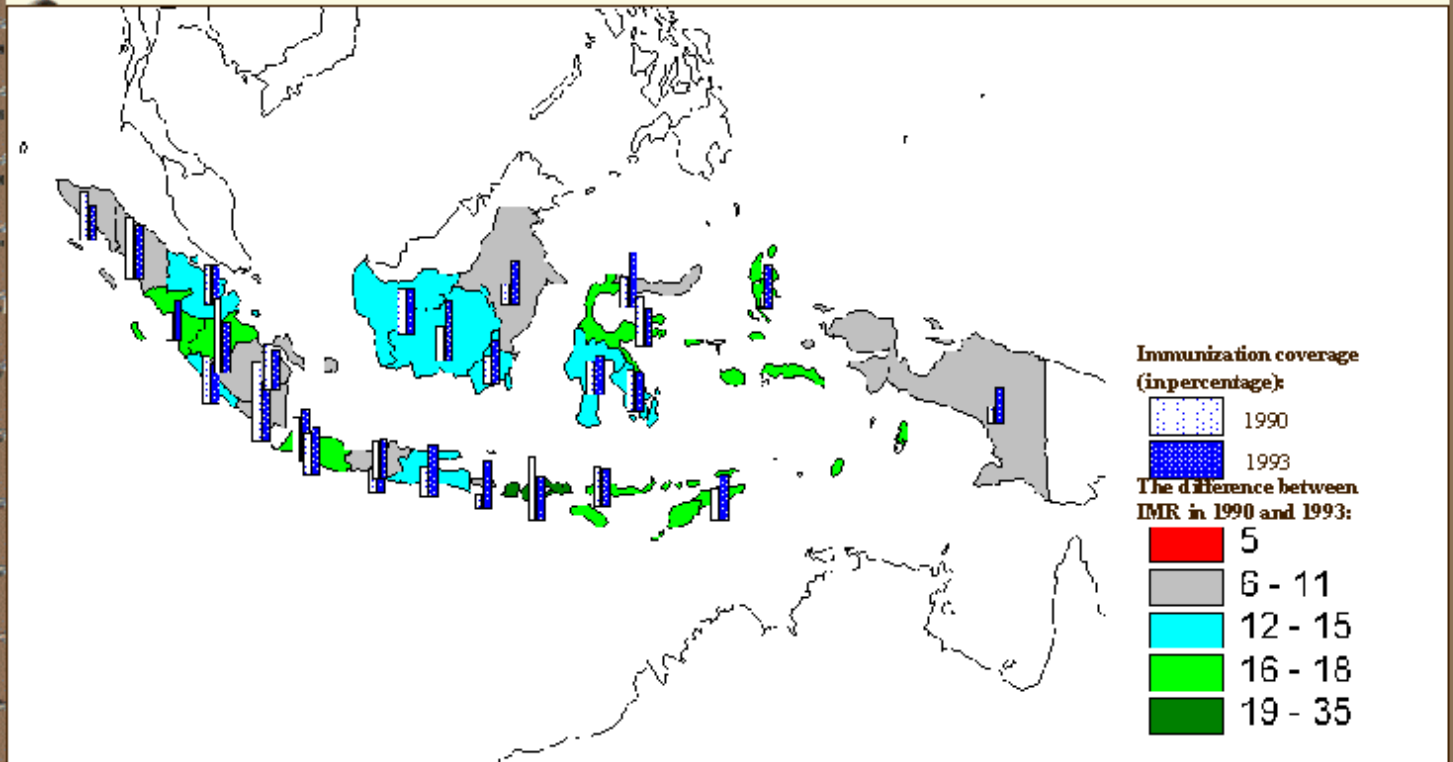
The Relationship between Improvement in IMR and Health Budget Per Capita, 1990-1993



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Implications: Efficiency

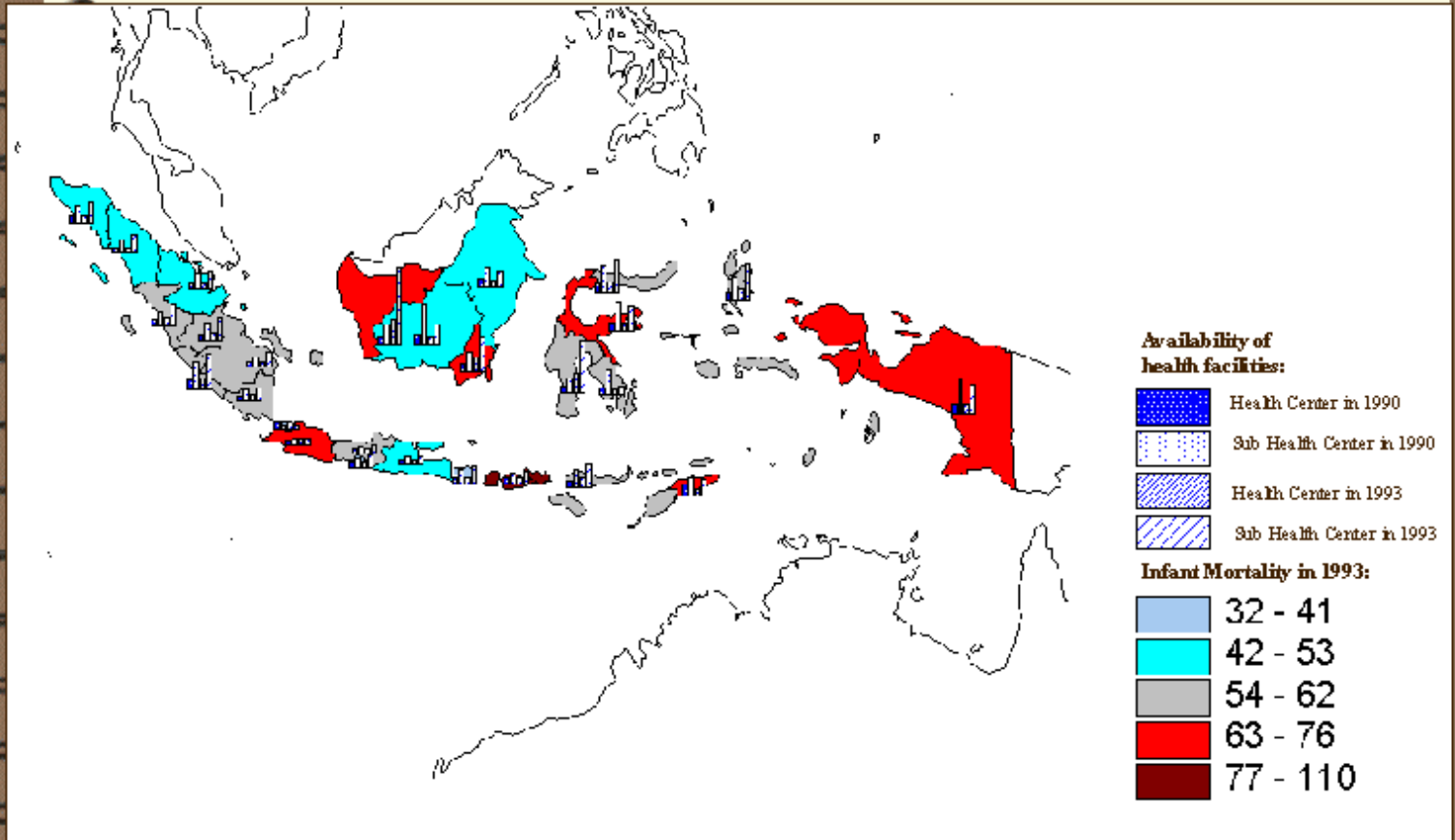
The Relationship between Improvement in IMR and Immunization Coverage, 1990-1993



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Implications: Efficiency

Infant Mortality Rate (1993) and
Availability of Health Facilities (1990 and 1993)



Overview of Indonesia

- 4th most populous nation in world (200m)
- 13,000 island archipelago with 350 ethno-linguistic groups
- Independence gained from Dutch in 1945
- Initially explored for rich natural resources; “Spice Islands”
- Fast-growing developing market economy
- Asian crisis sparked financial and political unrest



Overview

- . **Overview of Indonesia**
- . **Rationale for research**
- . **Agriculture in Indonesia since 1965**
- . **Smallholder farming**
- . **Targeted crops: Coffee, Spices**
- . **Models for development**
 - o Coffee in Kenya
- . **Recommendations**

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Spices

- Many spice crops also dominated by smallholders
- 4 that have not gone through transition are nutmeg, cinnamon, ginger, and pepper
- Intercropping with coffee common, especially for pepper



Slide 21 of 22

Policy Options

. **Market Mechanisms**

- invest in infrastructure, institutions, technology

. **Farming Production**

- Increase yields: high-yielding seedlings, extension services, fertilizers; this also lowers marketing costs
- Power to farmer: co-ops, simple technology, education

. **Trade controls**

- price controls, quotas

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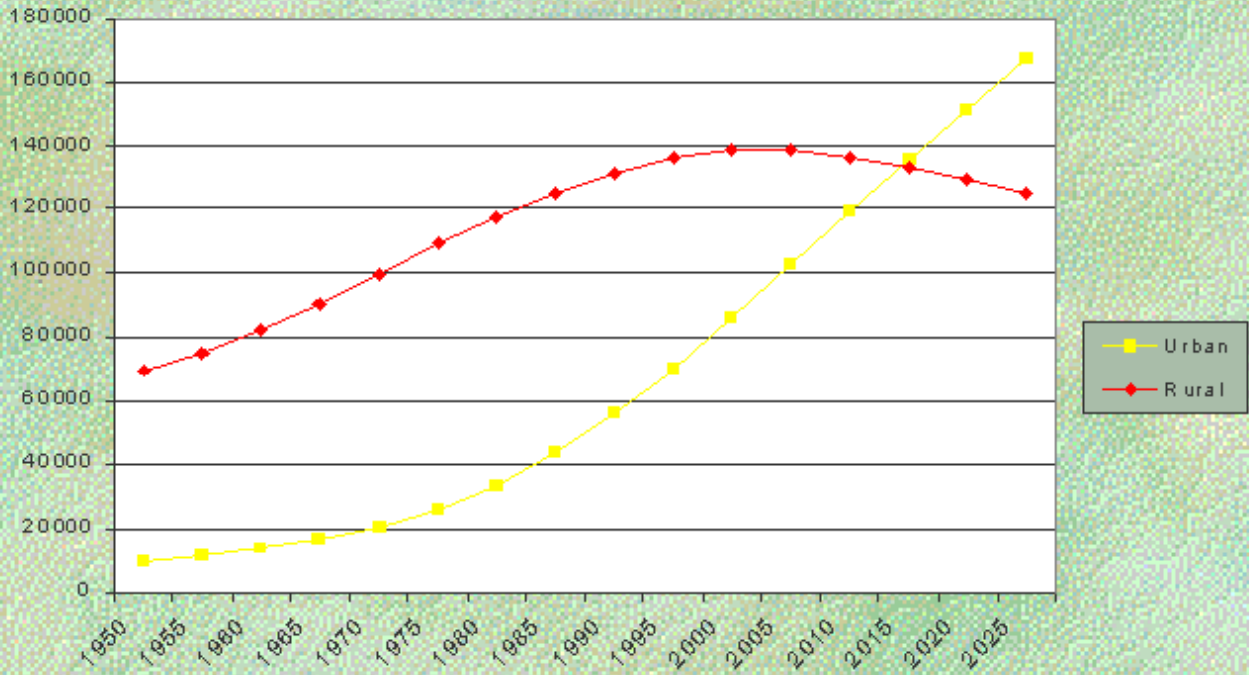
Rationale for Research

- Financial crisis in 1997 encouraged re-focus on agriculture sector
- Smallholder farmers still majority of labor force (slightly over 50%)
- Crop diversification away from rice needed
- An opportunity to develop cash crops for export
- Stimulate rural development; stem urban migration



Slide 5 of 22

Indonesian Population



Slide 6 of 22

Rationale for Research

Criteria for crops selected

- Potential for development (have not experienced agricultural transition)
- Increased demand in U.S. and Western developed world
- Dominated by smallholder farmers



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Agriculture in Indonesia since 1965

- Suharto gave priority to rice sector
 - investment in fertilizer, pesticides, irrigation
 - BULOG (National Logistics Agency)
 - Oil money
 - self sufficiency by 1984

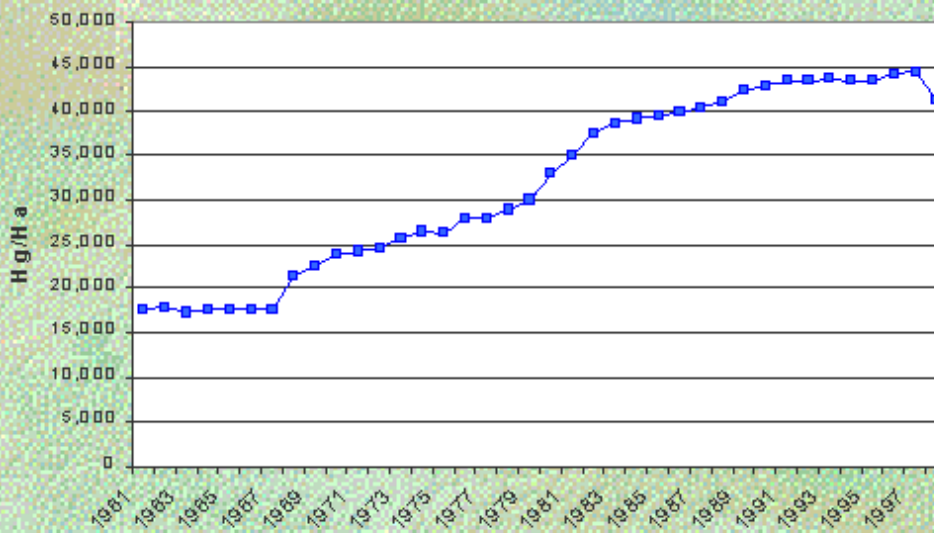
- Green Revolution increased rice yields



Agriculture in Indonesia since 1965

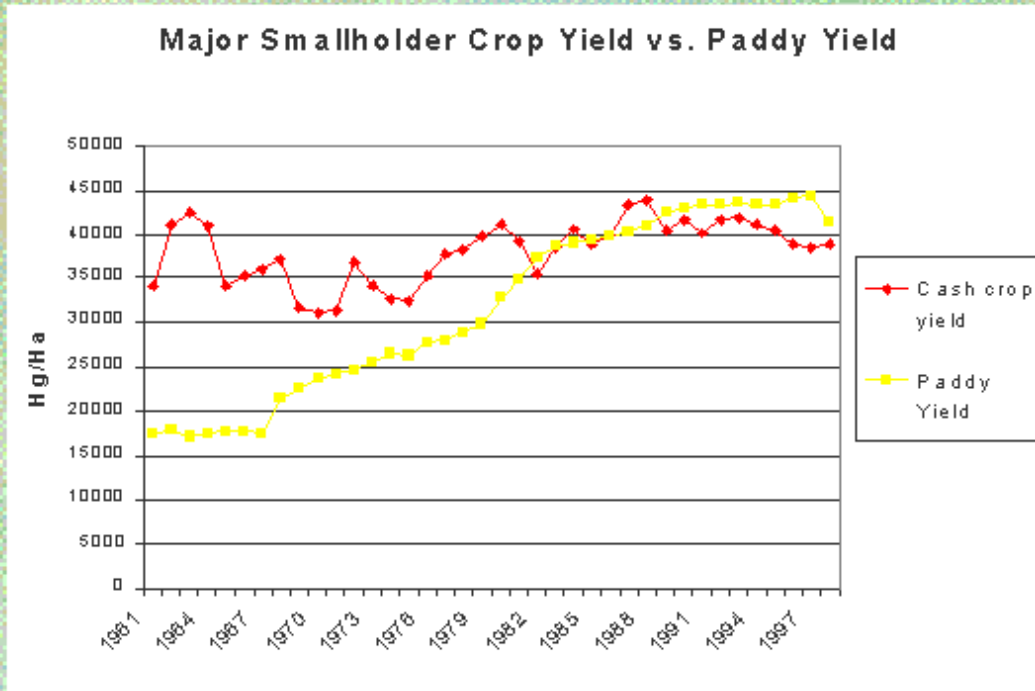
- ☛ Combination of these factors led to agricultural transition in rice

Indonesia Rice Paddy Yield



Agriculture in Indonesia since 1965

☛ Cash crop development suffered

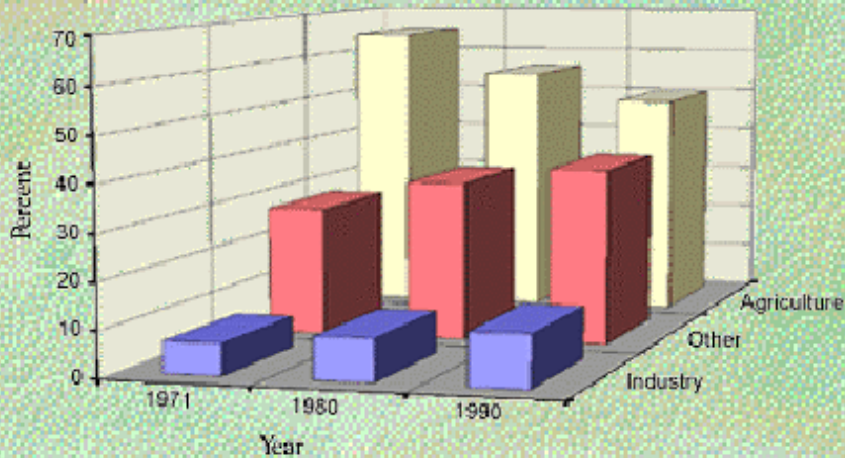


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Smallholder Farming

- Smallholders dominate cash crop farming
- Agricultural households are increasing through division of land-holdings

Labor Force by Sector
1971 - 1990



Coffee Farming

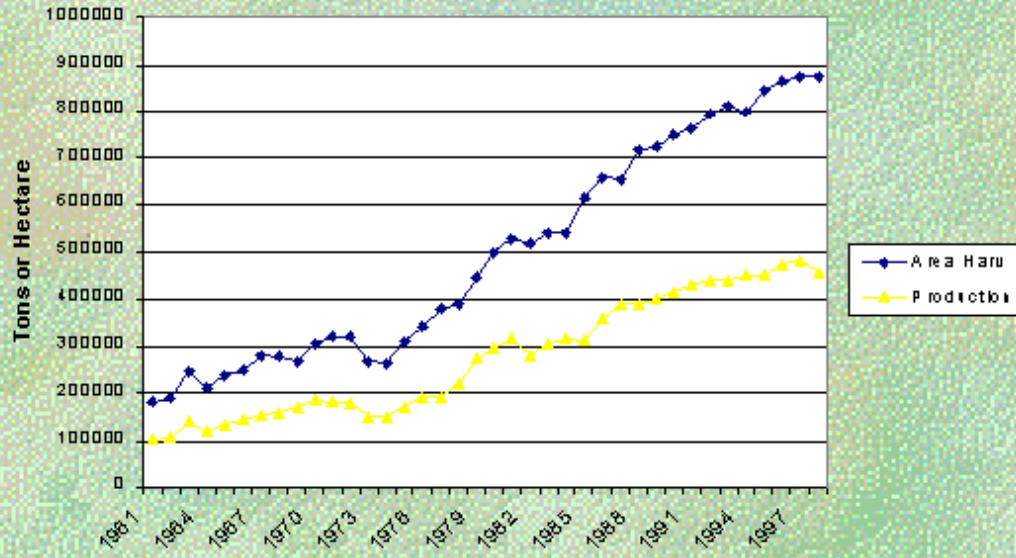
- ☛ 93% of coffee in Indonesia is produced by smallholders
 - main cash income for 5 million people
 - primarily Robusta variety (90%)
 - world's 3rd largest producer
 - \$0.5 billion in export revenues
- ☛ Increased demand for specialty coffee in United States/ West (Arabica variety)
- ☛ Coffee has yet to experience agricultural transition





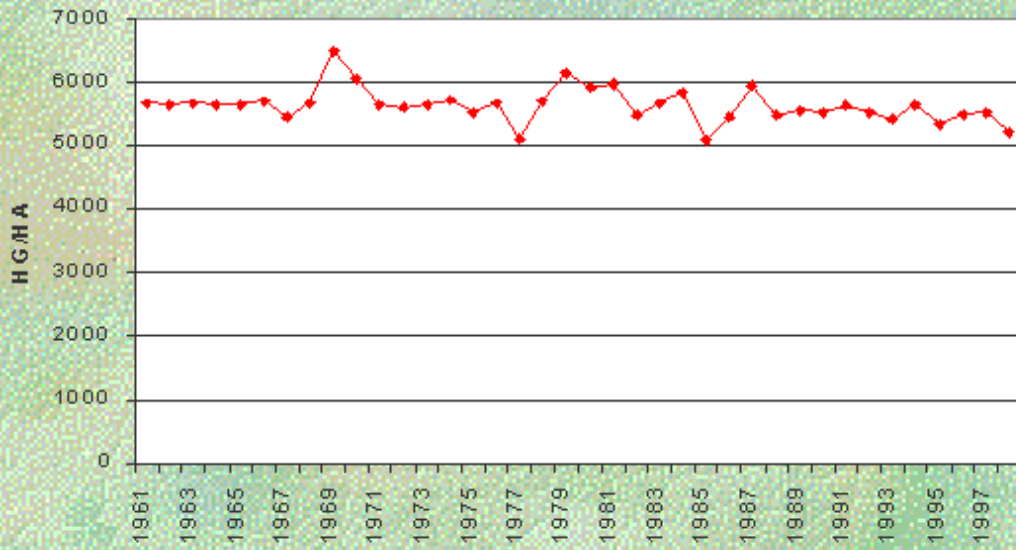
Coffee Farming

Indonesian Green Coffee



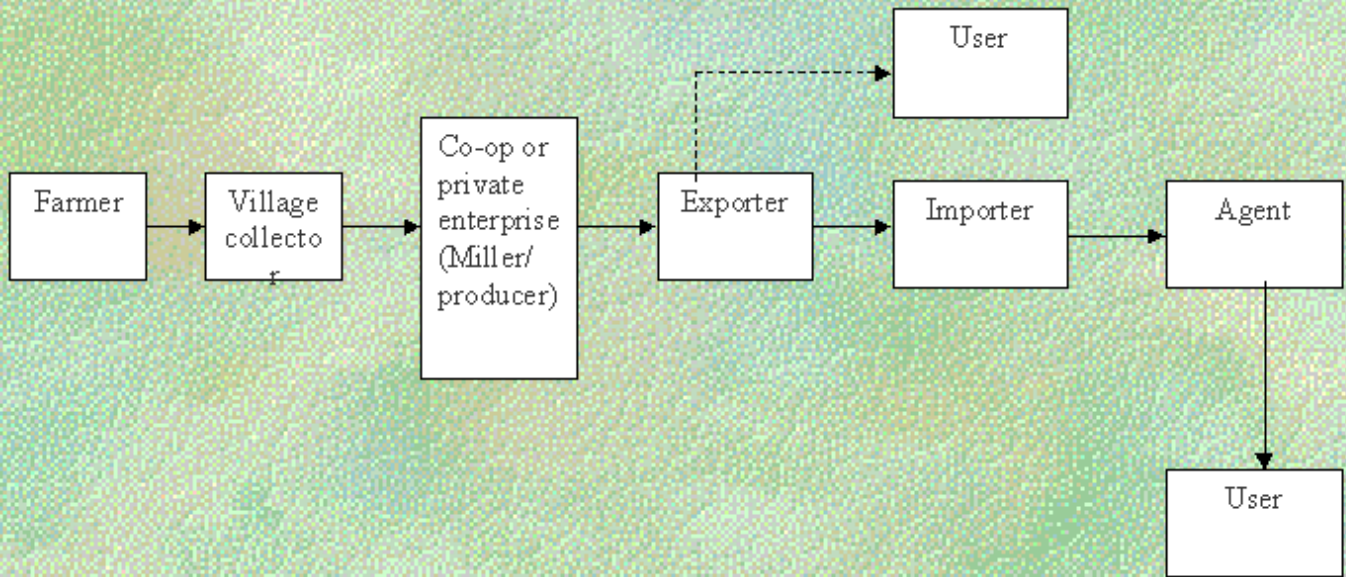
Coffee Farming

Indonesia Coffee Yield



Coffee Farming

☛ Structure of distribution is fragmented



Coffee Farming - Problems

- ☛ Coffee yields have not improved over past 35+ years
- ☛ Importers, Exporters determine coffee prices, sometimes doesn't cover farmers costs
- ☛ Fragmented structure makes education and coordination difficult
- ☛ Farmers do not add value to crops and have backyard processing techniques (quality problems)
- ☛ Demand is growing for Arabica, not Robusta



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Coffee Farming - Opportunities

- ☛ World demand for Arabica and Organic coffee is increasing
- ☛ Number of small roasters in U.S. has increased 10 fold since 1980 = demand for smaller batches
- ☛ Dollar-based exports are more valuable (in Rupiah), meaning higher returns for farmers
- ☛ Creation of farming co-ops I.e. Timor
- ☛ Continued assistance from AEKI and ICCRI for extension and quality improvement



Coffee Farming - Opportunities

- ☛ Economics of coffee farming
 - Price of Arabica = \$1.89/lb.
 - Price of Robusta = \$0.79/lb.
- ☛ Example:
 - Farmer has 1.4 ha of land
 - Arabica: 13.1 mill Rp * 77% fob = 10.1 mill Rp (\$1346)
 - Robusta: 7.3 mill Rp * 92% fob = 6.7 mill Rp (\$893)
- ☛ If 25% of Robusta converted to Arabica, would increase total coffee revenues by about 20%
- ☛ More foreign exchange to stimulate economy
- ☛ More money/ development in rural areas



Kenyan Model

- ☛ Cooperative structure; vertically integrated
- ☛ Grow high quality Arabica; excellent reputation in specialty market
- ☛ Sophisticated scientific research into coffee quality
- ☛ Centralized grading/ tasting in Nairobi
- ☛ Auction system





What is Ecotourism?

ECOTOURISM IS A TYPE OF TOURISM THAT HAS A LOW IMPACT ON THE ENVIRONMENT, CONTRIBUTES TO THE LOCAL ECONOMY, ENGENDERS CROSS CULTURAL EXCHANGE, AND FOSTERS ENVIRONMENTAL EDUCATION.

IT AIMS TO ACHIEVE ECONOMIC GAINS (I.E. FOREIGN EXCHANGE AND INVESTMENT) THROUGH NATURAL RESOURCE PROTECTION.

BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN CO



PPT Slide

PRESENTATION CONTENTS:

- My interest in ecotourism (in Costa Rica)
- What is ecotourism?
- Ecotourism in the Developing World
- The Development of Ecotourism in Costa Rica
- Benefits of Ecotourism
- Dangers of Ecotourism
- Policy Recommendations

Below the Surface: The Impacts of Ecotourism in Costa Rica

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Policy Recommendations

#1 PRIORITY: NEED MORE INFORMATION!!

SPECIFICALLY, NEED A SYSTEM TO EVALUATE AND MONITOR THE IMPACTS OF ECOTOURISM ON THE FOLLOWING ISSUES:

-BIODIVERSITY

-HABITAT

-INCOME GENERATION/ECONOMIC DEVELOPMENT

-CULTURAL PRACTICES

IN ADDITION, NEED TO STUDY THE FOLLOWING ISSUES RELATED TO PARK MANAGEMENT:

-SPENDING ON INFRASTRUCTURE

-VISITATION/CARRYING CAPACITIES

BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN CO



PPT Slide

Policy Recommendations

- Greater investment in park management and infrastructure
-
- More stringent standards and regulations around the practice of ecotourism (tour operators, guides, visitation levels)
- Greater collaboration between the government and the tourism industry (national and int'l)
- Increased involvement of local communities in the planning and operation of ecotourism-related enterprises

Below the Surface: The Impacts of Ecotourism in Costa Rica

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What is Ecotourism?

- **ORIGINATED IN THE EARLY 1960'S (ENVIRONMENTAL MOVEMENT)**
- **BRUNTLAND COMMISSION (1987)**
- **"ALTERNATIVE" FORM OF TOURISM**
- **ECOLOGICAL AND SOCIO-CULTURAL INTEGRITY, RESPONSIBILITY, SUSTAINABILITY**

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What is Ecotourism?

ECOTOURISM'S SUCCESS DEPENDS ON...

- POLITICAL STABILITY
- COMMITMENT
- PROMOTION
- IMAGE
- EASE OF TRAVEL
- DEMAND

BELLOW THE SURFACE: THE IMPACTS OF ECO TOURISM IN CO





Ecotourism in the Developing World

- **EXTREMELY POPULAR AS A MEANS OF ECONOMIC DEVELOPMENT**
- **COMPARATIVE ADVANTAGE -- BIODIVERSITY, PRISTINE ENVIRONMENTS**
- **\$12 BILLION IN ECOTOURISM REVENUES IN 1988**
- **PROLIFERATION OF ECOTOURISM TOUR OPERATORS**
- **INCREASING NUMBER OF ECOTOURISM CONFERENCES**
- **IDEALLY SUITED – LOW INFRASTRUCTURAL DEMANDS**

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The Development of Ecotourism in Costa Rica

- EARLY 1960'S – PRESSURE ON COSTA RICAN GOVERNMENT TO ENACT ENVIRONMENTAL PRESERVATION PROGRAMS



1970 -- NATIONAL PARK SERVICE ESTABLISHED



- 1970 TO 1971 – FIRST FOUR NATIONAL PARKS CREATED



- 1995 – MINISTRY OF RESOURCES, ENERGY AND MINING (MIRENEM) ESTABLISHED

- 1995 TO PRESENT – NATIONAL SYSTEM OF CONSERVATION AREAS (SINAC) CREATED





The Development of Ecotourism in Costa Rica

SINCE 1971, THE PARK SYSTEM HAS EXPANDED TO INCLUDE:

- 70 ENTITIES

-1,000,000 HA

-21 % OF NATIONAL TERRITORY

-NATIONAL PARKS, BIOLOGICAL RESERVES, NATIONAL WILDLIFE REFUGES, FOREST RESERVES AND PROTECTIVE ZONES

-11 CONSERVATION/MANAGEMENT AREAS UNDER SINAC

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The Development of Ecotourism in Costa Rica

- INITIALLY, THE PROTECTED AREA SYSTEM WAS CREATED UNDER A MANDATE FOR PRESERVATION
- OVER TIME, THE PROTECTED AREA NETWORK HAS EMERGED AS A FOCAL POINT FOR THE COSTA RICAN (ECO)TOURISM INDUSTRY
- ECOTOURISM HAS BECOME INCREDIBLY POPULAR IN COSTA RICA (ENVIRONMENTAL AND SOCIO-POLITICAL REASONS)

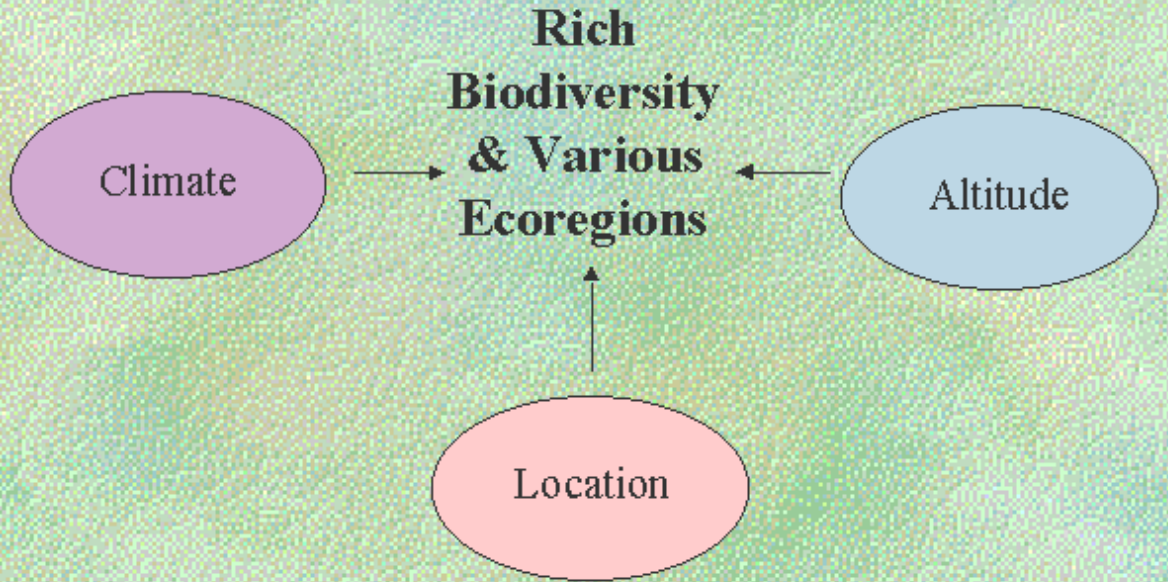
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The Development of Ecotourism in Costa Rica

• ENVIRONMENTAL FACTORS



BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN COSTA RICA





The Development of Ecotourism in Costa Rica

• SOCIO-POLITICAL FACTORS

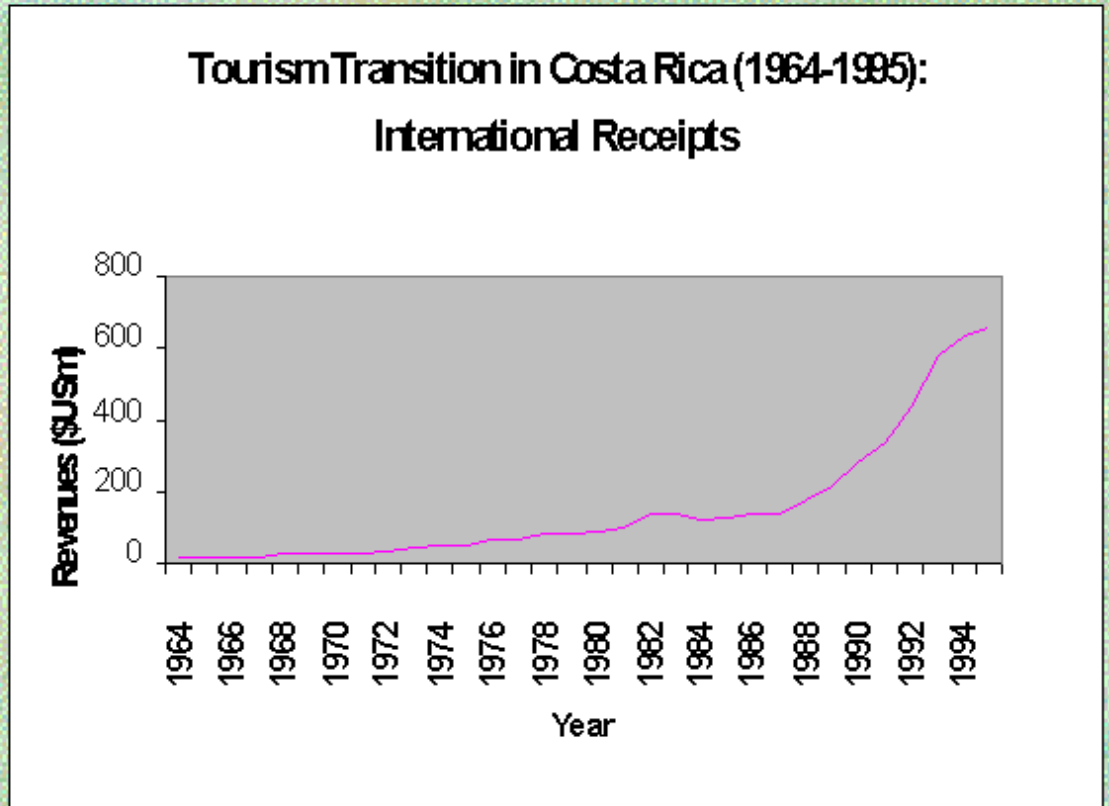


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The Development of Ecotourism in Costa Rica



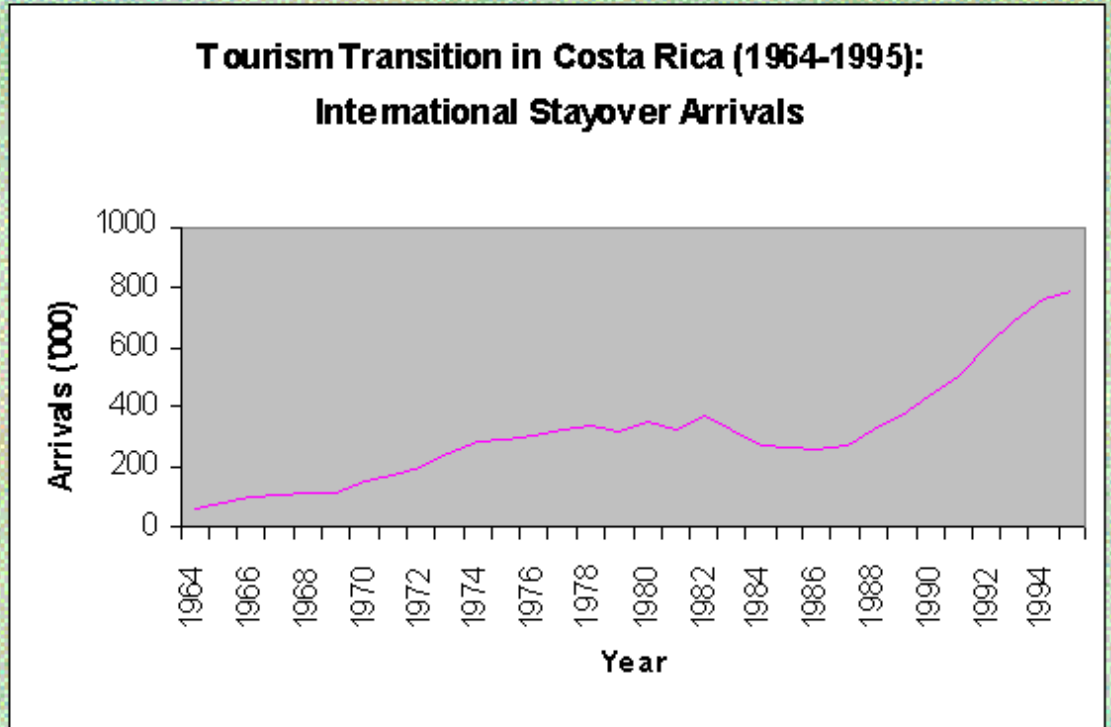
Source: *Europa World Yearbook* Selected Years

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The Development of Ecotourism in Costa Rica

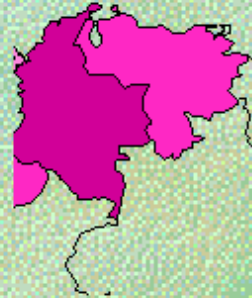


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The Development of Ecotourism in Costa Rica

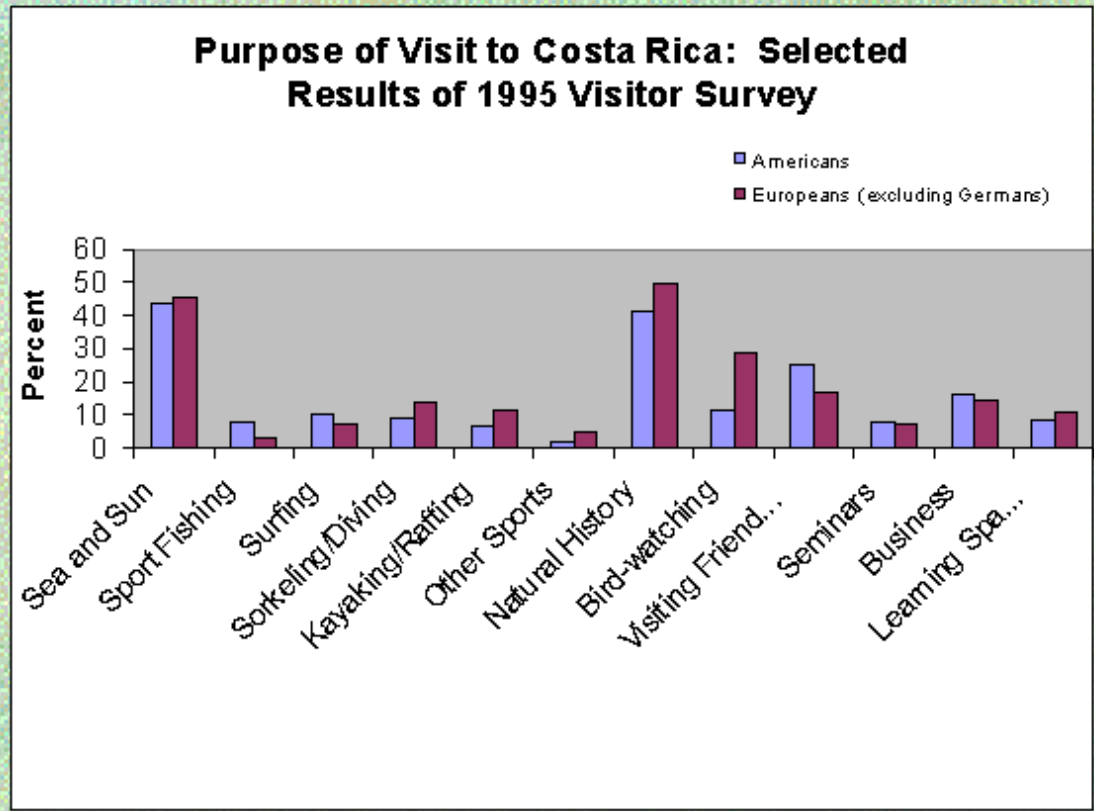


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The Development of Ecotourism in Costa Rica



*In percentage: total exceed 100% due to multiple responses.

Source: TII, 1996d

BELLOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN COSTA RICA





Benefits of Ecotourism

ENVIRONMENTAL SUSTAINABILITY

• INCREASED PRESERVATION OF NATURAL AREAS

-SINCE 1970, 70 PROTECTED AREAS ESTABLISHED

-14% OF COSTA RICA DESIGNATED AS NATIONAL

PROTECTED AREA

-COSTA RICA AMONG LEADERS IN ENVIRONMENTAL

PRESERVATION WITHIN THE CARIBBEAN



Benefits of Ecotourism



Mexico

Belize
Guatemala
Honduras
Nicaragua
Costa Rica
Panama

Dominican Republic

Venezuela

Colombia

Ecuador

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Benefits of Ecotourism

NATIONAL AND LOCAL ECONOMIC DEVELOPMENT

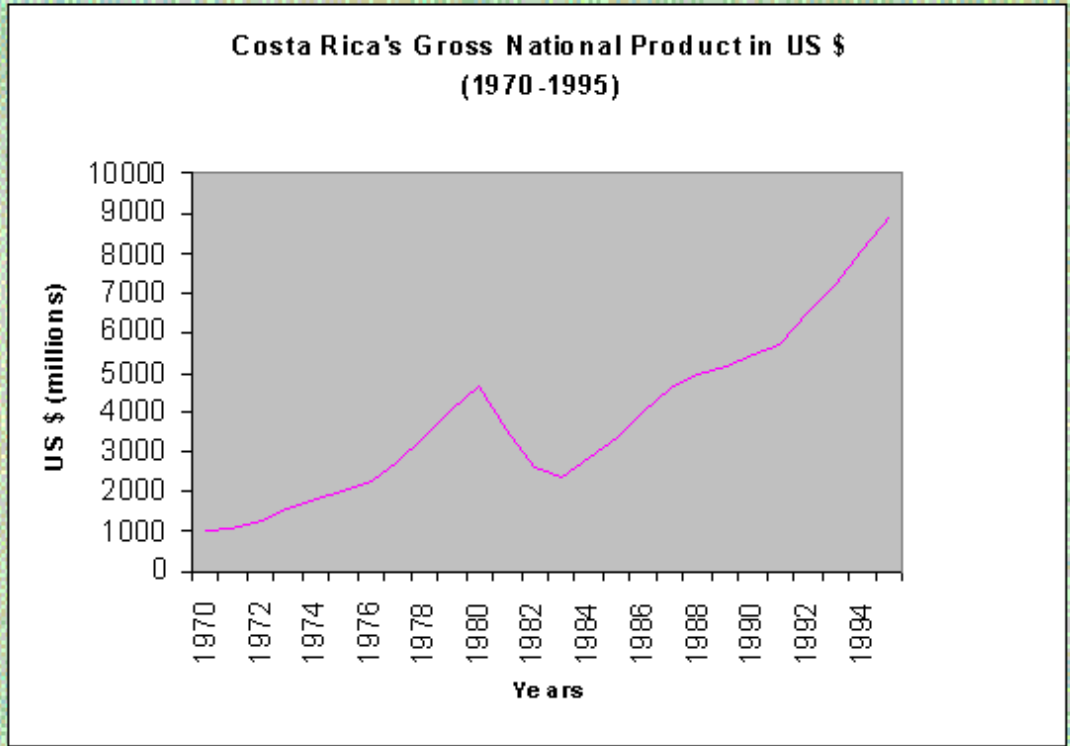
- **TOURISM IS THE LEADING SOURCE OF FOREIGN EXCHANGE IN COSTA RICA**
- **SINCE THE 1960'S, INTERNATIONAL TOURISM RECEIPTS HAVE GROWN SIGNIFICANTLY**
- **SINCE THE 1970'S, TOURISM REVENUES HAVE CONSTITUTED AN INCREASINGLY SIGNIFICANT PORTION OF COSTA RICA'S GNP**
- **PARKS HAVE SPAWNED A NUMBER OF ECOTOURISM-RELATED ACTIVITIES IN ADJACENT COMMUNITIES (EX. TALAMANCAN ECOTOURISM AND CONSERVATION ASSOCIATION - ATEC)**

BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN CC





Benefits of Ecotourism



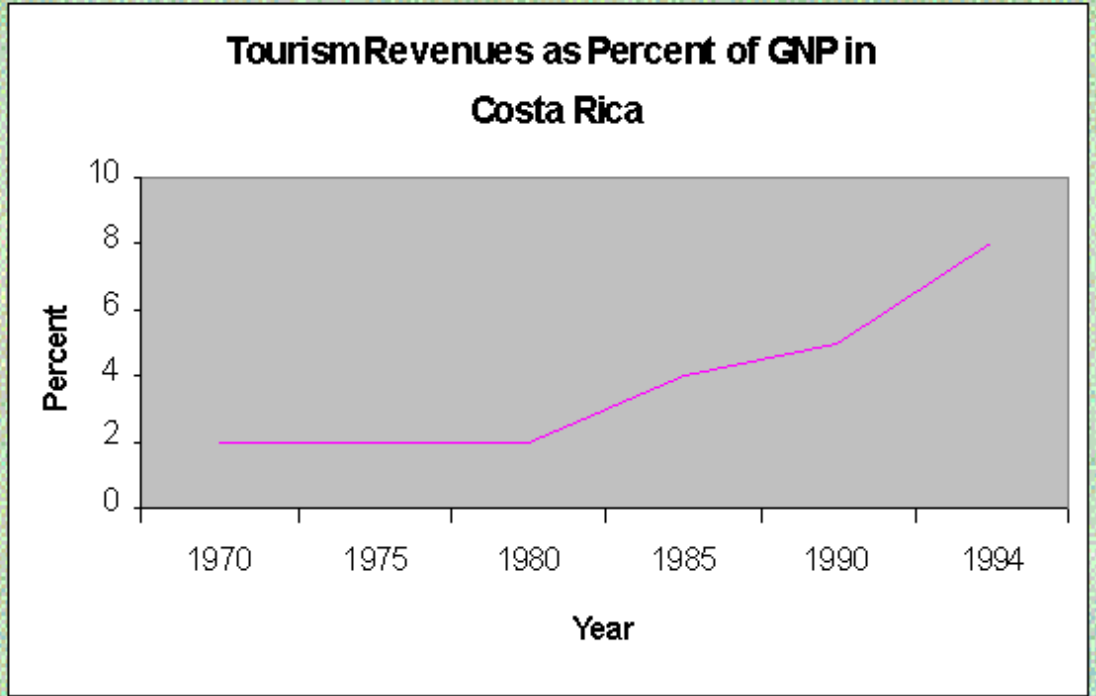
Source: World Resources Institute 1997-1998

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Benefits of Ecotourism



Source: World Tourism Organization 1997 & World Resources Institute 1997-1998

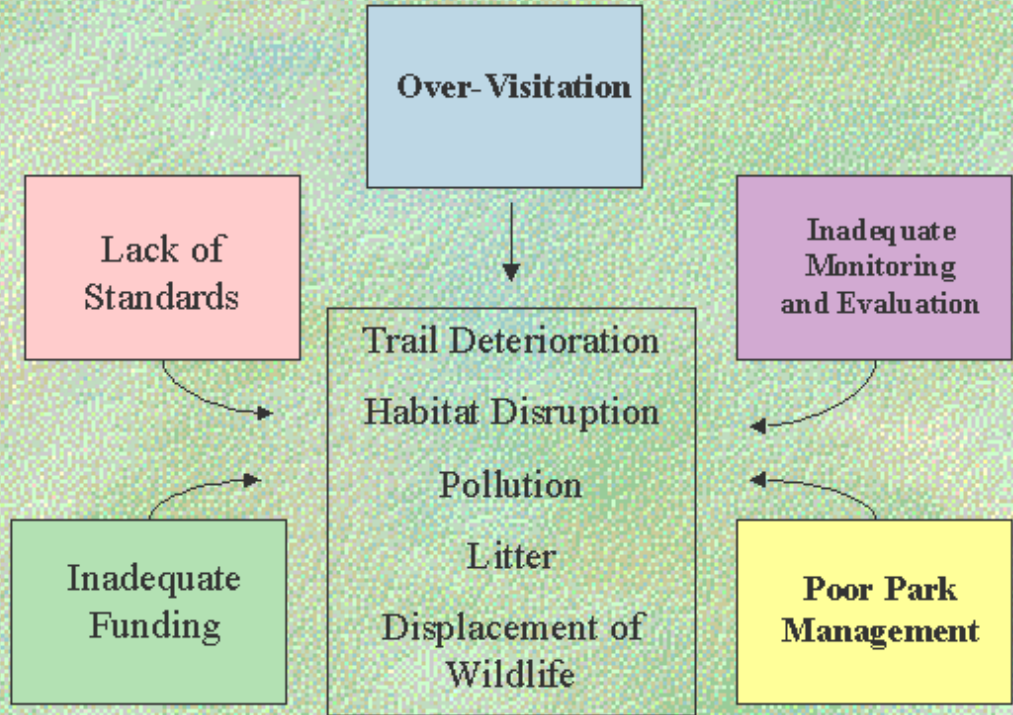
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Dangers of Ecotourism

Environmental

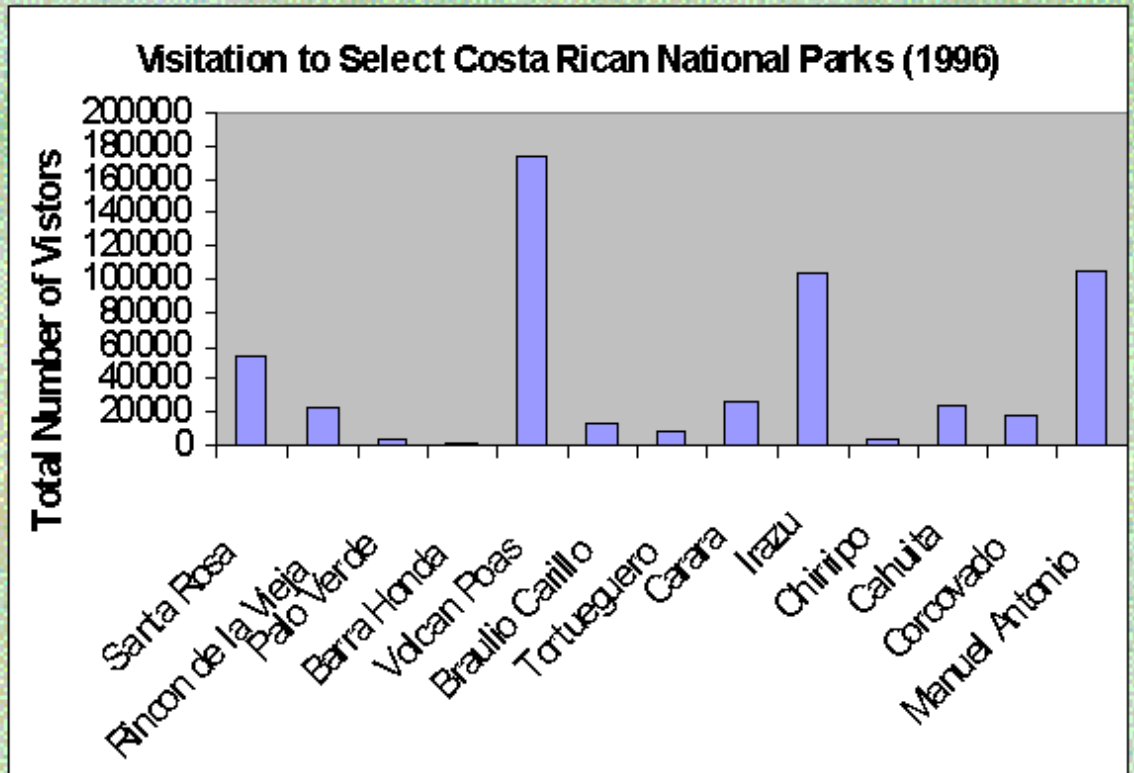


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Dangers of Ecotourism



Source: Weaver, D. *Ecotourism in the Caribbean Basin* 1992

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Dangers of Ecotourism

- **ECONOMIC**
 - DISRUPTION OF LOCAL ECONOMIC ACTIVITIES
 - ECONOMIC BENEFITS OFTEN DO NOT ACCRUE TO LOCAL COMMUNITIES (REPATRIATION)
- **SOCIO-CULTURAL**
 - EXTREMELY HIGH LEVELS OF VISITATION BY FOREIGN TOURISTS
 - DISTURBANCE OF LOCAL CULTURAL PRACTICES

BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN CO





Policy Recommendations

**IS ECOTOURISM A SUSTAINABLE PRACTICE -
- ENVIRONMENTALLY, ECONOMICALLY, AND
CULTURALLY?**

**HAS ECOTOURISM FOSTERED COMMUNITY
EMPOWERMENT, LOCAL INCOME
GENERATION, LINKAGES WITH EXISTING
COMMUNITIES, AND ENVIRONMENTAL
EDUCATION, WHILE PROMOTING
ENVIRONMENTAL SUSTAINABILITY?**

BELOW THE SURFACE: THE IMPACTS OF ECOTOURISM IN CO



Why Study Uganda?

- Origin of the HIV is thought to be the Lake Victoria region of Africa.
 - undetected for 20-30 years
 - brought from low endemicity areas into central areas
- Population/environment dynamics may have caused emergence of HIV/AIDS
 - Historical/Political
 - Urbanization/Industrialization



Slide 3 of 28

Outline

- . **Why study Uganda?**
- . **The HIV/AIDS Epidemic**
 - o Worldwide
 - o Uganda
- . **Transitions and the Emergence of HIV/AIDS**
 - o Historical/Political
 - o Urbanization/Industrialization
 - o Theories of HIV Emergence
- . **Transitions and the Impact of HIV/AIDS**
 - o Population
 - o Family Structure
- . **Conclusion**

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Family Structure Transition

Support

- 1.2 Millions AIDS orphans
 - 38% taken by grandparents
 - 7% by aunts
 - 5% by uncles
 - 5% by sisters/brothers
 - 2% by children under 16

- Family Unit still is main source of support and care for most Ugandans



Slide 27 of 28

Conclusion

- . The Epidemiologic Transition of HIV/AIDS has had an incredible effect on Uganda. However, understanding cannot be fully realized without also analyzing the concurrent transitions that have led to the emergence of HIV as well as those that are impacted by it.**

○

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Epidemiology of HIV/AIDS

- Recognition of a new disease
 - United States - 1981
 - Retrospective Studies
 - Europe - 1976
 - Africa - late 1950's
- 30.6 Million Infected at end of 1997
 - 11 people infected per minute
 - Sub-Saharan Africa
 - 10% of World's Population
 - 2/3 of HIV/AIDS Cases



Epidemiology of HIV/AIDS

Adults and children estimated to be living with HIV/AIDS as of end 1997



Total: 30.6 million



1

GF-00009 - 1 December 1997



Slide 5 of 28

HIV/AIDS in Uganda

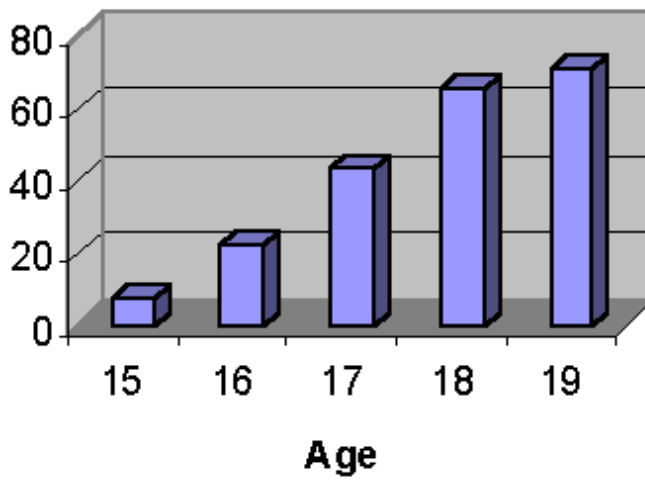
- Prevalence
 - 930,000 infected individuals
 - 9.51% prevalence rate in adults (15-49)
 - 1,900,000 cases since beginning of epidemic
 - 80% of cases in 15-45 age group
- AIDS Mortality Burden
 - Leading cause of adult mortality
 - 1/2 of all mortality
 - 1/3 of mortality from infectious diseases
- Transmission
 - 90% by heterosexual sex
 - Vertical transmission also important
- Gender Differences
 - 1:1 Overall Male to Female Ratio
 - Females 15-19 - 6 times more likely to be infected
 - Leaving large orphan population
 - Increased vertical transmission



Slide 6 of 28

HIV/AIDS in Uganda

Percent of Women with First Child



Slide 7 of 28

Transitions and the Emergence of HIV/AIDS



Slide 8 of 28

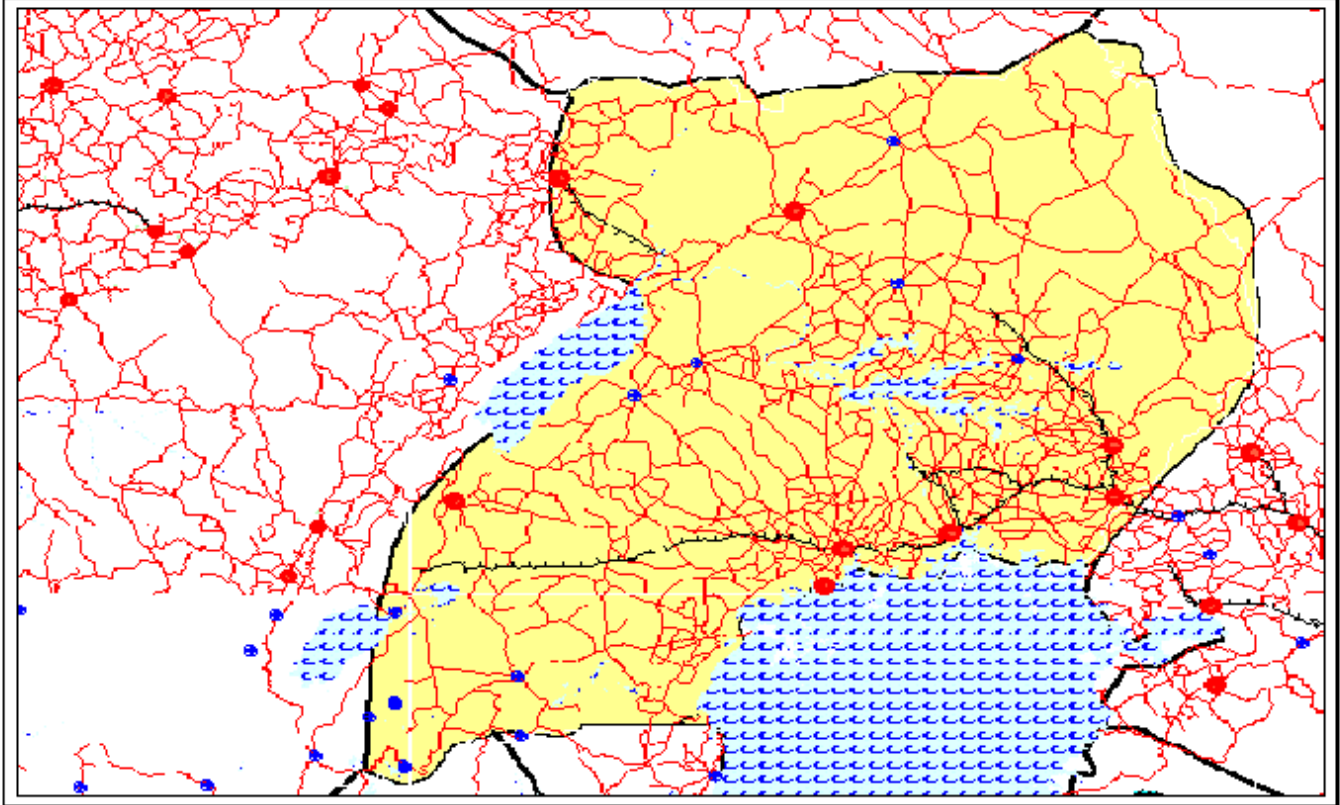
Historical/Political Transition

- Pre-Colonial Period
 - No national boundary
 - Diverse tribes and kingdom monarchies
 - Buganda most powerful
 - Acholi and Lango
- Ugandan Protectorate
 - 1898 Treaty with Buganda
 - Force, threat of force, and peaceful alliances for other tribes & kingdoms
 - Imperial (national) boundary established



Slide 9 of 28

Historical/Political Transition



Slide 10 of 28

Historical/Political Transition

■ North/South Dichotomy

■ South in Transition

- | **Buganda located in fertile area**
- | **People receptive to British colonialism**
 - Agriculture was expanded; cash crop system instated
 - Kampala established as commercial center
 - Indians recruited to lead economic class
 - Main trade routes developed
 - Educational transition

■ North stagnant

- | **Arid land**
- | **People unreceptive to British colonialism**
 - Agriculture was prevented
 - Lack of developed infrastructure
 - No educational transition
 - Recruitment of Northern tribes into military



Historical/Political Transition

■ Ugandan Independence

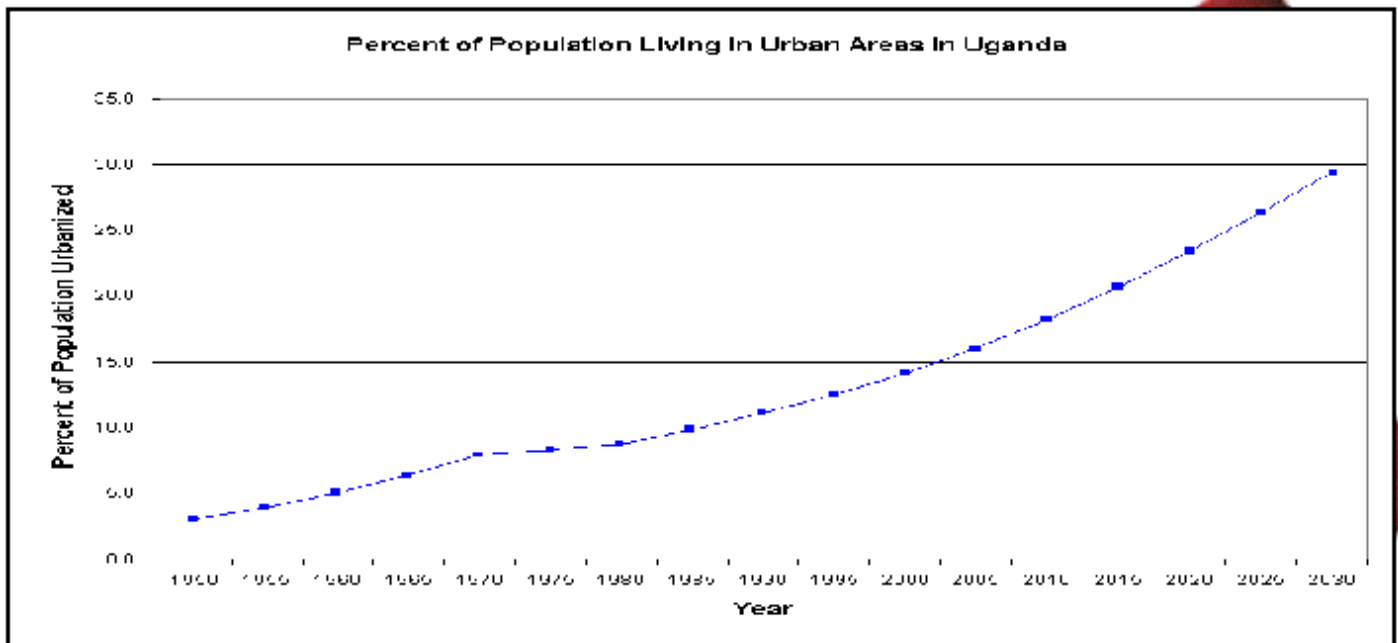
- 1962-Milton Obote becomes leader
 - | Continued British Policies
- 1966-Kingdoms abolished
 - | Obote became unpopular in the South
- 1971-Obote overthrown by Amin - Eight Year Reign of Terror Begins
 - | Amin expels Indians in 1972
 - Destroys economy and foreign confidence
 - Removes commercial and industrial class
 - Sends industrial, agricultural, and urbanization transitions backwards
- 1979-Amin overthrown in coup/war with Tanzania



Slide 12 of 28

Urbanization Transition

- Migration was the direct result of British Colonialism
 - Domestic Migration
 - Male
 - Female
 - International Migration



Urbanization Transition: Domestic

- Male migration
 - Agricultural Push
 - | Land originally owned by families
 - | Families grew and resources diminished
 - | Young men left to reduce food burden on family
 - Labor Pull
 - | British policies caused labor demand in South, especially in agriculture, and labor supply in North
 - Social Pull
 - | Young men encouraged to make money in cities and return with wealth to villages
 - Result: Initial one-sided bulge of men into cities
- Female migration
 - Economic Pull
 - | Women not encouraged to migrate
 - | Due to economic necessity
 - | Most forced into commercial sex work



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Urbanization Transition: International

- “Asian” recruitment
 - British brought in Indians to run commerce
 - Indians comprised elite sector

- **Result:**
 - Urbanization brought people to cities
 - Increased density, anonymity, and increased female sex work led to change in sexual behaviors



Slide 15 of 28

Theories of HIV Emergence

- **The historical/political and urbanization/industrialization transitions provide a context in which hypotheses of HIV/AIDS emergence occurred.**
- Three Hypotheses
 - Migrant Worker Hypothesis
 - “Truck-Town” Hypothesis
 - Military Involvement Hypothesis



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Migrant Worker Hypothesis

- Emergence as a result of population movement in search of labor
- Urbanization created a population that amplified HIV infection
 - female sex workers
 - young male professionals
 - due to British policies & urbanization of 1950-60's
- Return migration brought HIV to villages
 - due to economic collapse during Amin dictatorship
- Study of Migration and HIV Infection (Nunn, 1995)
 - 5.5% Prevalence among those who had not moved
 - 8.2% - moved within a village
 - 12.4% - moved to neighboring village
 - 16.3% - those joining cohort



Truck-Town Hypothesis

- Accounts for spread of HIV outwards from Kampala
- Occurred mainly during the Amin reign in 1970's
 - Use of roads increased - encouraged by Amin
 - Smuggling increased dramatically
- HIV Spread outwards along principle corridors of trade/smuggling traffic
- Towns developed along routes
- Female commercial sex work soon followed into towns
- Truckers and commercial sex workers became driving core population of HIV infection
 - 35.2% of truck drivers infected with HIV



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Military Involvement Hypothesis

- Accounts for high seroprevalence in northern tribes (Lango & Acholi)
- Specifically due to 1979 overthrow of Amin
 - Obote loyalists from these tribes recruited into Ugandan National Liberation Army (UNLA)
 - Fought in South
 - used commercial sex workers
 - Returned to North with infection
- Shows positive statistical significance which cannot be accounted for by either migrant worker or truck-town hypotheses



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Transitions and the Impact of HIV/AIDS



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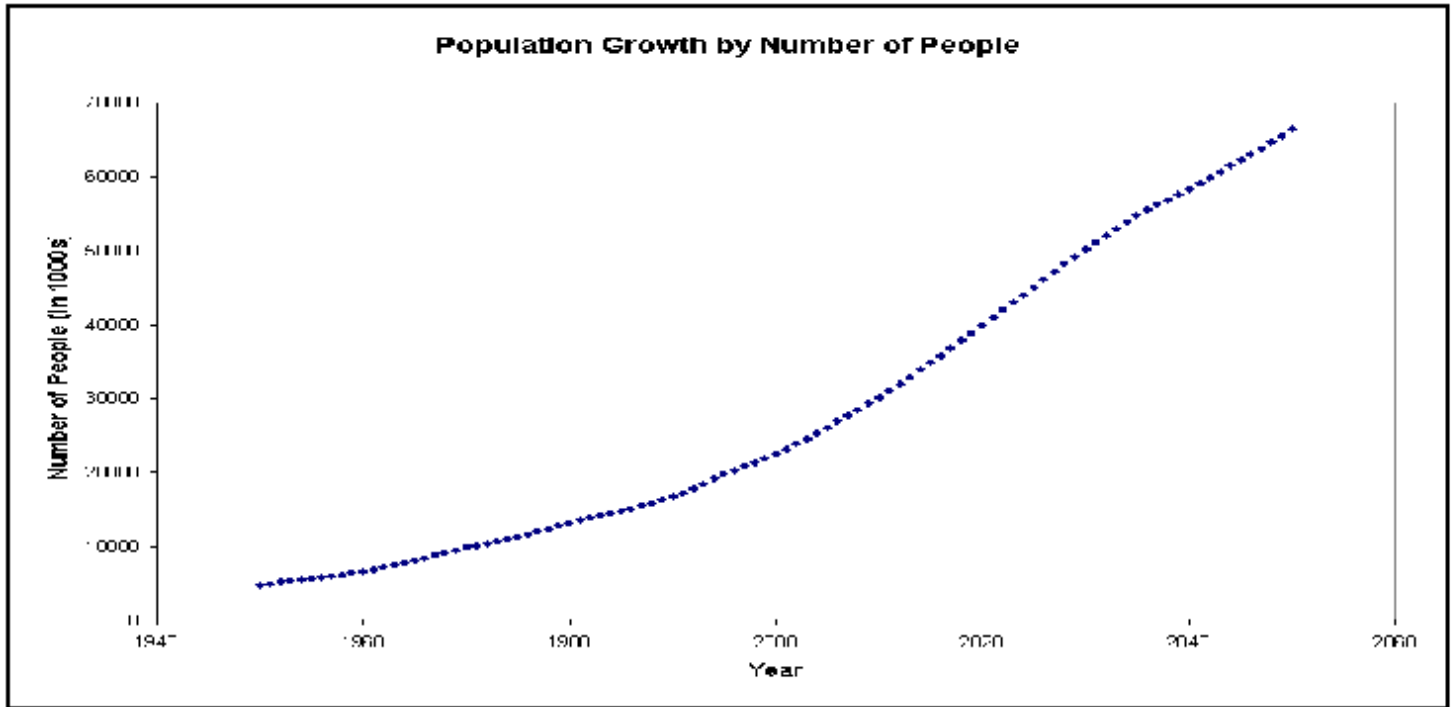
Population Transition

■ Sub-Saharan Africa

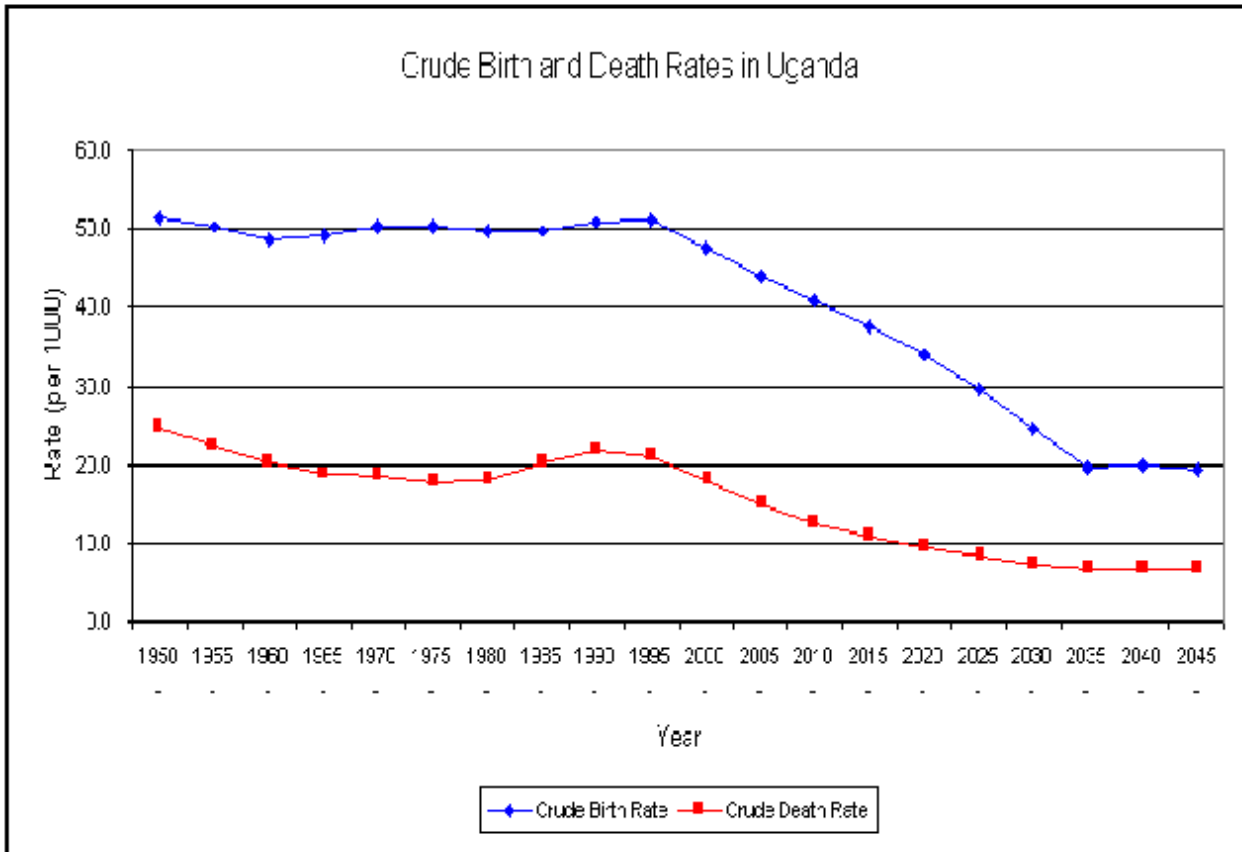
- 3% increase per year
- 1 billion people by 2025

■ Uganda

- 20,791,000 current population
- 3.2% growth rate 1980-1995



Population Transition



Population Transition

■ HIV/AIDS and Mortality

■ Direct Effect of HIV on Mortality

- 1.5 million additional deaths attributable to HIV by 2025
- Reduction in population growth
 - In Rakai:
 - high prevalence parishes have negative pop. growth in 1990-1995
 - effects muted at district and national level
 - 0-4 age range smaller than older cohorts

■ Indirect Effects

- smaller youngest age range will cause lower birth rates as this cohort ages to reproductive age
- HIV/AIDS will shift to younger age ranges

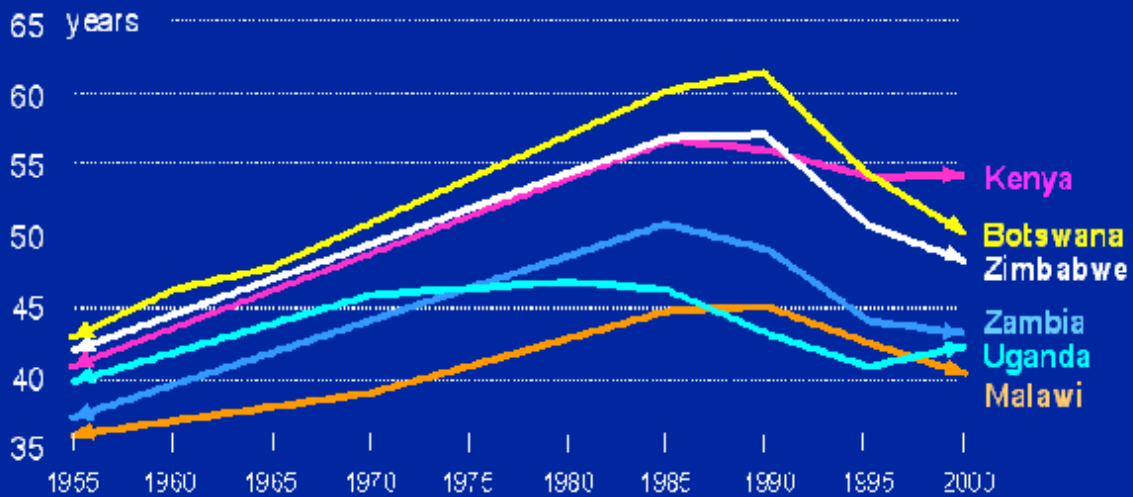
■ HIV/AIDS and Life Expectancy

- Current life expectancy is 41
- 5 year drop



Population Transition

Projected life expectancy at birth Selected sub-Saharan countries



10

Source: World Population Prospects: The 1996 revision, United Nations Population Division, 1996
CC-0000170 - 1 December 2007



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Family Structure Transition

- Traditional Family - Clan
 - Emphasis on continuity of clan network
 - Made up of common ancestor and common totem under single residence
 - Principle unit of economic productivity
 - need for many offspring
 - Socialized young members
 - influenced behavior
 - social welfare
 - Support system in times of sickness and death
 - orphans taken in by extended family, especially grandparents
- Modern Family
 - Nuclear/conjugal families
 - Minimal influence on behavior
 - Minimal support



Family Structure Transition

- Traditional/Modern Family Conflict
 - Residence
 - | Conjugal families cannot absorb multiple deaths
 - | Nearby extended family unwilling/unable to help
 - | Traditional family structure called upon
 - Socialization
 - | Families feel AIDS is due to a behavior; won't help/acknowledge members in need
 - stigma attached to disease
 - | **Social welfare is disrupted**
 - Most productive members are removed
 - Grandparents must take care of orphans and provide for themselves



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CAUSAL FACTORS

URBANIZATION: Swelling Urban Populations, Migration to Cities

WARFARE: Orphans, Child Soldiers

ABUSE IN THE HOME: Runaways, Prostitution, Cycles of Deterioration

POVERTY: Child Labor, Hawkers, Theft



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THREE CATEGORIES

CHILDREN OF THE STREET

CHILDREN ON THE STREET

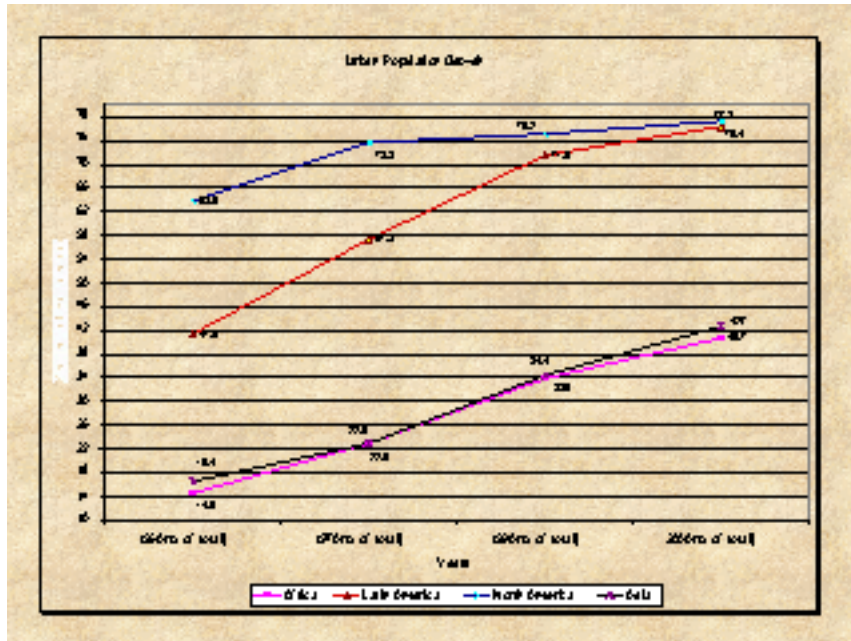
ORPHANED AND ABANDONED CHILDREN

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PPT Slide

Human Population

- Fertility/Mortality
- Migration
- Environmental
- Political/Economical

Society

- Cultural aspects
- Education
- Technology
- Political system

Human Environmental Activities

- Human settlements/Housing
- Food production/Agriculture
- Aquaculture/Fishing/Hunting
- Water supply/Sanitation
- Energy Production/Consumption
- Mining/Manufacturing
- Transportation
- Waste Generation

Environmental Quality

- Local/Regional/Global
- Terrestrial systems
- Aquatic systems
- Atmospheric systems
- Solid/Hazardous waste

Relationship between Population and the Environment

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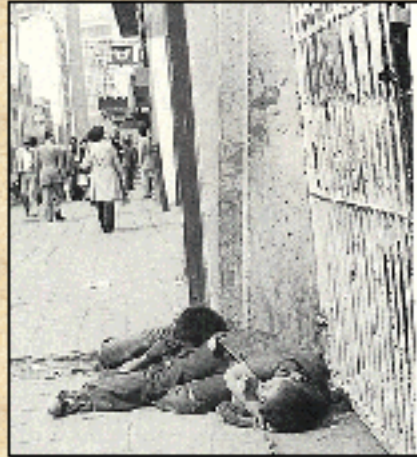
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CONDITIONS ON THE STREET

- DRUGS
- POLICE BRUTALITY
- FORCED LABOR
- SEXUAL EXPLOITATION

Children sleeping on the streets of Bogotá, Colombia. South America has the largest number of street children in the world, up to 78 million by some estimates.



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SUBSTANCE ABUSE

- ESCAPE FROM REALITY
- ALCOHOL, SNIFFING OF PETROL AND RUBBER PRODUCTS AND MARIJUANA
- "RESISTOLEROS" OF HONDURAS
- HEALTH EFFECTS
- AIDS
- NEUROLOGICAL DAMAGE




Slide 5 of 23

POLICE BRUTALITY

- OVER 7,000 CHILDREN HAVE BEEN MURDERED IN BRAZIL ALONE, DURING THE PAST 20 YEARS
- IN GUATEMALA, THE BODIES OF CHILDREN ARE ROUTINELY FOUND BEARING THE MARKS OF TORTURE AND MUTILATION.
- 70% OF THE NEUTRAL POLICE POPULATION OF SÃO PAULO IS MADE UP OF EX-STREET CHILDREN.
- THE DEATH SQUADS OF BRAZIL AND GUATEMALA ARE MADE UP OF POLICE OFFICERS HIRED BY MERCHANTS TO KEEP THE STREETS AND STOREFRONTS "CHILD FREE"



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ALL I WANTED WAS TO BE A CHILD, BUT THEY WOULDN'T LET ME...

SEX & L. EXPLOITATION
"Modern Form of Slavery"

FACTS

- 400,000 child prostitutes in Thailand
- 10,000 boys between 6 and 14 work foreign pedophiles in Sri Lanka
- Boys and Girls in India are sold to Middle Eastern organizations
- Virgins ranging from 8 to 13 are in demand because they are "pure" (free of AIDS)
- In western countries most of the sex workers have been sexually abused as children

Causes/Contributors


- Rapid Urbanization leading to break-up of families
- "Witchhunts"
- Foreign railway lines
- International institutions



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Ghana

GRA.No.: K Ma LSto TBTKCS

Government: Democracy headed by General J.J Rawlings
 He originally came to power through a coup but promised that within one year he would step down and hold democratic elections. Coincidentally he was "voted" into power.

Population: 17, 100,000 (1996)

Growth Rate: 1.0

Life Expectancy at birth: 59

Infant Mortality Rate: 11/100 live births

Child Adulthood: 1.7%

Female Labor Force (% of total): 51

Gross Female Primary School Enrollment: 70%

GNI per capita: \$190

GNI (billions of US\$): 6,719

GDP: Agriculture-6% | Trade-69% | Investment-19%

Annual Deforestation Rate: 1.4% (1980-1990)

Ghana achieved its independence from England in 1949. A few years later, Flight Lieutenant J.J. Rawlings wrestled power away from the military government in a brief coup d'état. He then promised to step down after one year of office. In one year's time he did indeed step down and held national elections. Coincidentally he was "voted" in as the president and has held the title ever since. He opened Ghana up to international investment which quickly transformed Ghana into one of the richest African countries. Economic prosperity combined with a stable government, he had to make Ghana one of the safest and most peaceful countries in the world.





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THE CIVILIAN CONSERVATION CORPS

162: 12,000,000 UNEMPLOYED MEN IN U.S.

"THIS GREAT NATION WILL DEVELOPE AS IT HAS DEVELOPED, WILL DEVELOPE MORE WILL PROSPER SO...LET ME ASSERT MY FIRM BELIEF THAT THE ONLY THING WE HAVE TO FEAR IS FEAR ITSELF..." -FDR

A PLAN TO PROVIDE EMPLOYMENT AS WELL AS TO PROTECT THE NATION'S NATURAL RESOURCES

PART OF PRESIDENT ROOSEVELT'S "NEW DEAL"

SIGNED BY LAW ON MARCH 31, 1933

ENROLLS HAD TO BE

- 17-27
- UNEMPLOYED
- UNMARRIED
- RELIEF FAMILIES
- PHYSICALLY FIT



PROGRAM LISTED FIRST YOUNG WITH 2 MILLION WHO HAD SERVED THEIR COUNTRY

200,000 BLINDS, 100,000 OF NATIVE AMERICANS AND 200,000 WORLD WAR I VETERANS



Slide 12 of 23

SOME RESULTS OF THE CCC

- 2,200,000 TREES PLANTED: SOIL EROSION CONTROL, "DUST BOWL"
- 27,000 BRICK PAVEMENT BRIDGES CREATED
- 25,000 NEW WATER SOURCES CREATED
- 5,000 MILES OF HIGHWAY CONSTRUCTION
- 100% OF STATE PARKS
- CONSTRUCTED REEF ROCKS AND BARRIER ISLANDS ALONG THE GULF COAST
- SERVED AS FLOATING CAMPS: DEVELOPED STREAMS, SWAMPING AREAS INTO WINTERWATER REFUGES

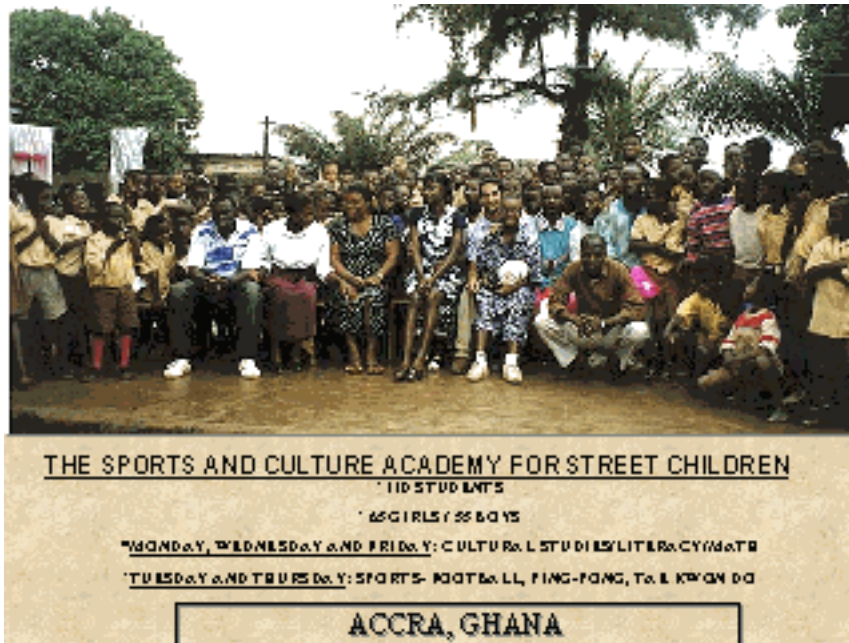
FRANKLIN D. ROOSEVELT
1933-1945

TO SEE HOW THE CCC WAS CREATED,
CLICK ON THE "ABOUT" LINK IN THE
MENU. TO SEE A VIDEO OF THE CCC
AND HOW IT WAS CREATED, CLICK ON
THE "VIDEO" LINK IN THE MENU.

"SOIL SOLDIERS" AT THE PORT
WRIGHT CCC CAMP. EXTENSIVE
SOIL CONSERVATION WORK ON
THE ATLANTIC WAS PERFORMED



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Most of the teachers volunteer their time due to limited resources.



Most of the teachers volunteer their time due to limited resources.

As you can see, the school is in dire need of various supplies. For many of the children, the food provided by the school is the only reliable source of food they receive.

Corporal Punishment (Caning) is used extensively in Ghana although it is officially illegal to use in Ghanaian schools.

The street child's situation has not yet reached the terrible proportions seen in other parts of the world, but if policies and programs are not implemented soon, that may change.

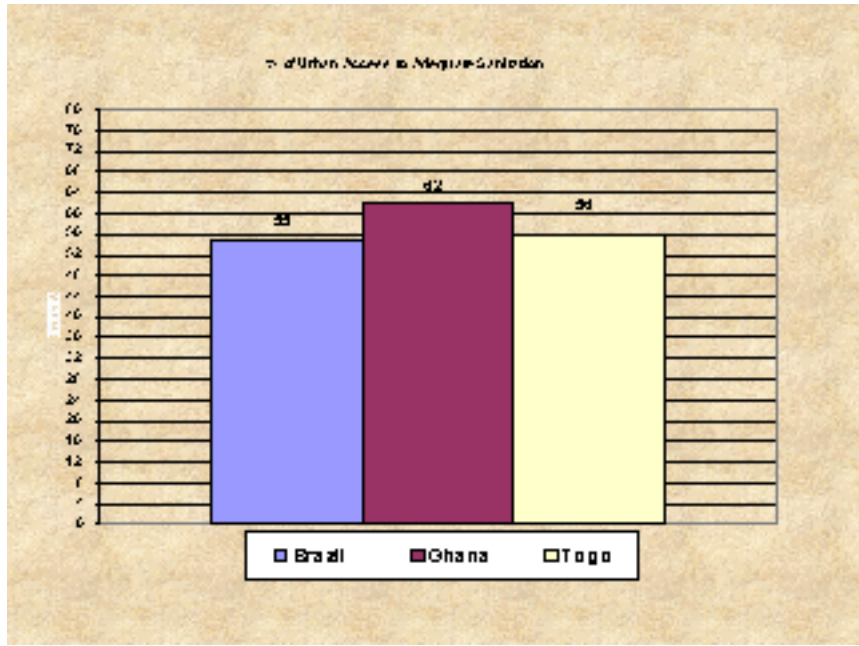


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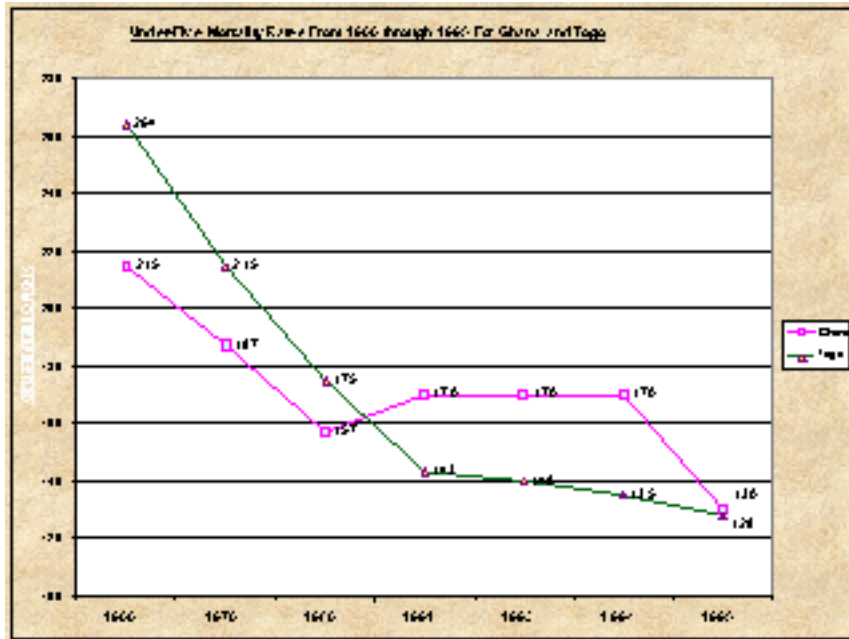


Above is a picture of the old Accra (old part) since the economic and social center (part) of the city. However, due to overbuilding, the part was moved thirty miles away, leaving this area in a state of poverty. Boats still go out to sea but the fleet is a fraction of its former size. Most of the children at the school came from this area called Ga-Mesakle. Others are from Nigeria, Togo and the northern regions of Ghana.

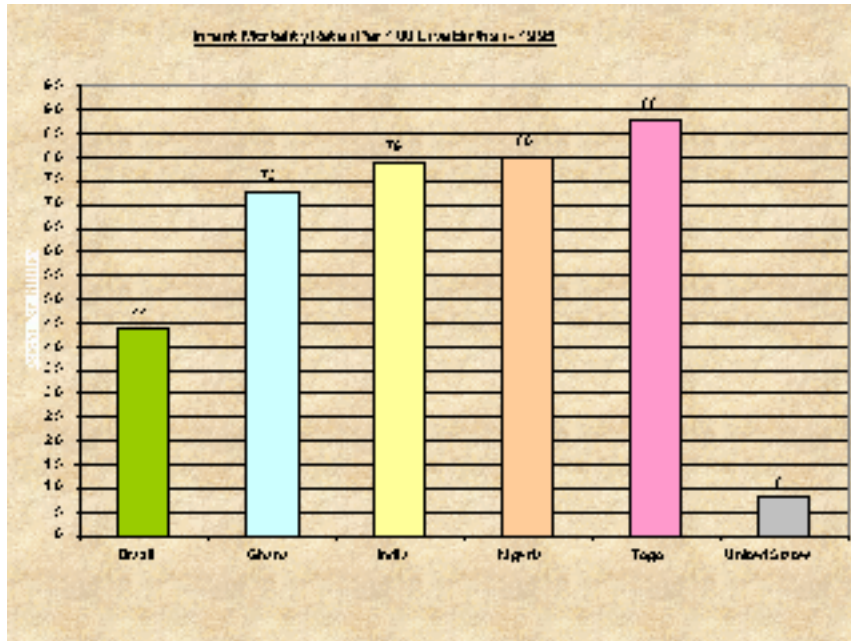




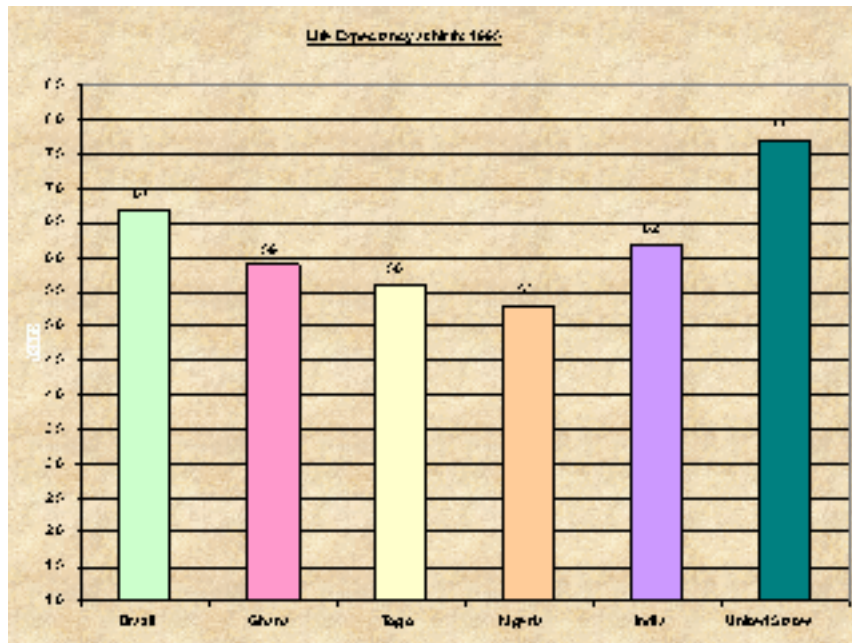
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PPT Slide

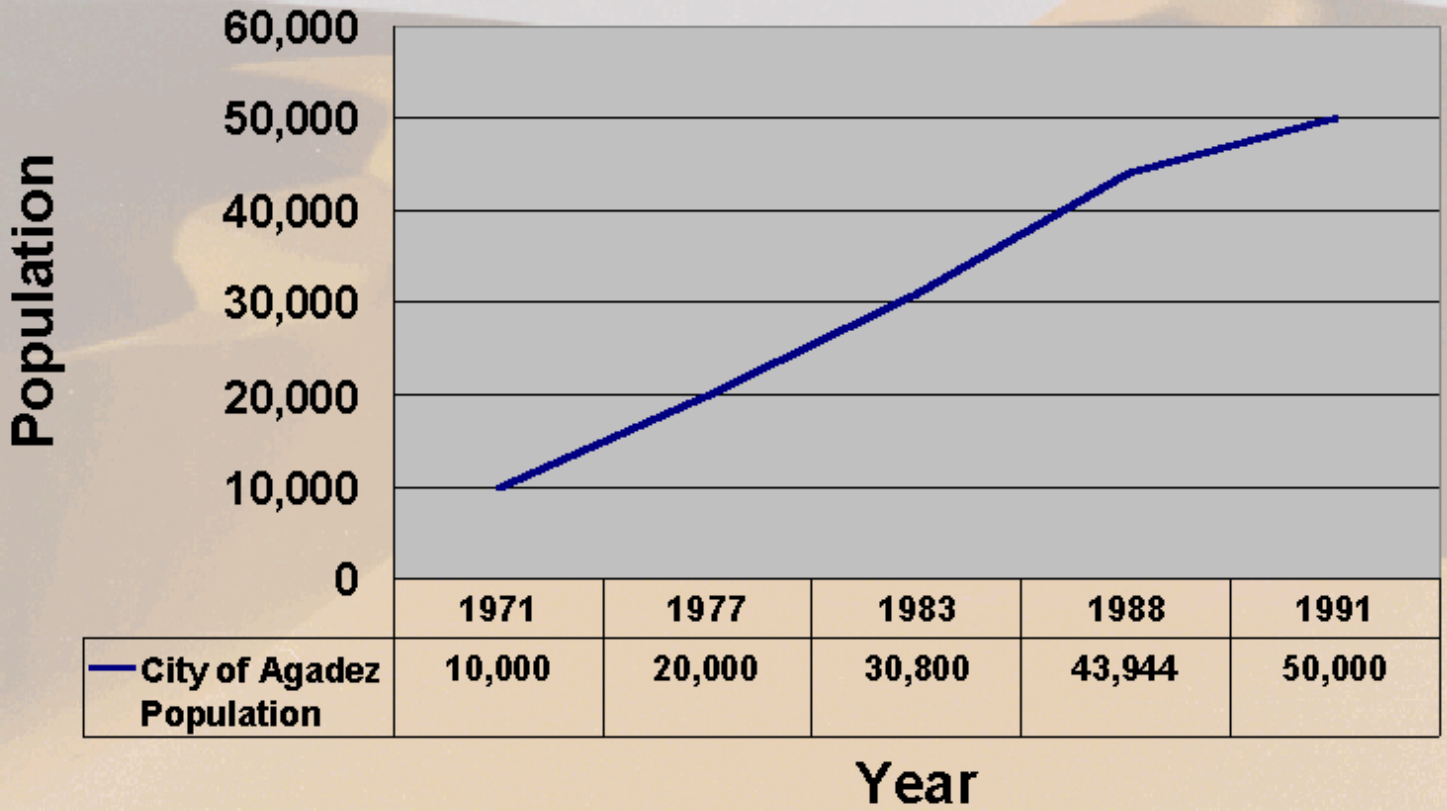
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City of Agadez Population 1971-1991



Protected Areas in Niger

- . **7.7% of land area is protected**
- . **This is equal to 96,967.4 sq km**
- . **6 protected areas**
- . **Two largest in the Department of Agadez**
 - o Air and Tenere National Nature Reserve
 - o Addax Strict Nature Reserve

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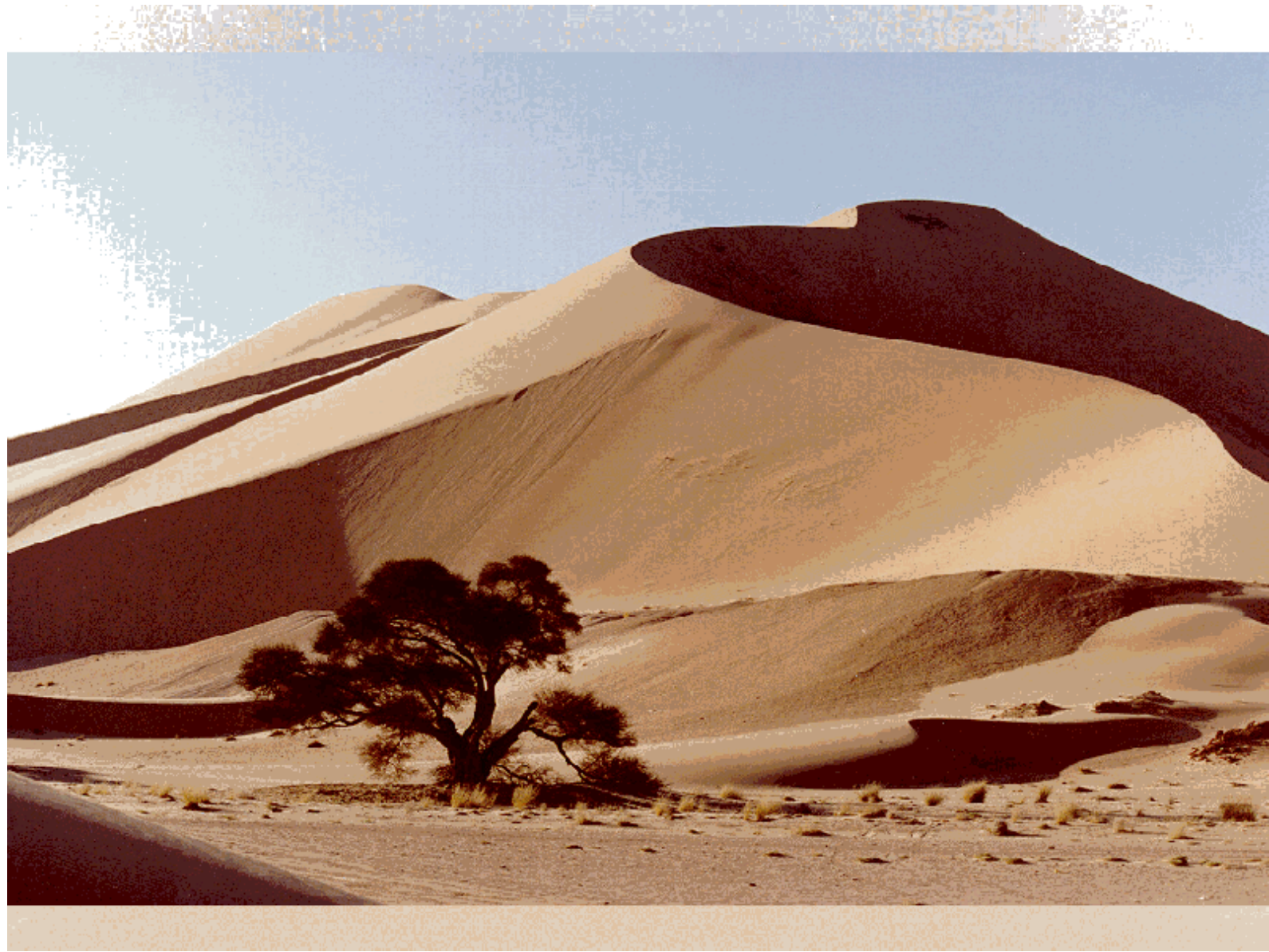
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Outline

- Niger
- The Department of Agadez
- The National Nature Reserve
- The Air and Tenere
- The Tuareg People
- Management of the Reserve
- The Tuareg Rebellion
- Recommendations for Conservation and Development Programs



Slide 8 of 24



Niger

- Area of 1,267,000 sq km
- Population of 9,389,000 (1997)
- Population Density of 7.4 per sq km (1997)
- Urban 17% Rural 83% (1995)
- Birth rate (1996) 54.5/1000
- Death rate (1996) 24.6/1000

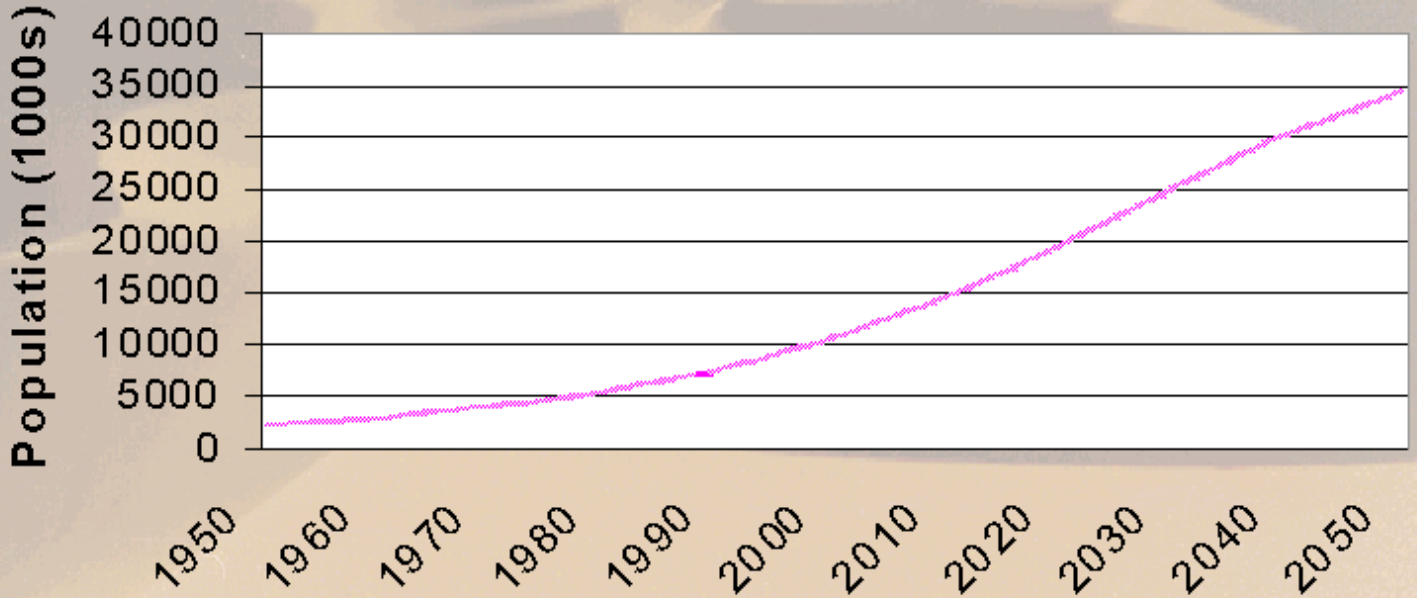


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- Total fertility rate 7.4 (1996)
- Life expectancy at birth (1996)
 - male 41.1
 - female 40.2
- Infant mortality rate 117.6/1000 live births
- Literate over age 15 (1995):
 - Males 20.9%
 - Females 6.6%

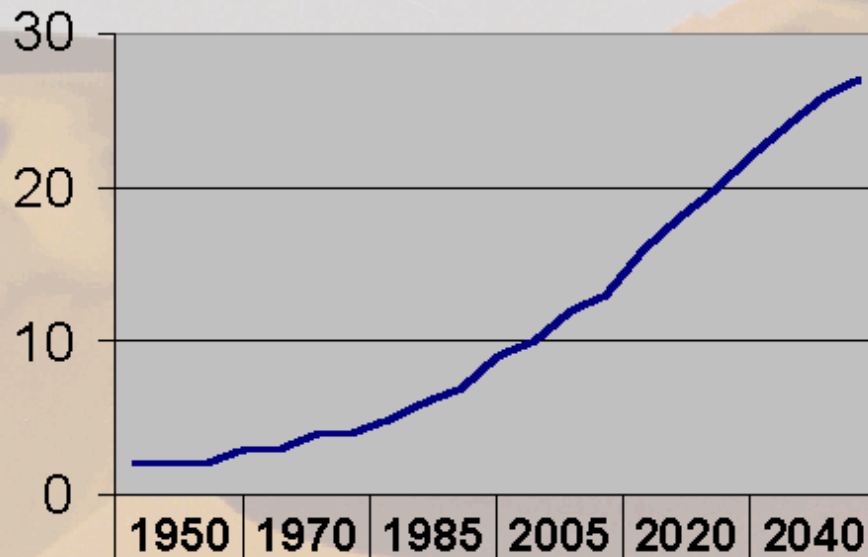


Population of Niger 1950-2050



Population Density in Niger 1950 to 2050

Density (average persons per km²)



— Population Density	2	3	5	10	16	24
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Year

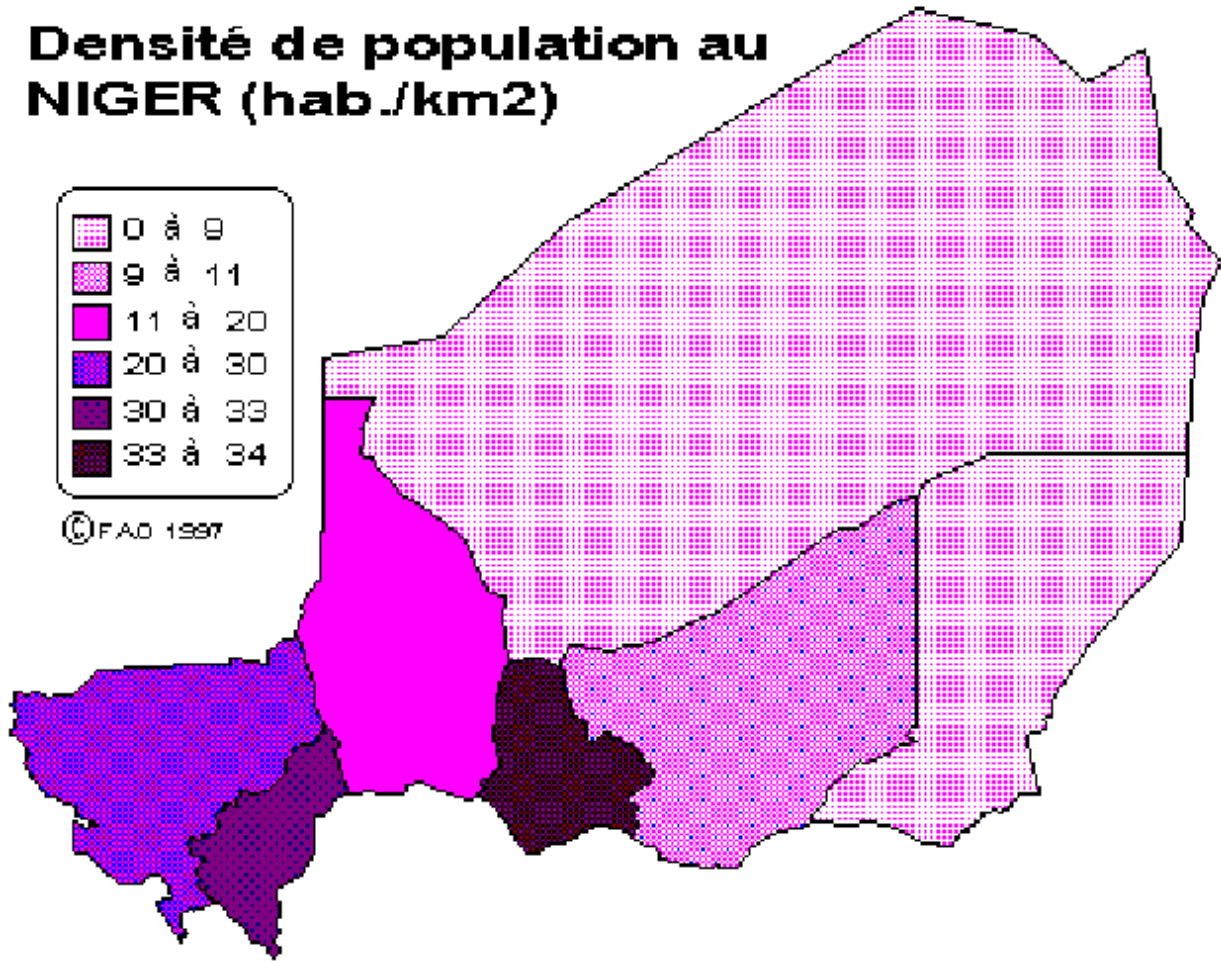


Population Density

Densité de population au NIGER (hab./km²)



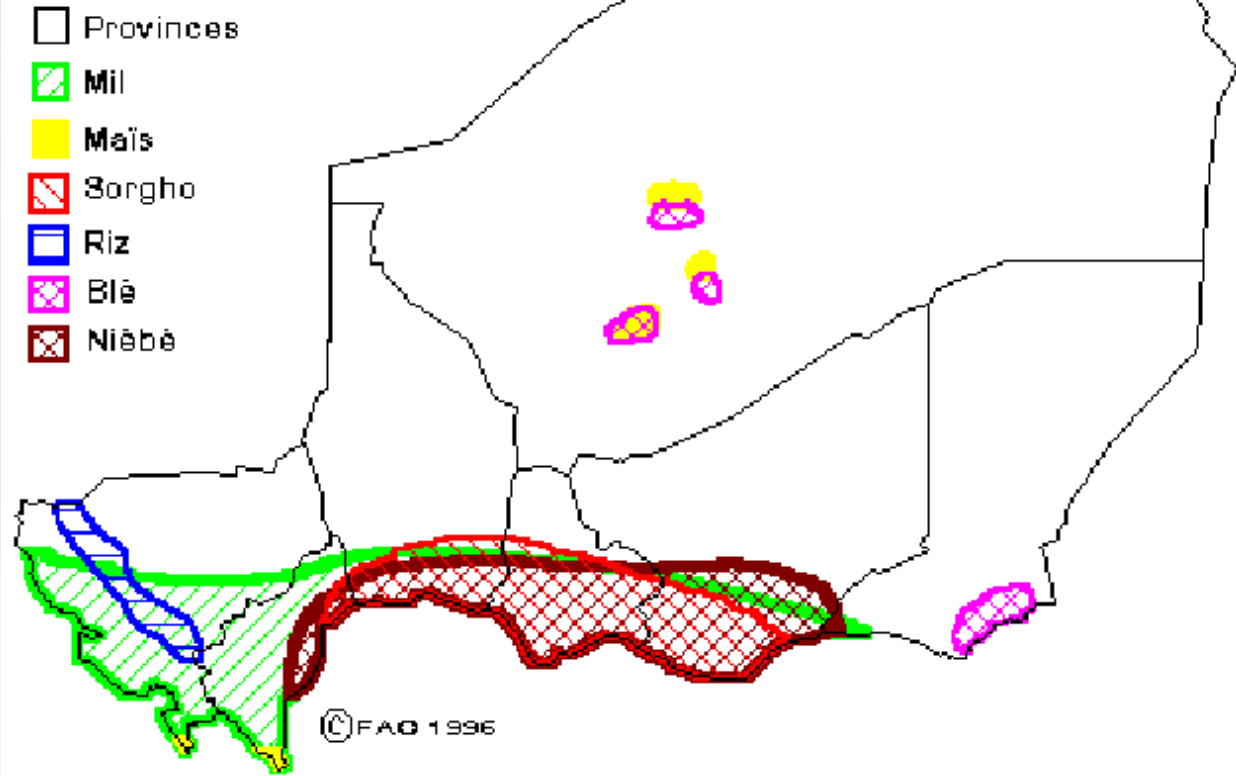
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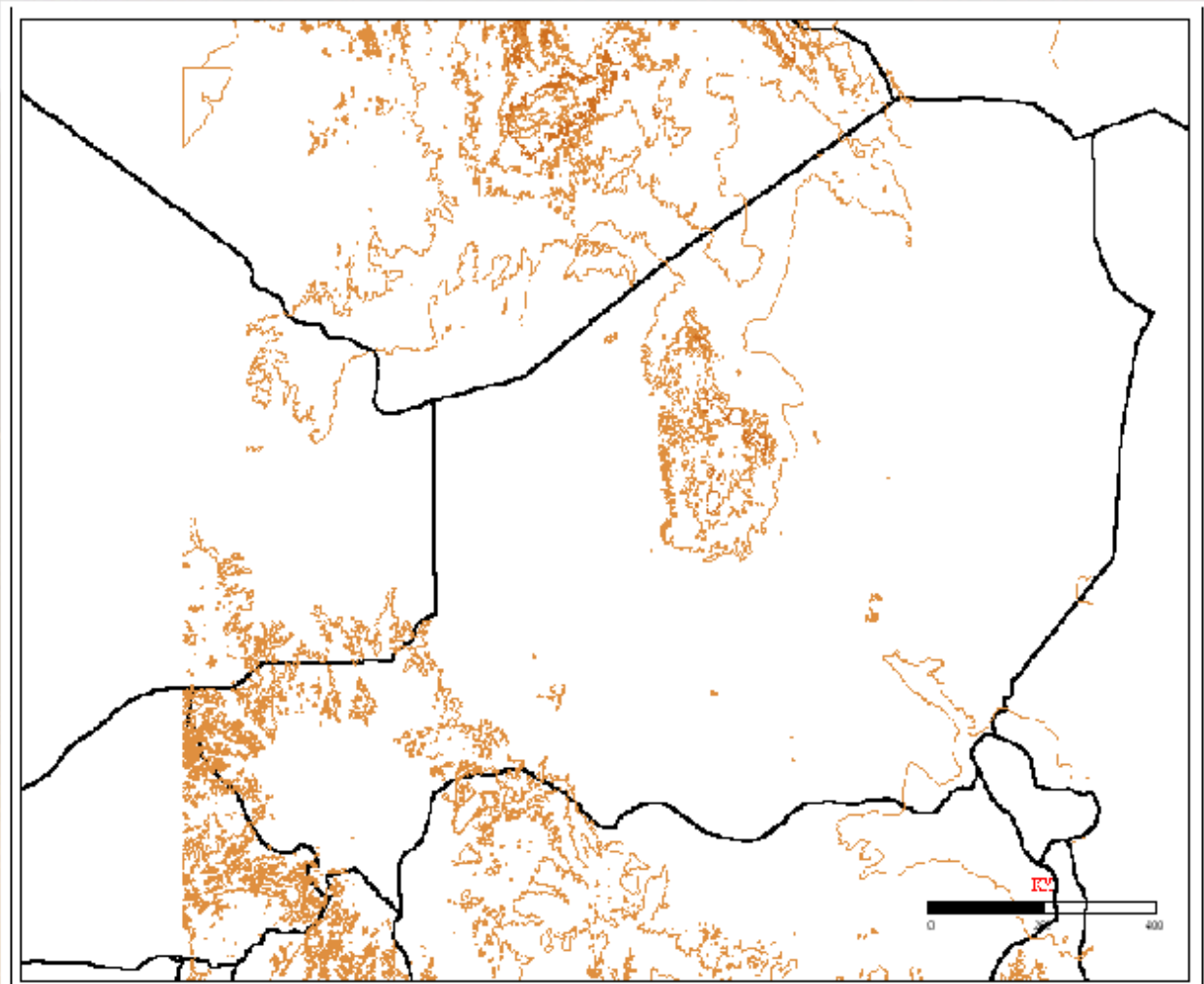
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Agricultural Zones

Principales zones de culture du NIGER



Topographic map



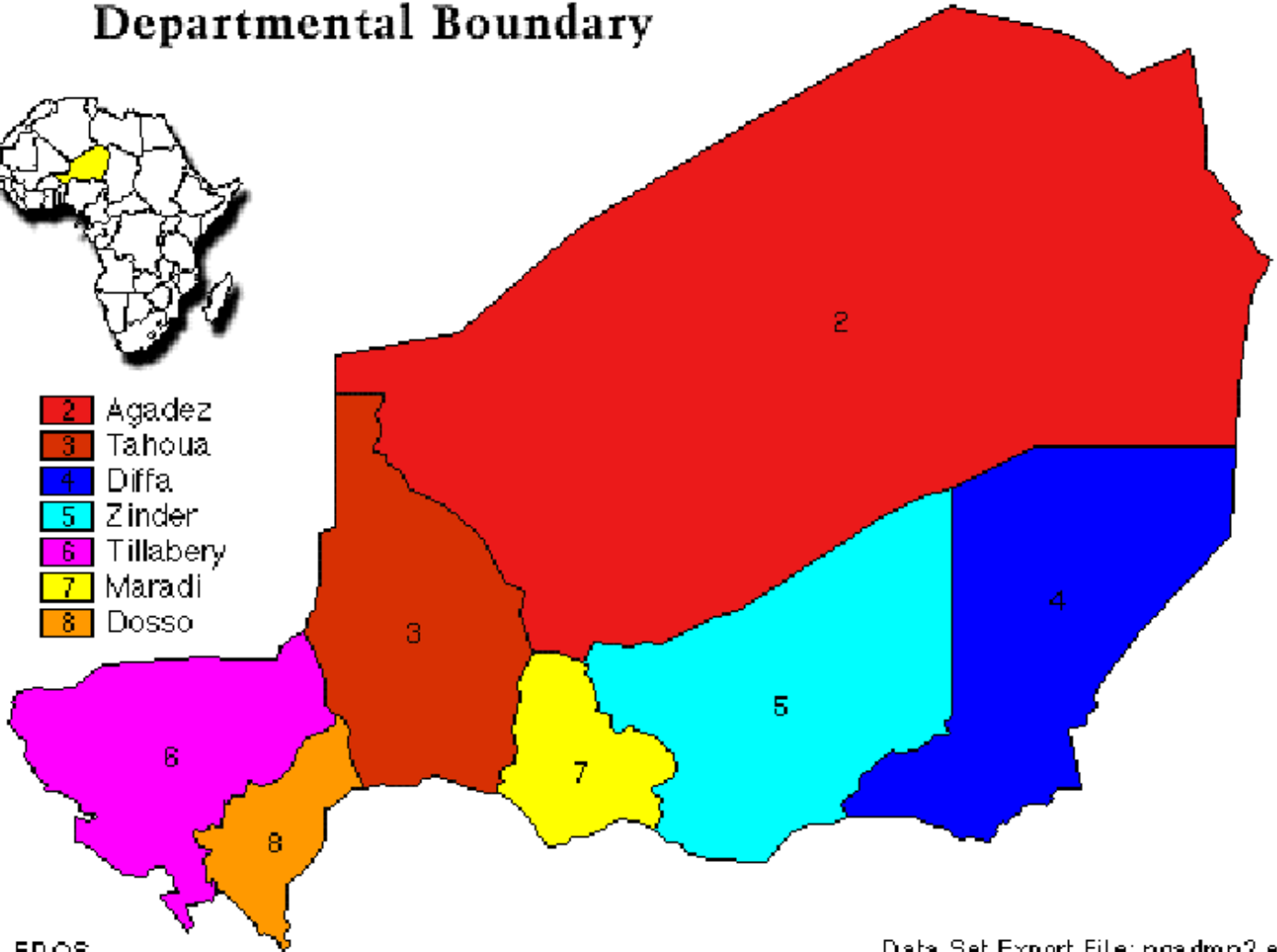
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Niger

Departmental Boundary



- 2 Agadez
- 3 Tahoua
- 4 Diffa
- 5 Zinder
- 6 Tillabery
- 7 Maradi
- 8 Dosso

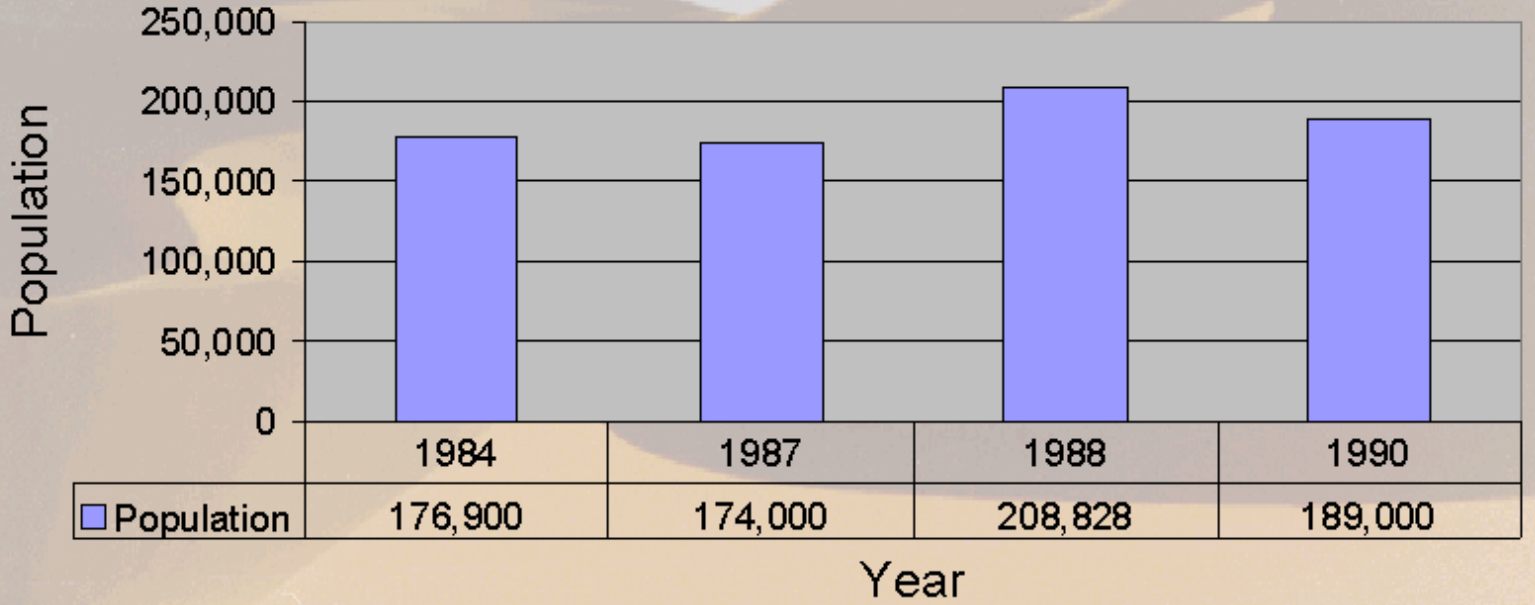


USGS, EROS

Data Set Export File: nga_dmn2.e00



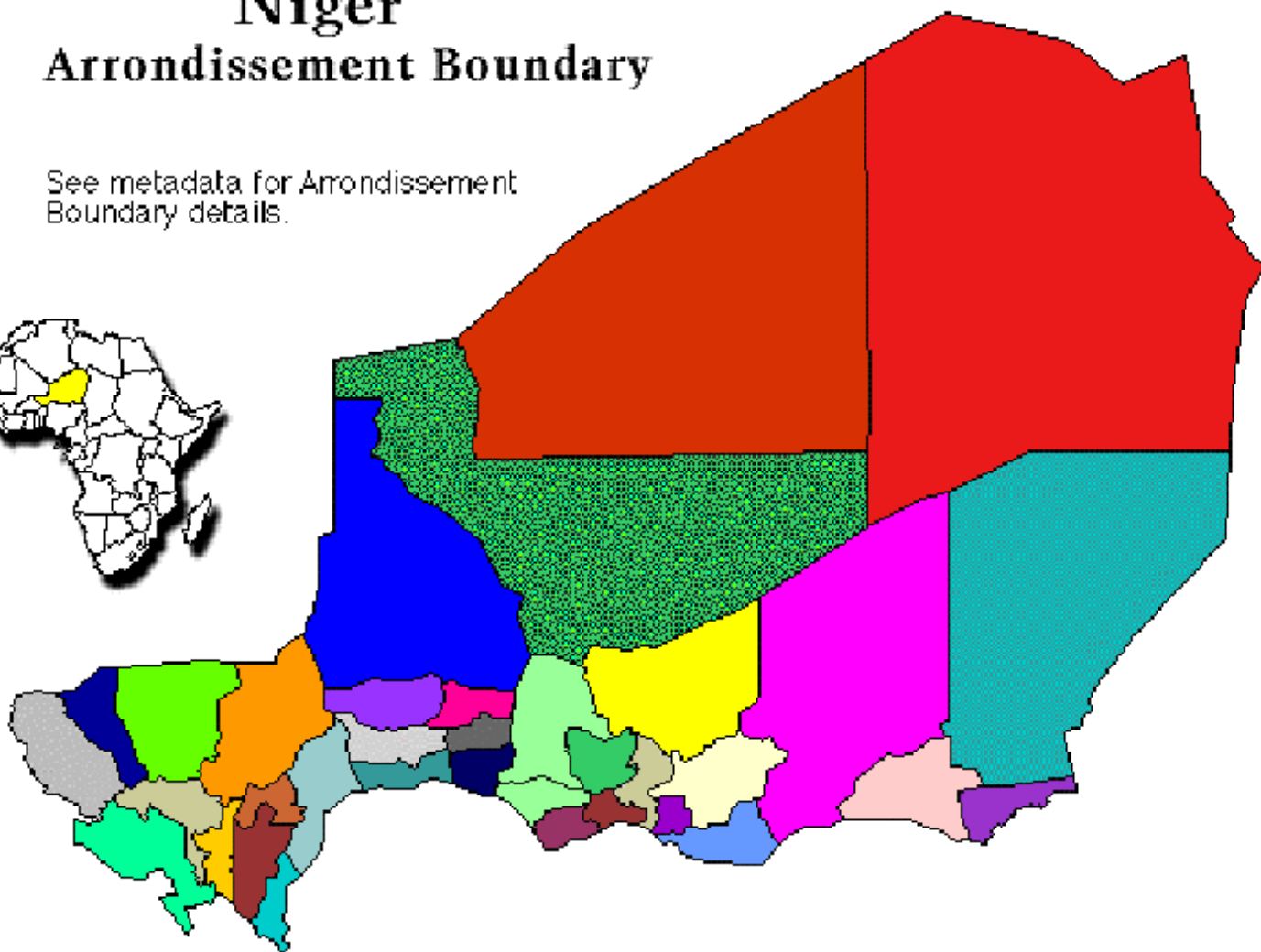
Population of the Department of Agadez, Republic of Niger 1984-1990



Niger

Arrondissement Boundary

See metadata for Arrondissement Boundary details.



USGS, EROS

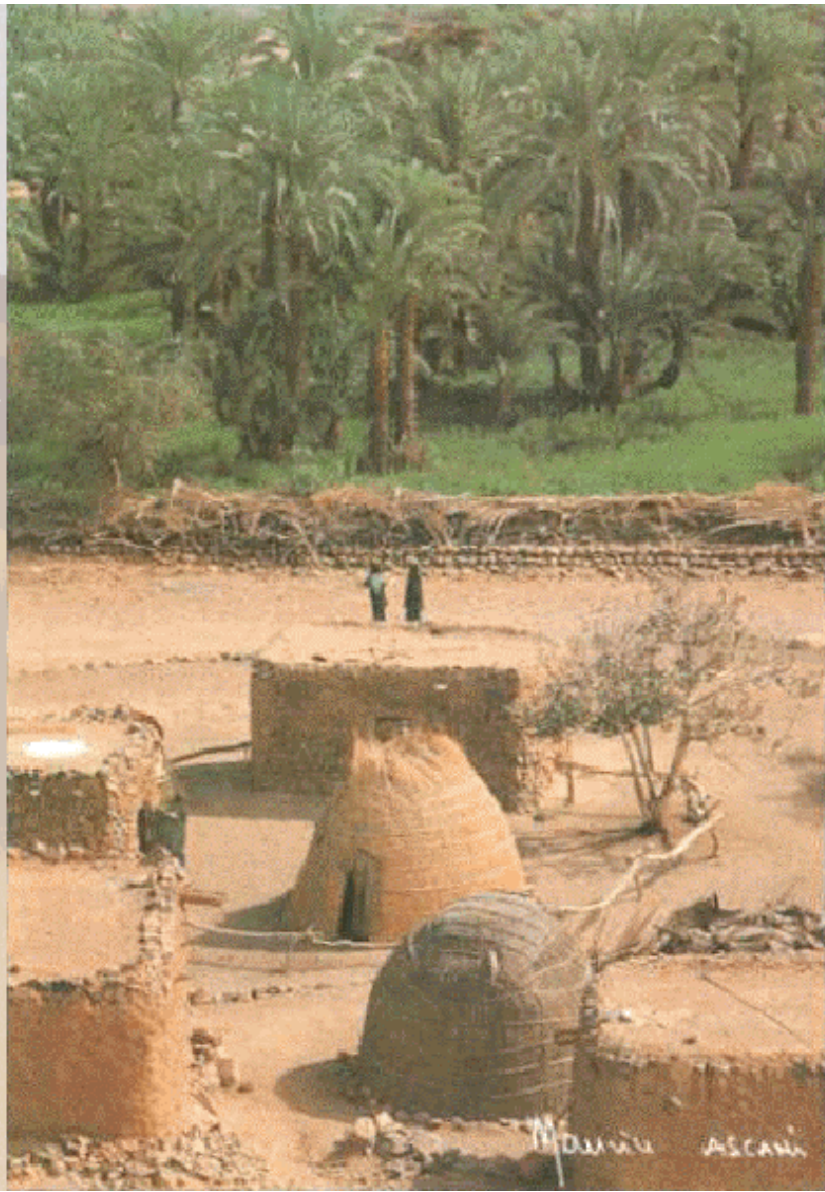
Data Set Export File: nga.dmn3.e00



Mosque in Agadez



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Tuareg rebellion and political instability

- appropriate rural development
- ecotourism
 - pros
 - cons
- political representation



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PPT Slide

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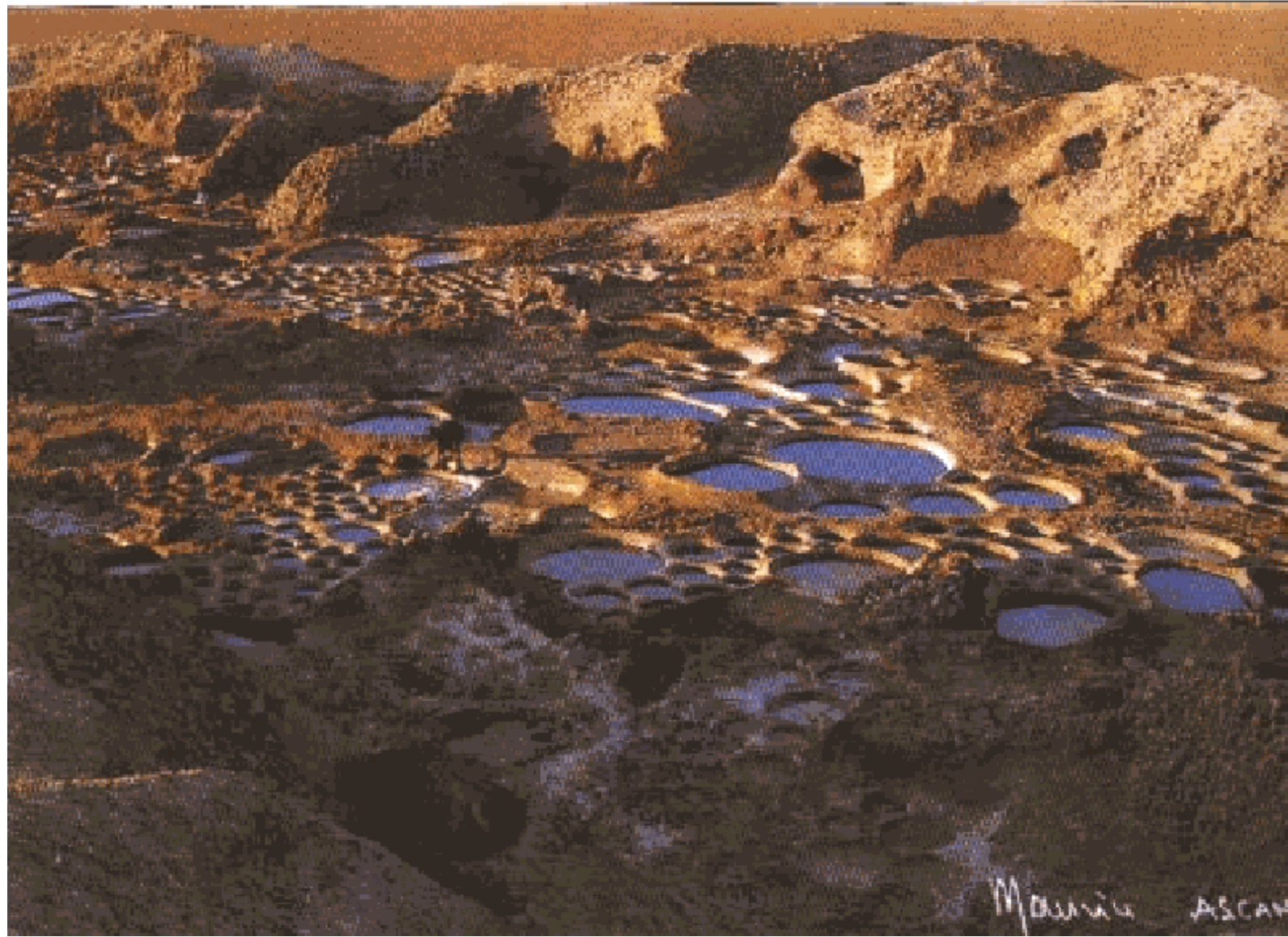
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Creation of the Reserve

- 1988
- National Reserve (multi-use)
- NOT a National Park
- WWF
- IUCN
- Niger government



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Five Factors Leading to the Creation of the Reserve

- disappearance of aridland fauna
- increase in habitat destruction
- destruction of rich archaeological sites
- desire to conserve Niger's natural heritage for aesthetic, cultural, educational and scientific reasons
- desire to broaden country's tourist infrastructure



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Air Tenere National Nature Reserve

- 77,360 sq km
- IUCN Category IV
- Conservation through management intervention



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- Ban hunting
- Resident populations remain
- Keep customary resource-use rights
 - fuelwood collection
 - harvesting of fruits and certain plants
 - livestock grazing



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Addax Sanctuary

- 12,805 sq km
- Category I- IUCN
- Primarily for scientific research and/or environmental monitoring



PROHIBITED ACTIVITIES

- hunting
- forest exploitation
- agriculture
- pastoralism
- mining or prospecting
- any activity modifying surface of land or vegetation



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The Threats to the Reserve

- Overhunting by the military
- Tourists chasing wildlife
- Littering
- Overgrazing
- Exploitation of firewood

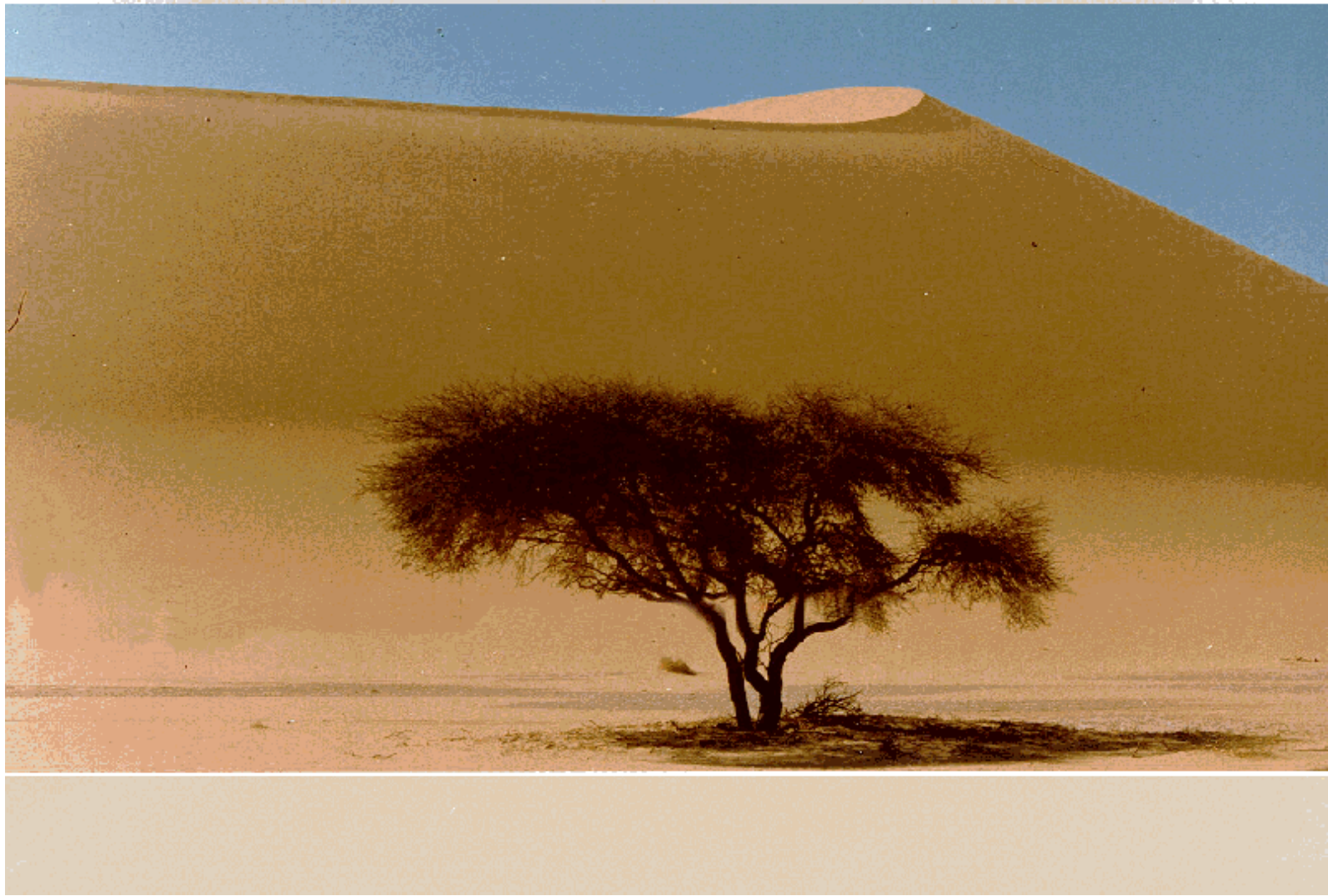


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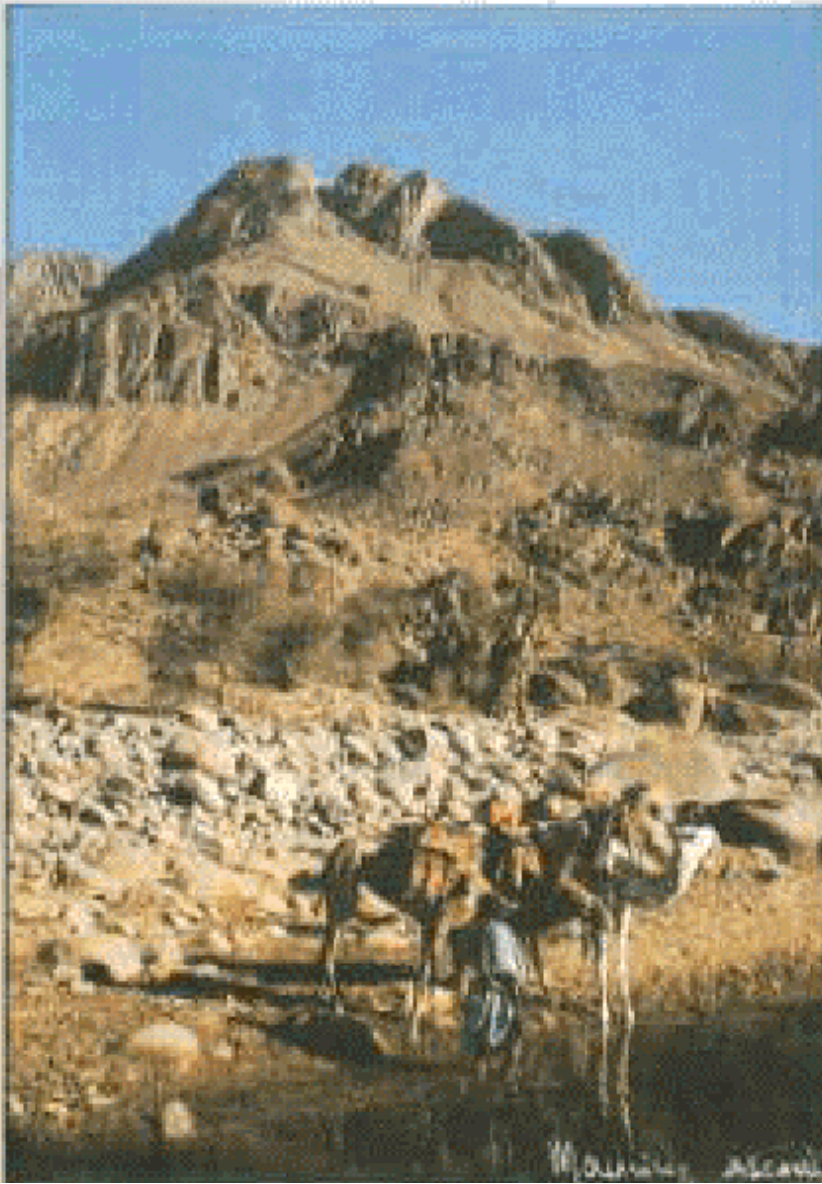


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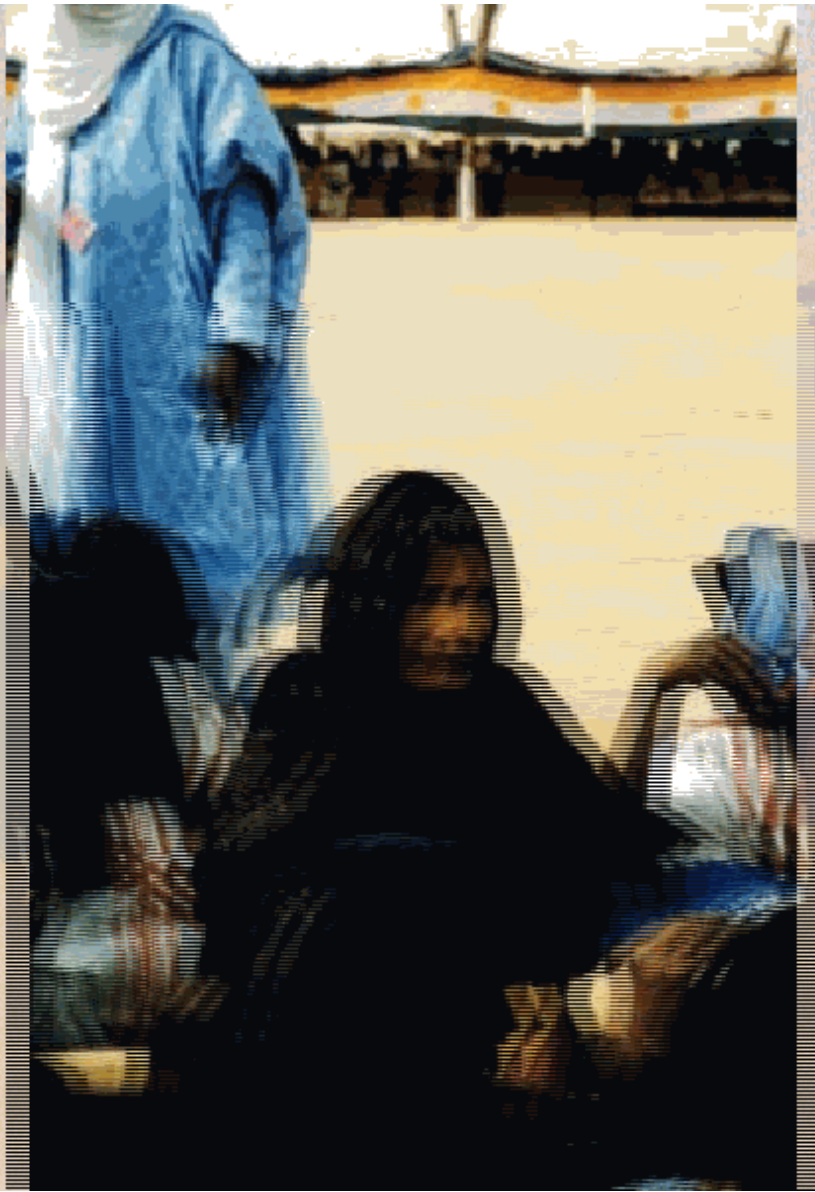
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Tuareg People

- 2,500-3,000 Tuaregs in Reserve (1977)
- 4500 Tuaregs living in Reserve (1992)
- Majority sedentary in Iferouane and Tin Telloust
- The rest are pastoralists in and around the Air Massif



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WWF Objectives

- 1) to promote the conservation of flora and fauna, sustainable land use and development
- 2) to improve the livelihood of the local people
- 3) to train people in natural resource management



Rural development activities

- improved agroforestry techniques
- adobe houses to avoid use of wood
- improved wood-burning stoves
- tree nurseries for reforestation



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Tuareg Rebellion

- 1991
- Civil war between Tuaregs and government
- The T-line
- 1992 Director of Air Tenere Conservation and Development Project was kidnapped



Recommendations

Conservation and Development Projects

- Conservation and protected area management works best if local people are included in the plan from the beginning
- Is this a model? - low population density



My Role in Uganda.....



PPT Slide

Uganda is a country stuck in transition. The rate of change across sectors of the country is unbalanced and unequal.

Presentation Outline

- Personal Experience
- Current status: Economic, Epidemiologic, Demographic, and Educational
- Possible Explanations: Internal unrest, Post- colonialism and Global Inequality
- Policy Suggestions: Agriculture, Chaos Theory, and Gender Reform

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What can be changed?

- Agricultural Reform: diversification
- Geographical Modeling (Chaos Theory)/Transition Theories: better prediction
- World Bank/NGOs: will their reforms work?
- Gender Reform
- World Systems Reform
- Time



Suggestions?

Suggestions?

Thank you!

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- HIV/AIDS Perinatal Study: The Mother-Loan Program
- Income Generating Activities (IGAs): On a local and global scale, what can they do ?
- What is the meaning of progress, anyway?
- Will Western Models work?

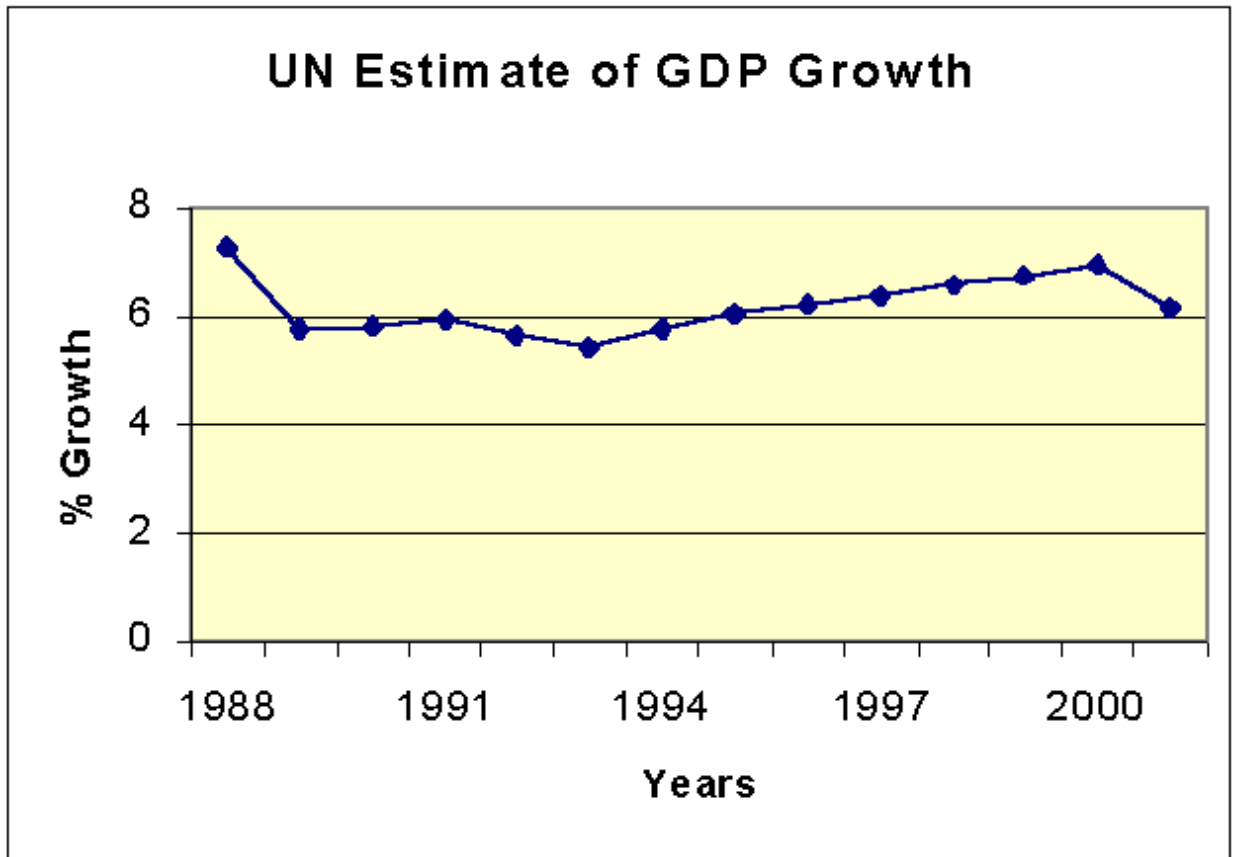


Economic Transitions: *A century of change*

- **Colonialism:** Uganda moves into the World money market economy and experiences an increase of exports from 140 pounds (1908) to 63,900 pounds (1965)
- **Independence:** Boost in Economy
- **Idi Amin:** Social and Economic destruction
 - Economy sunk 42% below its level in 1970
 - Government expenditure, exports, and investment fell below 10% of the GDP
- **Museveni:** Economic revival?



UN estimates Uganda will maintain about 6% growth rate



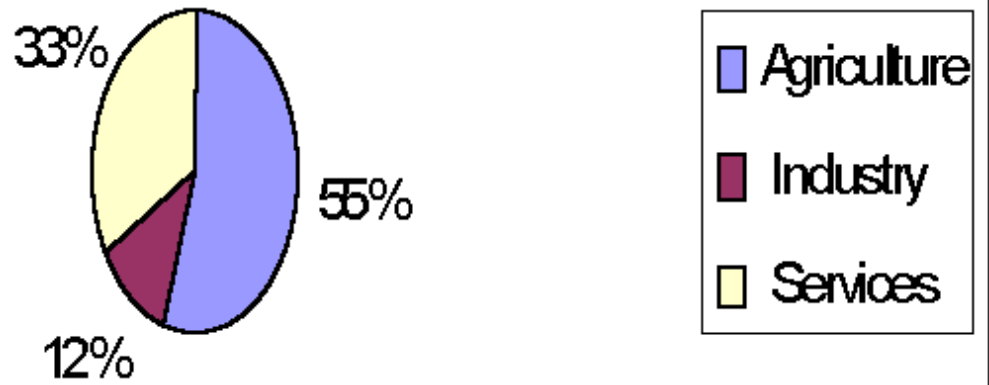
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Composition of GDP

- Agriculture is the most significant sector of the economy
- It employs 86% of the work force (World Bank)
- Agricultural products include: coffee, tea, cotton, tobacco, cassava, potatoes, corn, millet, pulses, beef, goat meat, milk and poultry



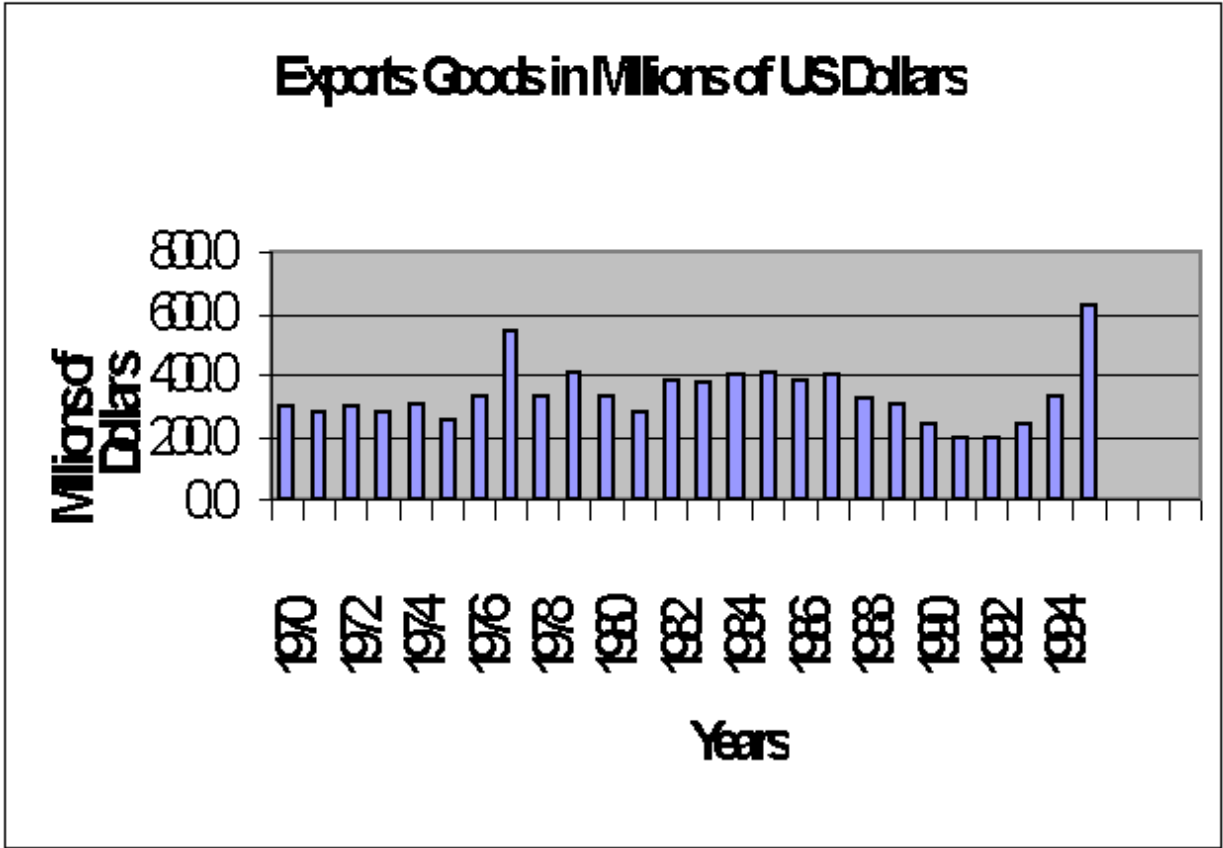
Components of GDP

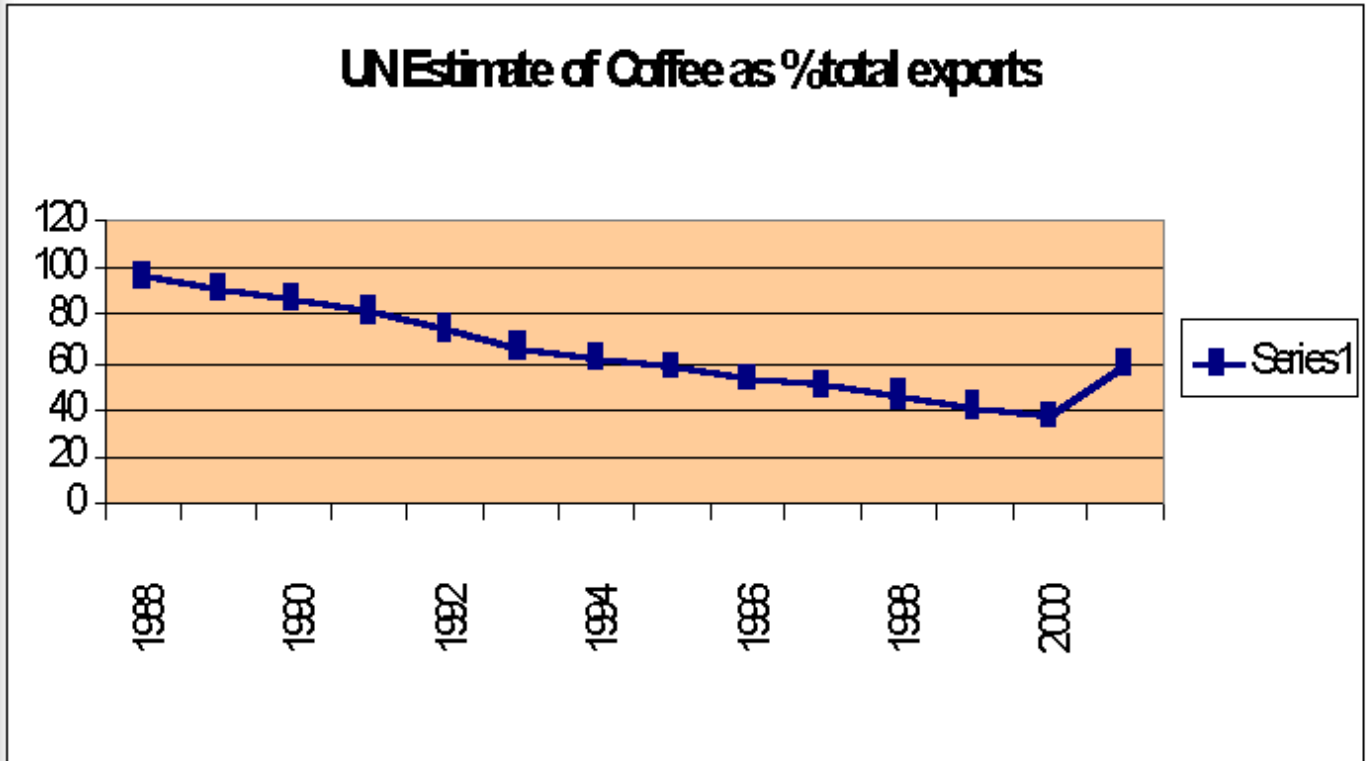


Exports

- Uganda's exports include gold, cotton, coffee, tea, corn and fish
- Coffee is Uganda's major export
- Exports fell in the fiscal year 1989/1990 due to a decline in international coffee prices
- The UN estimates that exports will increase in the next decade due to reforms (tea, coffee and horticulture)







Tea Reform: Tea is now picked by a machine once a week.

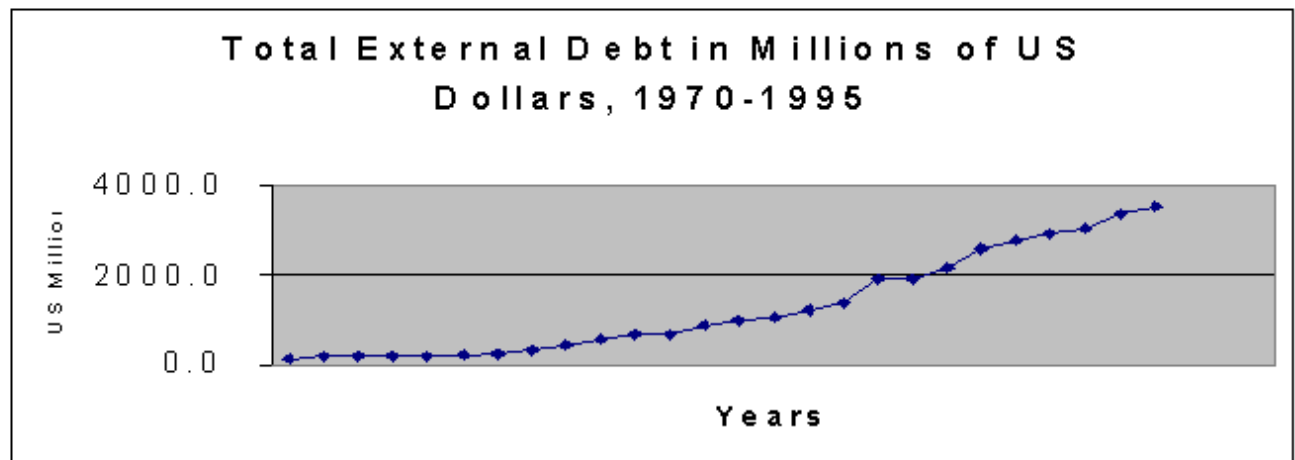


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Problems: Economic Improvements?

I. Substantial increase in debt

- Debt services payments for 1996 amounted to \$184 million
- In 1995, Uganda's external debt was about \$3.4 billion



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II. Will debt relief and Structural Adjustment Programs (SAPs) help?

- Role of International Monetary Fund
 - Purpose
 - Problems
- Informal Labor Sectors: Are they included?

III. Issues of Diversity

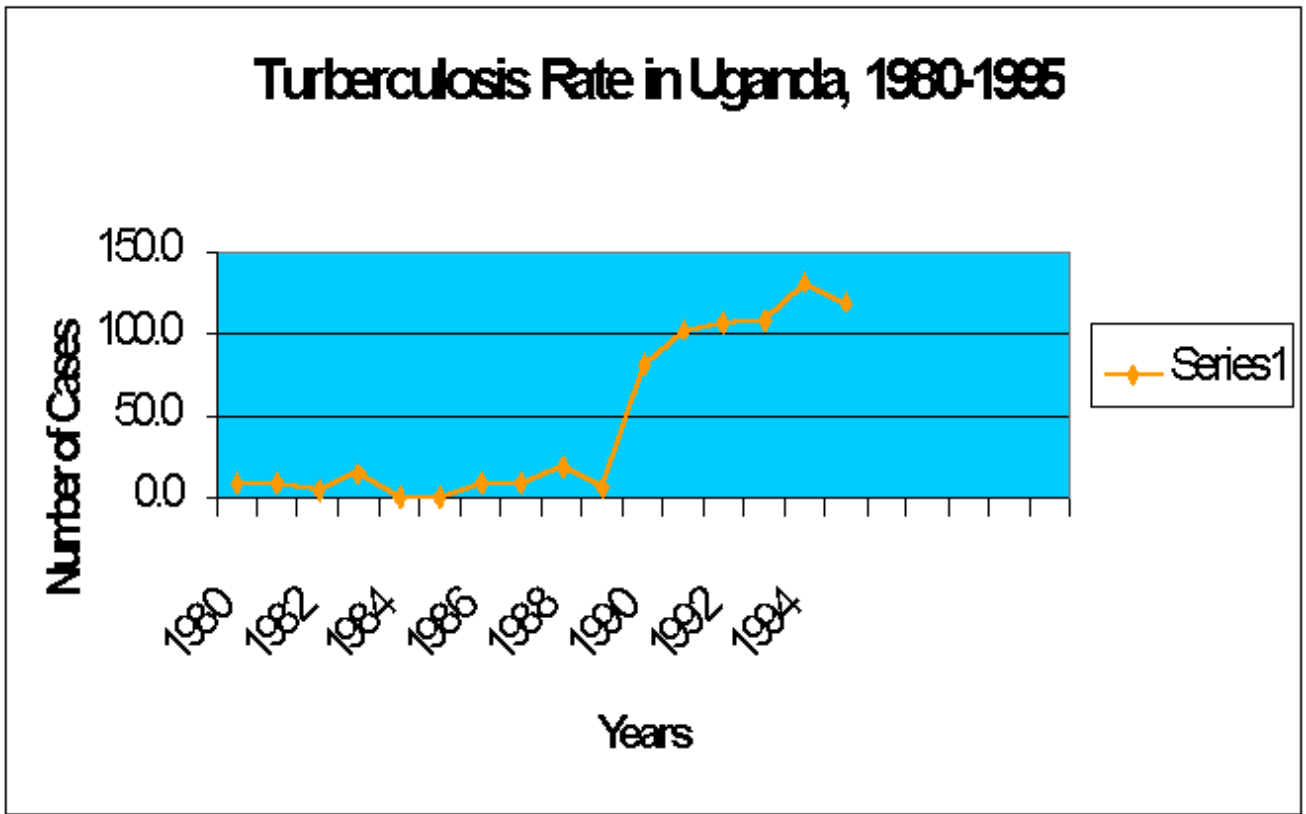
- Environmental Overuse
- Employment: 86% of people are employed by Agricultural industry
- Agriculture is 99% of export revenue



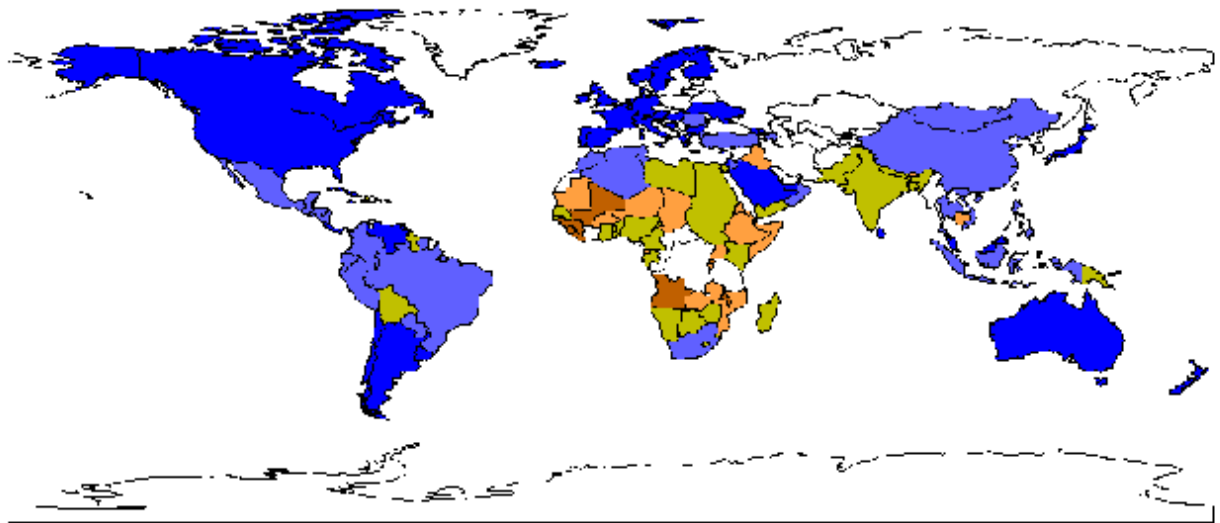
Measures of Health: *Mixed Messages?*

- *Life expectancy at birth: 39.69 years*
- *Maternal Mortality: between 550-1000 deaths per every 100,000 births; Urban: 20 times more than Western; Rural: 60 times more than Western*
- *Immunizations: comparable to the U.S. rate for 1 year olds fully immunized*
- *Preventable Disease: HIV/AIDS, TB, Measles, Cholera, Polio etc.*
- *Access to Sanitary Water: One of the lowest in the world*
- *Infant Mortality: improved from 133 to 88/1000*



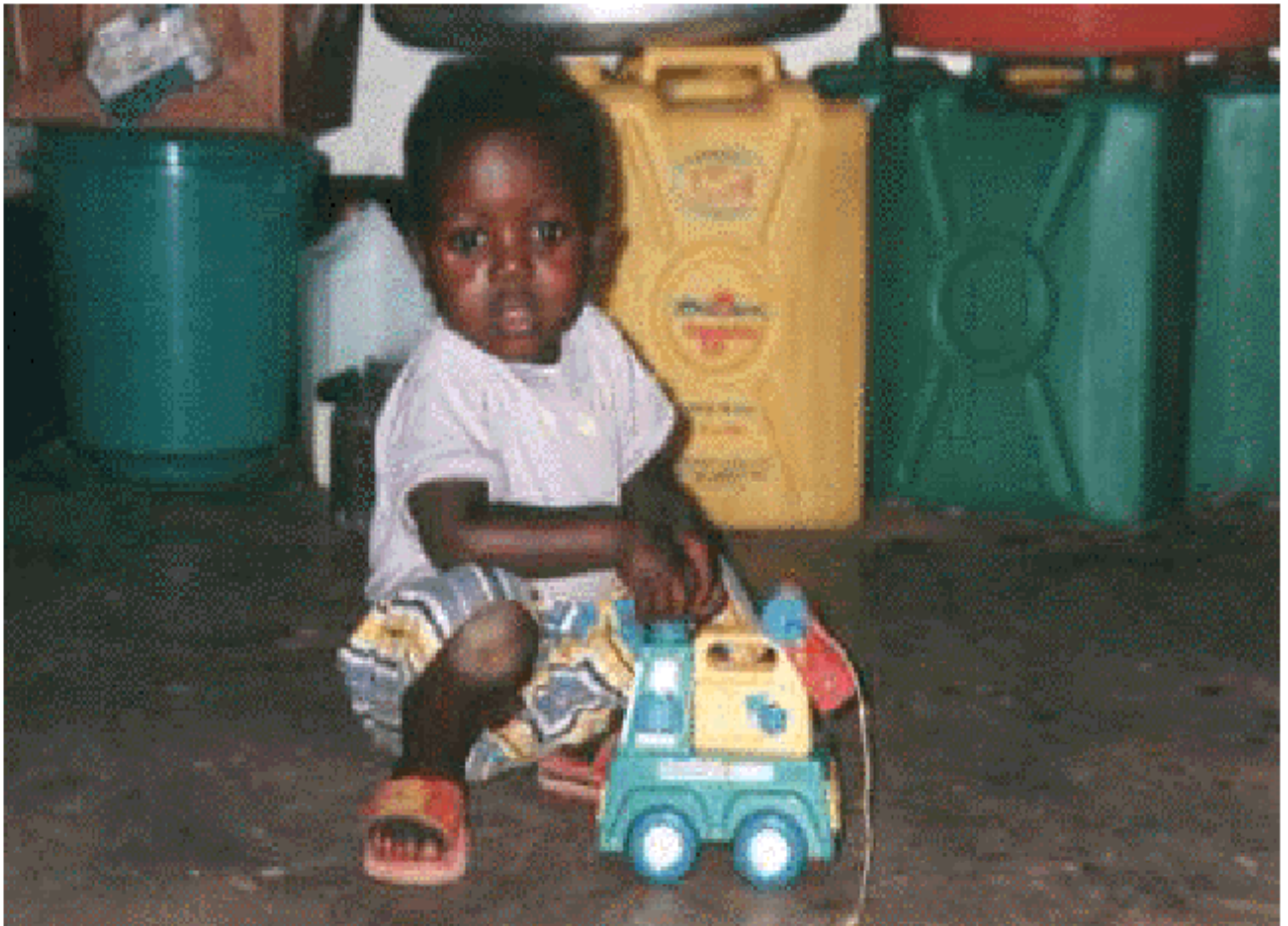


Infant Mortality Around the World



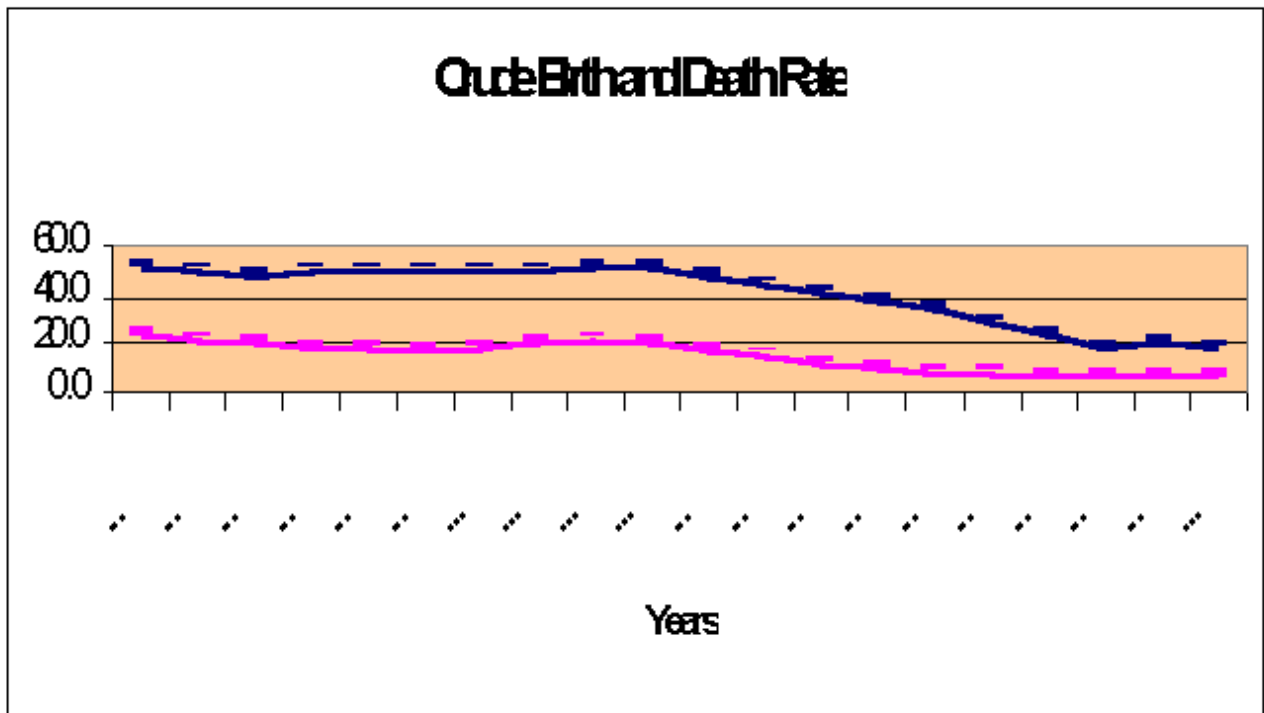
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Preventable?

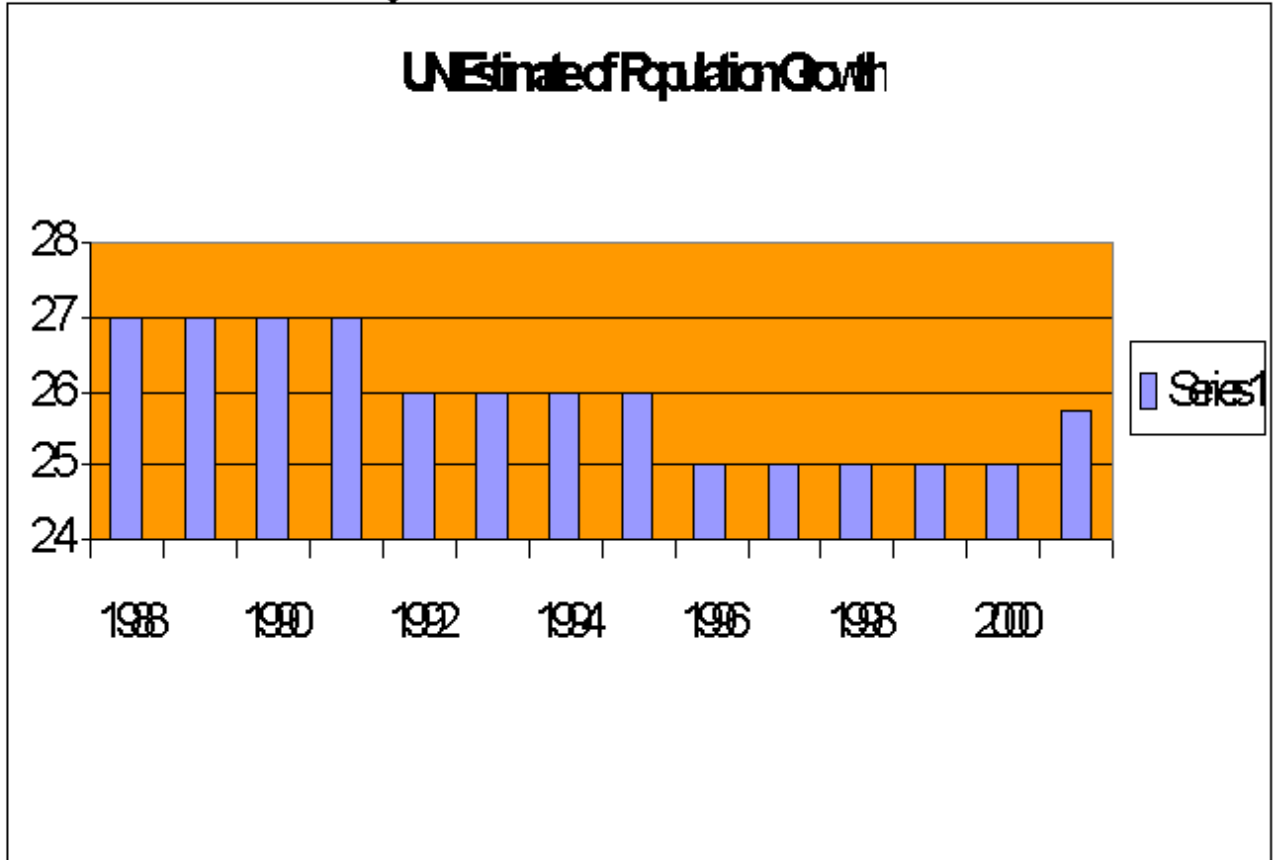


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Demographic Transitions: improving?



Total Fertility rate: 6.52 children born/woman



Status of Technology

- 2.83/100 have access to telephones
- 80% of telephone access is in Kampala
- Internet capabilities; cellular phones
- Transportation: train, planes and automobiles
- TV: 193,000
- Problems: access and quality is unequally distributed



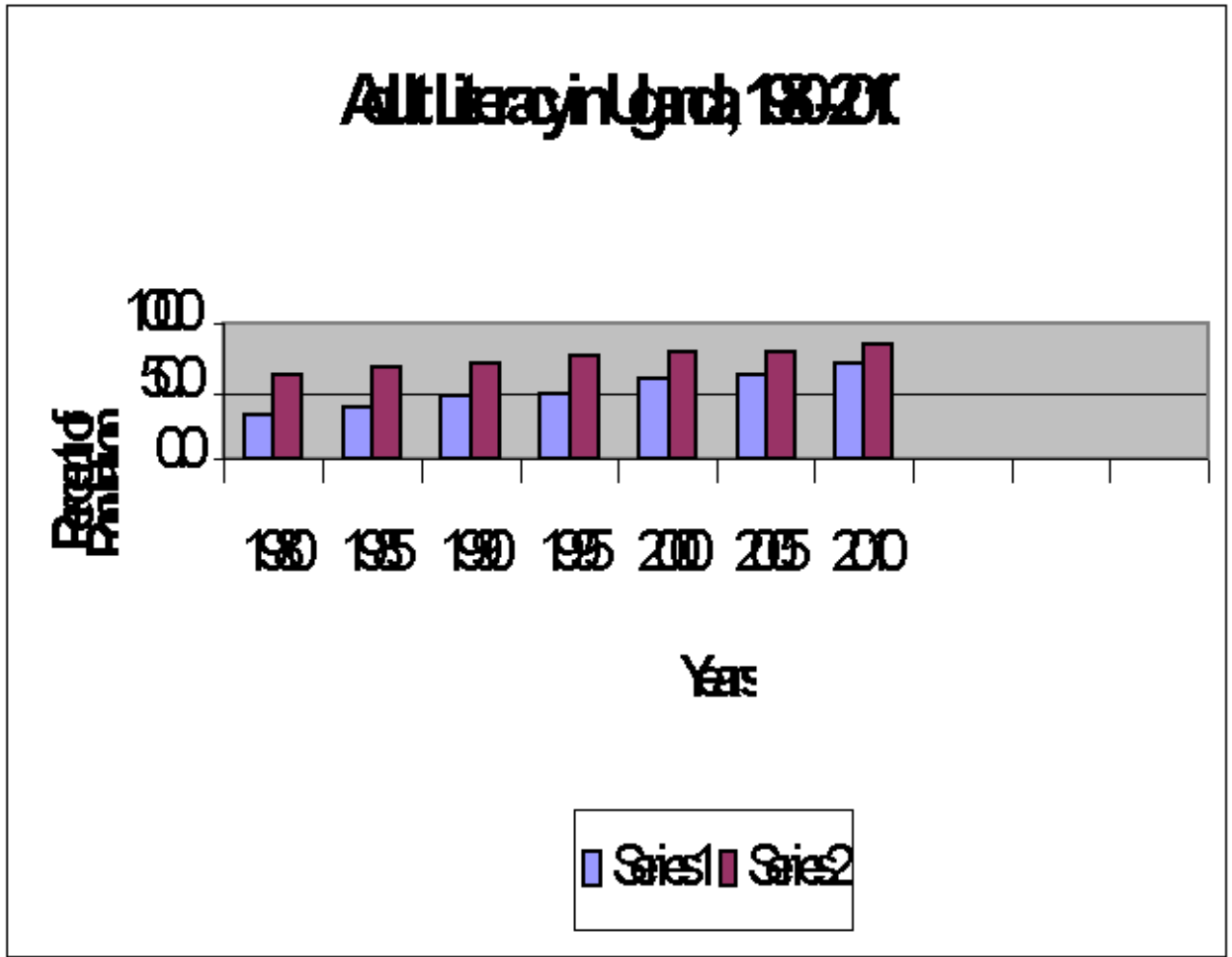
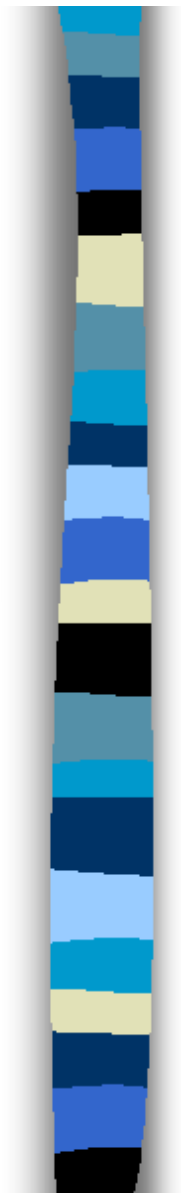
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Education

- 4 Tier Model instituted by the British
- Issues of opportunity for class, location and gender
- In 1992-3, 1/3 of all children b/w 6-12 were not enrolled in school; 10% of those who do enroll in primary school drop out
- 61.8% of total population can read and write (age 15 and over)
- Free Primary Education?



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Review:

Stuck in Transition

- Economic situation: are the current improvements really beneficial?
- Varying control over infectious disease
- Demographic improvements but may be due to disease
- Technology varies and is unequally distributed
- Literacy and education improving but little money is available

How is Uganda Stuck in Transition...?



Slide 24 of 29

Theories and hypothesis: *why is Uganda stuck in transition?*

- Internal unrest: *political and cultural disruption*
 - *cultural clash*
 - *gender inequality*
- Post-colonial nation: inequalities b/w groups
- World-wide inequality
 - *World Systems Theory: hegemonic order of the world*
- Mealow et al. (1992)





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Policy and reform suggestions



Slide 27 of 29

Lewis Garvin

Welcome to my homepage.



Click here to see more information about:

- [Corporate Environmental Management Program](#)
- [Students for Responsible Business](#)
- [My Resume](#)
- [My MSJ Articles](#)
- [My Research Projects](#) (*Look here for [Two Birds with One Loan](#)*)

I am a second-year graduate student in the Corporate Environmental Management Program at the University of Michigan, working towards a joint masters degree (MBA/MS) in 2000. I was President of the Michigan chapter of Students for Responsible Business during the 1998-1999 academic year, and will continue as an active member as we host the SRB National Conference in November, 1999. In my future career, I look forward to promoting progressive business models and joint public-private projects that have a restorative impact on the environment and human well-being.

Contact Information:

Lewis Garvin

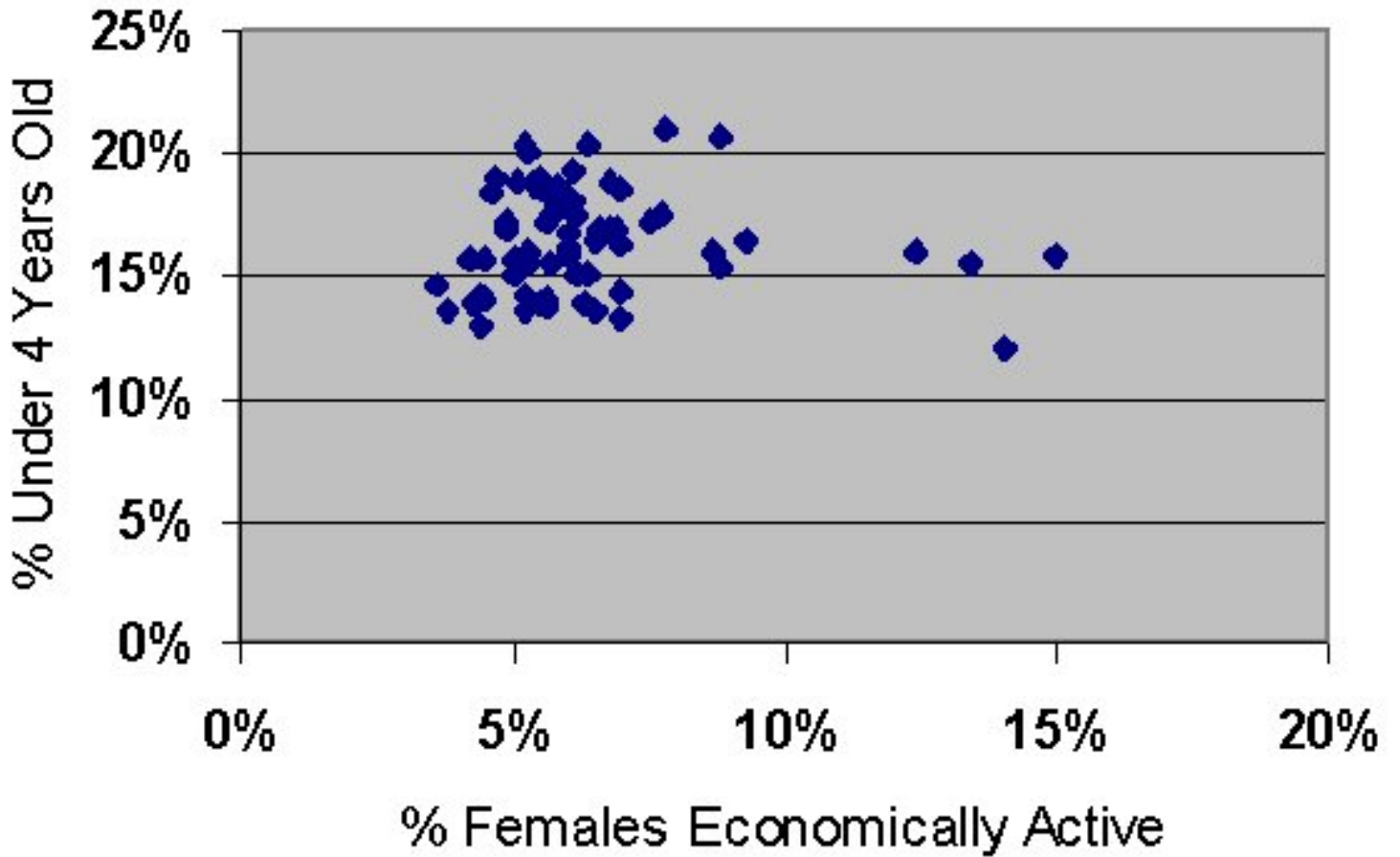
lgarvin@umich.edu

1466 Astor Drive

Ann Arbor, MI 48104

(734) 669-0595

% Under 4 vs. % Females Econ. Active For Each Zila





Prime Minister Sheikh Hasina inaugurating a 'Ruti' (bread) making project for distribution among flood affected people by preparing some 'rutis' herself.

Photo: Md. Habibur Raman Habib, Ajker Kagoj.



Some portions of national highway/Dhaka-Aricha Road were swept away by the heavy currents of the flood . Still road connection was kept going. A vehicle seen plying at risk at Rangail.

Photo : Mizanur Rahman, Independent.



Will this packet save the baby: A young girl swims back to her shelter with a packet of orsaline.
Photo : Mufti Munir/AFP.



**Tahera and her friend, both from centre no. 6, with their bamboo bed.
Photo - A.K.M. Samsur Rahman**



Daily chores still go on. Photo - Salahuddin Azizee



People trying to collect pure drinking water which was scarce during the flood.
Photo: Daily Ittefaq.

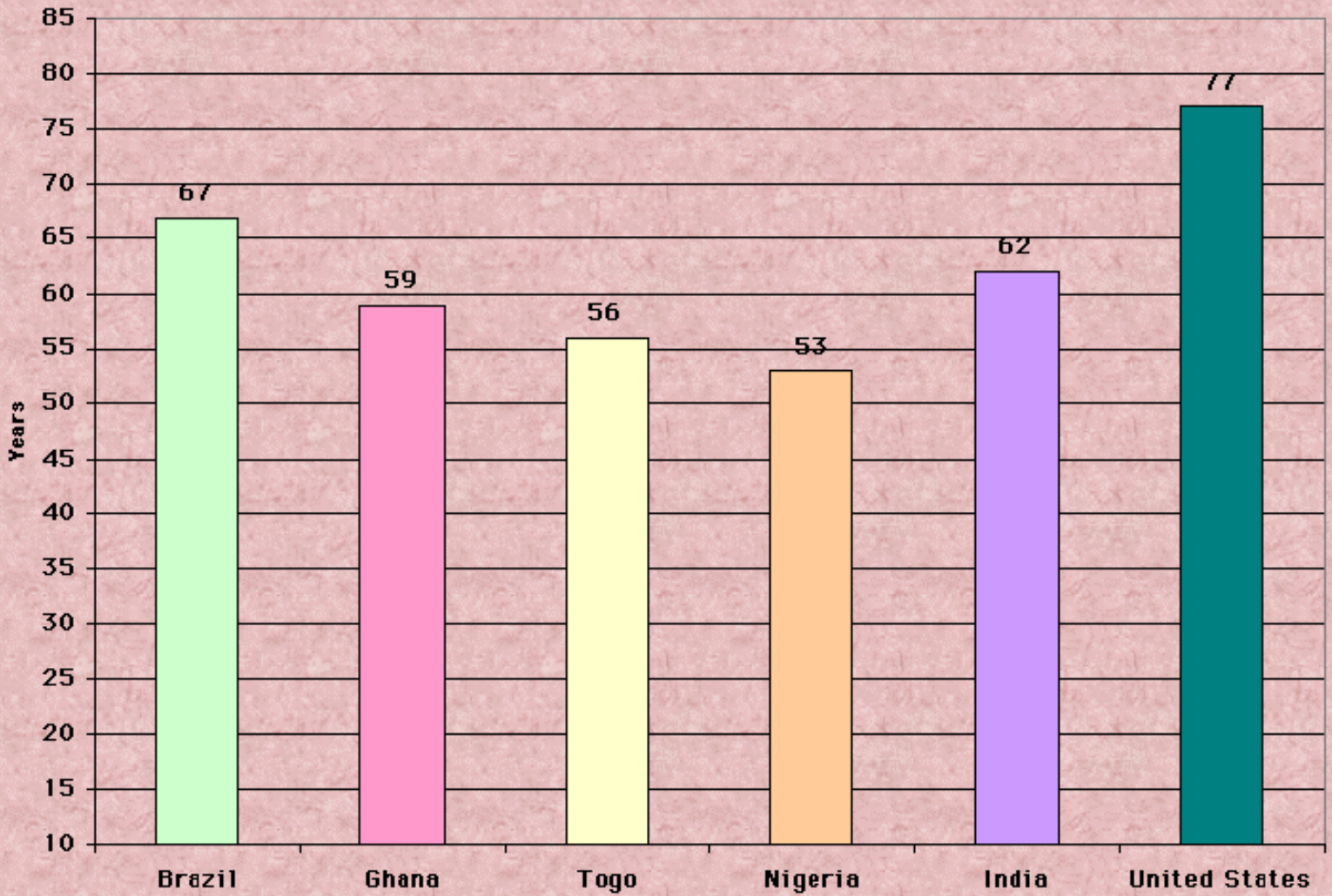


The machinery of a large number of textile mills at Narayanganj went under flood water.



Work on Kanchpur Ferryghat near Dhaka, by Roads and Highways Division, in progress for providing emergency transportation of exportable goods.
Photo: Tarif Rahman, Independent.

Life Expectancy at birth: 1995



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Aquifer Structure

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Groundwater

Supply

Private

Citizens

Agriculture

Mining

Industry

Other

Business

Govt.

Policy

Business Influence

Citizen Groups

Research & Technology

Population

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Surface Water

Groundwater

CAP Water

Water Supply

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Tucson

AMA

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Population Transition

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Tucson's

Economic Base

31 % Service Industry

23% Government

22% Trade

9% Manufacturing

6% Construction

4% TCPU

4% Fire

1% Mining

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Municipal Groundwater Consumption

1985 112,655 AF

1990 123,165 AF

1995 147,080 AF

Agricultural Groundwater Consumption

1985 111,004 AF

1990 89,815 AF

1995 95,379 AF

Industrial Groundwater Consumption

1985 55,744 AF

1990 47,974 AF

1995 59,422 AF

Groundwater Consumption by Sector

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Hydrological

Transitions

Effects of drop in water table:

- Reduced Inflow/Outflow
- Altered Inflow/Outflow Patterns
- Compaction of Aquifer (subsequent decrease in recharge)
- Land Subsidence
- Earth Fissures

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Ecological

Transitions

Effects of drop in water table:

- Reduced Streamflow
- Drying stream beds
- Consequences for Riparian Habitats
- General vegetation die-off
- Desertification

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Impacts on

Society

- Altered Inflow/Outflow Patterns : Effects on local wells
- Land Subsidence and Earth fissures: Damage to well casings, sewage systems, irrigation systems, building foundations.
- Increased salinization/TDS: Poorer water quality
- Problems associated with increased pumping lift

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Economic

Transitions

- Residential Developers on the rise
- Environmental Technology on the rise
- Telecommunications Industry rising
- Agriculture Declining

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Policy

Dynamics

Governing Bodies and Present Laws

- ADWR (vs. Pima County or Tucson Planning)
- Groundwater Code of 1980 (safe-yield by 2025)
- Proposition 200

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Political

“Transitions”

As groundwater supplies run out:

- Increased number of governing bodies managing H2O
- Increased number and activity of citizen groups
- Increased spending: management, education, technology and research, disputes (govt and legal)
- Increased tension among stakeholders

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Overview

- . **Bangladesh Introduction**
- . **Demographic Transitions**
- . **Grameen Bank**
- . **Grameen's Impact on Fertility**
- . **Natural Disasters**
- . **Grameen's Resilience**
- . **Conclusions**

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Conclusions

. **Grameen should integrate family planning into operations**

- Target members are high fertility (rural poor)
- Essential to mission of alleviating poverty
- Should focus efforts on Chittagong

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Bangladesh

- . **1971 Independence**
- . **Flat plains**
- . **3 Seasons**

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River Basins

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Demographic Transitions

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High Population Density

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Shifting Births/Deaths

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Stagnating GDP

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Increasing Landlessness

. Landless

- 20% around WWII
- over 50% today

. Agriculture in 1992

- 73% of labor force
- 34% of GDP

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Food Crisis?

- % households meeting calorie requirements
 - 1975 - 41%
 - 1991 - 21%

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Grameen Bank

Grameen

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Need for Microcredit

- . **Microcredit: Small loans to rural poor**

- . **Professor Yunus: Listening to the need**

- o 59% of borrowing households are poor
- o Need money for investment and emergencies
- o No collateral or bargaining power
- o Professional money lenders - high rates
- o People know own needs to build assets

- . **Vision: eliminate poverty**

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Grameen Bank Loans

- . **Members form loan groups**
- . **Social collateral**
- . **Same rate as commercial loans**
- . **Entrepreneurship to build assets**
- . **Safety net requirements**
 - o Save 1 Taka per week
 - o Group loan fund

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Grameen Targets

- . **Poorest 50%**
- . **Rural villages**
- . **Landless**
- . **One per family**
- . **Women**

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Grameen Growth

. Growth

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Additional Services

- . **1984 - Housing loans**
- . **1988 - Tubewells**
- . **1993 - Health program**
- . **1994 - Fish farming, Venture capital fund (cows and computers)**
- . **1996 - Handwoven textiles**
- . **1996 - Telecom, Renewable Energy, Internet**

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Grameen Houses

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Grameen's Impact on Fertility

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Fertility Factors

- . **Youthful age structure ?**
- . **Contraception +**
- . **Status of Women +**
 - o Economic position -
 - o Land holdings -
 - o Purdah +
 - o Independent income +
 - o Education, literacy +
- . **Disease +**
- . **Urban +**

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Status of Women Improving

. % Females Literate

- 1970 - 12%
- 1990 - 23%

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Disease and Urbanization Trends

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The 16 Decisions

- 1. The four principles of Grameen Bank -- Discipline, Unity, Courage, and Hard Work -- we shall follow and advance in all walks of our lives.**
- 2. Prosperity we shall bring to our families.**
- 3. We shall not live in dilapidated houses. We shall repair our houses and work toward constructing new houses at the earliest.**
- 4. We shall grow vegetables all the year round. We shall eat plenty of them and sell the surplus.**
- 5. During the plantation seasons, we shall plant as many seedlings as possible.**
- 6. We shall plan to keep our families small. We shall minimize our expenditures. We shall look after our health.**
- 7. We shall educate our children and ensure that they can earn to pay for their education.**
- 8. We shall always keep our children and the environment clean.**
- 9. We shall build and use pit-latrines.**
- 10. We shall drink tubewell water. If it is not available, we shall boil water or use alum.**
- 11. We shall not take any dowry in our sons' weddings, neither**

shall we give any dowry in our daughters' weddings. We shall keep the center free from the curse of dowry. We shall not practice child marriage.

12. We shall not inflict any injustice on anyone, neither shall we allow anyone to do so.

13. For higher income we shall collectively undertake bigger investments.

14. We shall always be ready to help each other. If anyone is in difficulty, we shall all help him.

15. If we come to know of any breach of discipline in any center, we shall all go there and help restore discipline.

16. We shall introduce physical exercise in all our centers. We shall take part in all social activities collectively.

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Impact on Fertility

. Two research studies confirm:

- Members vs. Nonmembers
 - Contraceptive Use - 62% vs. 47%
 - Desire no more children - 86% vs. 62%
- Contraceptive use increases with length of membership
- Nonmembers in village have increased use of contraceptives
- Contraceptives acquired from government family planning

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Mechanisms of Impact

- . **Contraception +**
- . **Status of Women +**
 - o Economic position +
 - o Land holdings +
 - o Purdah +
 - o Independent income +
 - o Education, literacy +
- . **Disease +**
- . **Urban -**
- . **Concern about receiving loans +**

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Prof. Yunus Quote

- . “Population is not the problem. If you had a lot of land, would you worry? No, you wouldn't. You'd think it was a source of income. If you had a lot of trees, you wouldn't worry. So why worry if there are a lot of people? Because they eat. They take away resources. But you're only looking at one side of the picture; you forget that they also produce. You're not seeing that part of it and that's why you worry. I see the other part. I see that people are creative. You worry because you don't promote that creativity. You don't allow them to produce things. If we provide opportunities for people, we don't have to worry about them.”**

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Natural Disasters

Grameen

Bank

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A Wet Place

- . **Annual floods up to 30% land surface**
- . **Fertilize soil**
- . **Catastrophic floods**
 - o 1987 - 40%
 - o 1988 - 62%
- . **Erosion and river movement**

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1998 Flood

Prof. Yunus:

“I feel that a grave disaster of catastrophic proportions is in the making. I don't expect everybody to agree with me.

But I appeal to everybody, particularly the government, to work on the basis of the worst case scenario drawn up by themselves. Let us not take chances. One life is too many.” Sept. 11, 1998

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Human Impact of Flood

- . **“Inshallah”**
- .
- . **Human death**
- . **Loss of livestock**
- . **Loss of crops**
- . **Disease (diarrhoeal diseases and hepatitis)**
- . **Contaminated drinking water**
- . **Loss of housing, roads, infrastructure**
- . **Economic slow down**
- .
- . **Worst impact on poor landless women**
- .

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Other Natural Disasters

- . **Cyclones**
- . **Drought**
- . **Earthquakes**
- .
- . **Sea-level change**

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Grameen's Resilience

Grameen

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Grameen Response

. Reactive

- Meet with members
- Reschedule payments
- New loans (food, housing, Central Disaster Fund)
- Distribute saplings, medicine, supplies
- Goat loan

. Proactive

- Housing loans
- Required savings
- Build relationships

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Operate in Flood Plain

- . Successful in maintaining loan repayment**
- . Successful in keeping rural community together**

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Conclusions

Grameen

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Conclusions

. **Population density creates poverty**

- Landlessness
- Impact of natural disasters
- Food shortages
- Pollution, deforestation

. **Grameen contributes to stabilizing population**

- Reduces fertility via status of women
- Reduces impact of natural disasters

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Introduction

. Turkey as a candidate member since 1963

- Political reasons
- Socio-economic reasons

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Comparison of Turkey and EC Members

- . **Demographic differences**
- . **Economic differences**
- . **Urbanization differences**
 - o Rapid increase of urban population
 - o Primacy
 - o Increase of population in large cities
 - o Urban related problems

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Turkey

- . **At the crossroads of many lands**
- . **774,000 sq. km.**
- . **Physical disparities among regions**
- . **Socio-economic disparities among regions**

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Urbanization Transition

. Urbanization Transition in General

- Stages of the transition
- Urbanization in developing countries vs. developed countries
 - Urban population increase
 - Rural push-urban pull
 - Primacy and growth of large metropolises
 - Definition of urban
 - Closely knit transition

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Urbanization in Turkey

- . **Family of transitions since the Republic**
- . **High rate of urbanization - 65% urban, over 1% increase annually in the urban share of the population**
- . **75 years - urbanization has quadrupled**
- . **Existence of primacy**
- . **Increase in large city populations**
- . **Earlier stages of the transition**

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Economic Structure of Turkey

- . **Change in the economic sectors**
- . **Low GDP and GNP per capita**
- . **Close link with urbanization**

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Regional Disparities

- . **Seven geographical regions**

- . **Disparities among west and east**
 - o Population distribution
 - o Population dynamics
 - o Southeastern Anatolia Project

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Turkey: regions, topography, and major rivers

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In 1985, Istanbul accommodated 49% of the nation's industries where as the entire Eastern Anatolia accommodated 3%.

- . In 1985, Istanbul accommodated 49% of the nation's industries where as the entire Eastern Anatolia accommodated 3%.**
- . In a socio-economic development study in 1980 showed that**
 - the Eastern regions have 34% development level compared to 100% Turkey average
 - Istanbul is 11 times more developed than Hakkari
 - Western cities accommodated 70% of hospital beds and 57% physicians, these numbers were 7% and 3% for Eastern Anaolia.

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National Urban and Regional Strategies

- . **Central planning**
- . **Five-year development plans**
 - o Starting with 1963-67 term
 - o Emphasis on large cities in the 2nd term
 - o Investments to growth poles in the 3rd term
 - o Urban related problems being addressed in the most recent plans.

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Future of Turkish Urban Pattern

- . Urbanization will continue to expand but with a smaller rate in Turkey.**
- . Migration patterns will change**
 - o Southeastern Anatolia will gain population.
- . Unless national strategies promote smaller cities, larger cities will gain more importance.**

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Urbanization Transition in European Community

- . **Difficulty due to the intricacy of the transition and number of members.**
- . **Later stages of transition among most members**
- . **High urbanization rates**
- . **Not significant impacts of joining the Community**
- .

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Family of transitions in European Community

- . **Industrialization**
- . **Correlation between GDP and GNP per capita and urbanization levels**

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Outline

- . **Indonesia: An Overview**
- . **Concepts: Decentralization and Sustainability**
- . **Indonesian Health Delivery System**
- . **The Rationales of Decentralization Initiatives**
- . **Implementation of Decentralization Policies**
- . **Implications of Decentralization Efforts on Sustainability of Health Care**
- . **Concluding Observations and Policy implications**

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Implications: Cost Recovery

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Indonesia: An Overview

- . **Geographical characteristics**
- . **Demographic**
- . **Economic**
- . **Social and Demographic: International comparisons**
- . **Government Structure**

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Geographical characteristics

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Geographical characteristics

Total area:

1,919,317 Km²

Number of Islands:

more than 13,000

The largest archipelago Country in the world

About 300 ethnic groups and local languages

National language:

Indonesia

Australia

Philippines

Malaysia

Singapore

Thailand

Indonesia

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Demographic

Population (1990):

179.3 million people

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Demographic

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Economic

- . **GDP (1994): US\$ 175 billions**
- . **GDP per capita (1994): US\$ 950**

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Economic

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Social and Demographic: International Comparisons, 1994

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Concepts: Decentralization

Definitions:

- . A subject with many dimensions and commonly associated with various interpretations and contexts for instance administrative, economic, and political decentralization in both developed and developing countries (Wolman, 1990 and Smith, 1980);**
- . The transfer of responsibility for planning, management, and the raising and allocation of resources from the central government and its agencies to field units of government agencies, subordinate units or level of government, semi-autonomous public authorities, or non-governmental private or voluntary or organization (Rondinelli, 1989); and**
- . The various perceptions of decentralization have something in common i.e., to shift authority with respect to planning, decisions making, and managing of public functions from the central level to individual, organization or agency at sub-national level (Conyers, 1985).**

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Concepts: Decentralization

A typology of decentralization: (Rondinelli, 1981)

- . **Deconcentration: a transfer of power to local administrative offices of the central government;**
- . **Delegation: the transfer of power to parastatals, organizations which are not fully controlled by the central government ministries;**
- . **Devolution: the transfer of power to subnational political entities; and**
- . **Privatization: the transfer of power or responsibilities to private institutions.**

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Concepts: Decentralization

Objectives of Decentralization: (Wolman, 1990)

- . **Promoting efficiency through the maximization of social welfare;**
- . **Improving the responsiveness and accountability of policy makers to the citizen;**
- . **Promoting diversity in public policies;**
- . **Strengthening political participation of the citizen;**
- . **Strengthening a national unity;**
- . **Improving territorial equity through national grant equalization systems to support the local government which have relatively low regional income or high need; and**
- . **Improving the allocation system.**

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Concepts: Decentralization

How to measure decentralization

Conyers (1985) suggests five indicators to measure decentralization:

(1) the governmental functions which are transferred from central government to sub-national level;

(2) the kind of delegation, authority, and powers which are transferred in relation to each governmental function;

(3) the level(s) or area(s) which obtains the delegation, authority or power;

(4) the individual, organization or agency at each level which obtain the authority; and

(5) the legal means used to transfer the authority.

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Concepts: Decentralization

Challenges of Decentralization:

- . It can produce some disadvantages, for instance inefficiencies and diseconomies in either developed or developing states, and capitalist or socialist economies (Smith, 1980);**
- . The role of decentralization in development has many dilemmas, with quoting of Larmour's expression on the role of decentralization as follows : (Conyers, 1985)**

“Many of the arguments for, and against, decentralization are as Hebert Simon pointed out ' like proverb..... for almost every simple one can find an equally plausible and acceptable contradictory principle' Decentralization promotes efficiency and reduces it. Decentralization enhances national unity and inhibits it”.

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Concepts: Sustainability

Definitions:

- . **The ability of a project to maintain an acceptable level of benefit flows through its economic life (Valadez and Bamberger, 1994);**
- . **The difference between host country and donor perspectives of sustainability is suggested by the Director of the Exyernal Aid Coordinating Committee in the Ghanaian Ministry of Health as cited in La Fond (1995):**

Sustainability is important principle to both the Government of Ghana and the donors but it probably does not mean the same thing to both. Usually donors define sustainability to mean being able, after a period, to withdraw completely and have the system remain operational. We must remember that Ghana is not a rich country and that for a while yet we are going to need significant external support. With this proviso, we have no alternative but to consider sustainability in terms of organizational development and systematic growth, confidence building and improved efficiency in the use of resources.

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Concepts: Sustainability

How to measure sustainability:

. **Honadle and Van Sant (1996):**

- (1) the proportion of program-initiated goods and services that are still delivered produced and maintained five years past the termination of external assistance,
- (2) the continuation of local participation stimulated by the program, and
- (3) the expansion of the services and efforts as a results of program-built local capacity.

. **Valadeze and Bamberger (1994):**

- (1) continued delivery of services,
- (2) maintenance of physical infrastructure,
- (3) long-term institutional capacity, and
- (4) support from key stakeholders

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Indonesian Health Delivery System

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The Rationales of Decentralization Initiatives

- . **Demographic transition**
- . **Economic transition**
- . **Epidemiological transition**
- . **Unity consideration**
- . **Efficiency consideration**

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Relationship between Economic, Demographic, and Epidemiological, and Health Transitions

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Rationale: Demographic Transition

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Rationale: Demographic Transition

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Rationale: Economic Transition

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Rationale: Economic Transition

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Rationale: Epidemiological Transition

- . **There is a significant increase in chronic degenerative disease. For example: cardiovascular diseases have become an important cause of death; and**
- . **There is still “unfinished agenda” of combating infectious diseases such as diarrhea, tuberculosis, respiratory infections, and tetanus.**

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Rationale: Economic and Political Justifications

. Economic justification

- A-one-size-fits-all approach adopted by the centralized planning system leads to the government to provide a bundle of public goods different from the preference of citizens of particular regions, provinces, or districts (Oates, 1971). The preferences vary geographically, the uniform policy is likely to force some localities to consume more or less than they would prefer to consume.
- Decentralization contributes to more efficient provision of local public services by allowing a better matching of expenditures with local priorities and preferences;

. Political Justification

- The 27 provinces of the country vary greatly in natural and human resource endowments, in religious, cultural and ethnic. The Decentralization policy can provide political glue to maintain the national unity.
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Implementation of Decentralization Policies

- . **Decentralization of Development Planning**
- . **Fiscal Decentralization**

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Decentralization of Development Planning

Historical Perspective of Development Planning Policies

The legal means:

- . Article 18 of the Constitution**

Respect would be paid to regional autonomy

- . The law 5 of 1974**

Outlining the main principles for the development of regional autonomy including for broad involvement of local government in provision of public services

- . Establishments of Provincial Development Planning Agency (1976) and District Development Planning Agency (1981)**

- . The Presidential Instruction 1970s**

Provision of a broader grant to local governments

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Fiscal Decentralization

The Presidential Instruction (1970s): Grant Program

. The primary objectives:

Assisting the attainment of the main national development objectives, improving the equity, and strengthening local autonomy.

. Types of Grant:

- General purpose block grant

It is intended to promote local autonomy and improve local infrastructure. The local authorities have higher degree of flexibility to spend the funds.

- Specific block grant

It is created primarily to accelerate the achievements of national development targets such health status and education. The grant is earmarked by the central government for specific uses such as: public health and universal primary education.

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Fiscal Decentralization

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Implications of Decentralization Efforts on Sustainability of Health Care

- . **Equity**
- . **Efficiency**
- . **Cost Recovery**

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Implications: Equity

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Implications: Equity

Infant Mortality Rate by Province in 1990

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Implications: Equity

Utilization of Modern Providers by Expenditures Class, 1987

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Implications: Efficiency

The Relationship between Improvement in IMR and Availability of
Health Facilities, 1990-1993

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Implications: Efficiency

The Relationship between Improvement in IMR and
Health Budget Per Capita, 1990-1993

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Implications: Efficiency

The Relationship between Improvement in IMR and
Immunization Coverage, 1990-1993

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Implications: Efficiency

Infant Mortality Rate (1993) and

Availability of Health Facilities (1990 and 1993)

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Overview of Indonesia

- . 4th most populous nation in world (200m)**
- . 13,000 island archipelago with 350 ethno-linguistic groups**
- . Independence gained from Dutch in 1945**
- . Initially explored for rich natural resources; “Spice Islands”**
- . Fast-growing developing market economy**
- . Asian crisis sparked financial and political unrest**

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Spices

- . Many spice crops also dominated by smallholders**
- . 4 that have not gone through transition are nutmeg, cinnamon, ginger, and pepper**
- . Intercropping with coffee common, especially for pepper**

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Rationale for Research

- . Financial crisis in 1997 encouraged re-focus on agriculture sector**
- . Smallholder farmers still majority of labor force (slightly over 50%)**
- . Crop diversification away from rice needed**
- . An opportunity to develop cash crops for export**
- . Stimulate rural development; stem urban migration**

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Indonesian Population

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Rationale for Research

. Criteria for crops selected

- Potential for development (have not experienced agricultural transition)
- Increased demand in U.S. and Western developed world
- Dominated by smallholder farmers

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Agriculture in Indonesia since 1965

. Suharto gave priority to rice sector

- investment in fertilizer, pesticides, irrigation
- BULOG (National Logistics Agency)
- Oil money
- self sufficiency by 1984
-

. Green Revolution increased rice yields

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Agriculture in Indonesia since 1965

- **Combination of these factors led to agricultural transition in rice**

-

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Agriculture in Indonesia since 1965

. Cash crop development suffered

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Smallholder Farming

- . Smallholders dominate cash crop farming**
- . Agricultural households are increasing through division of land-holdings**

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Coffee Farming

- . **93% of coffee in Indonesia is produced by smallholders**
 - o main cash income for 5 million people
 - o primarily Robusta variety (90%)
 - o world's 3rd largest producer
 - o \$0.5 billion in export revenues

- . **Increased demand for specialty coffee in United States/ West (Arabica variety)**

- . **Coffee has yet to experience agricultural transition**

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Coffee Farming

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Coffee Farming

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Coffee Farming

- . **Structure of distribution is fragmented**

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Coffee Farming - Problems

- . Coffee yields have not improved over past 35+ years**
- . Importers, Exporters determine coffee prices, sometimes doesn't cover farmers costs**
- . Fragmented structure makes education and coordination difficult**
- . Farmers do not add value to crops and have backyard processing techniques (quality problems)**
- . Demand is growing for Arabica, not Robusta**

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Coffee Farming - Opportunities

- **World demand for Arabica and Organic coffee is increasing**
- **Number of small roasters in U.S. has increased 10 fold since 1980
= demand for smaller batches**
- **Dollar-based exports are more valuable (in Rupiah), meaning higher returns for farmers**
- **Creation of farming co-ops I.e. Timor**
- **Continued assistance from AEKI and ICCRI for extension and quality improvement**
-
-

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Coffee Farming - Opportunities

. Economics of coffee farming

- Price of Arabica = \$1.89/lb.
- Price of Robusta = \$0.79/lb.

. Example:

- Farmer has 1.4 ha of land
 - Arabica: 13.1 mill Rp * 77% fob = 10.1 mill Rp (\$1346)
 - Robusta: 7.3 mill Rp * 92% fob = 6.7 mill Rp (\$893)

. **If 25% of Robusta converted to Arabica, would increase total coffee revenues by about 20%**

. **More foreign exchange to stimulate economy**

. **More money/ development in rural areas**

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Kenyan Model

- . Cooperative structure; vertically integrated**
- . Grow high quality Arabica; excellent reputation in specialty market**
- . Sophisticated scientific research into coffee quality**
- . Centralized grading/ tasting in Nairobi**
- . Auction system**

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What is Ecotourism?

Ecotourism is a type of tourism that has a low impact on the environment, contributes to the local economy, engenders cross cultural exchange, and fosters environmental education.

It aims to achieve economic gains (I.e. foreign exchange and investment) through natural resource protection.

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Policy Recommendations

#1 Priority: NEED MORE INFORMATION!!

Specifically, need a system to evaluate and monitor the impacts of ecotourism on the following issues:

-Biodiversity

-Habitat

-Income generation/economic development

-Cultural practices

In addition, need to study the following issues related to park management:

-Spending on infrastructure

-Visitation/carrying capacities

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What is Ecotourism?

- Originated in the early 1960's (environmental movement)
- Bruntland Commission (1987)
- “Alternative” form of tourism
- Ecological and socio-cultural integrity, responsibility, sustainability

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What is Ecotourism?

Ecotourism's success depends on...

- Political stability
- Commitment
- Promotion
- Image
- Ease of Travel
- Demand

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Ecotourism in the Developing World

- Extremely popular as a means of economic development
- Comparative advantage -- biodiversity, pristine environments
- \$12 Billion in ecotourism revenues in 1988
- Proliferation of ecotourism tour operators
- Increasing number of ecotourism conferences
- Ideally suited -- low infrastructural demands
- Most important tourism market segment in many countries

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The Development of Ecotourism in Costa Rica

- Early 1960's -- Pressure on Costa Rican government to enact environmental preservation programs

1970 -- National Park Service established

- 1970 to 1971 -- First four national parks created
- 1995 -- Ministry of Resources, Energy and Mining (MIRENEM) established
- 1995 to Present -- National System of Conservation Areas (SINAC) created

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The Development of Ecotourism in Costa Rica

Since 1971, the park system has expanded to include:

- 70 entities

-1,000,000 ha

-21 % of national territory

-national parks, biological reserves, national wildlife refuges, forest reserves and protective zones

-11 conservation/management areas under SINAC

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The Development of Ecotourism in Costa Rica

- Initially, the protected area system was created under a mandate for preservation
- Over time, the protected area network has emerged as a focal point for the Costa Rican (eco) tourism industry
-
- Ecotourism has become incredibly popular in Costa Rica (environmental and socio-political reasons)
-

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The Development of Ecotourism in Costa Rica

- Environmental factors

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Location

Climate

Altitude

Rich Biodiversity & Various Ecoregions

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The Development of Ecotourism in Costa Rica

- Socio-political factors

Below the Surface: The Impacts of Ecotourism in Costa Rica

Promotion

“Switzerland of Central America”

Ease of Travel

Costa Rica:

A Premier Tourism Destination

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The Development of Ecotourism in Costa Rica

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Source: Europa World Yearbook Selected Years

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The Development of Ecotourism in Costa Rica

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Source: Europa World Yearbook Selected Years

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The Development of Ecotourism in Costa Rica

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The Development of Ecotourism in Costa Rica

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Source: TTI, 1996d

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Benefits of Ecotourism

Environmental Sustainability

- Increased preservation of natural areas

-Since 1970, 70 protected areas established

-14% of Costa Rica designated as national
protected area

-Costa Rica among leaders in environmental
preservation within the Caribbean

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Benefits of Ecotourism

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Benefits of Ecotourism

Below the Surface: The Impacts of Ecotourism in Costa Rica

National and Local Economic Development

- Tourism is the leading source of foreign exchange in Costa Rica
- Since the 1960's, international tourism receipts have grown significantly
-
- Since the 1970's, tourism revenues have constituted an increasingly significant portion of Costa Rica's GNP
-
- Parks have spawned a number of ecotourism-related activities in adjacent communities (ex. Talamancan Ecotourism and Conservation Association - ATEC)

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Benefits of Ecotourism

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Source: World Resources Institute 1997-1998

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Benefits of Ecotourism

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Source: World Tourism Organization 1997 & World Resources Institute 1997-1998

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Dangers of Ecotourism

Environmental

Below the Surface: The Impacts of Ecotourism in Costa Rica

Inadequate Funding

Lack of Standards

Over-Visitation

Inadequate Monitoring and Evaluation

Poor Park Management

Trail Deterioration

Habitat Disruption

Pollution

Litter

Displacement of Wildlife

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Dangers of Ecotourism

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Source: Weaver, D. Ecotourism in the Caribbean Basin 1992

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Dangers of Ecotourism

- Economic

- Disruption of local economic activities

- Economic benefits often do not accrue

- to local communities (repatriation)

- Socio-cultural

- Extremely high levels of visitation by

- foreign tourists

- Disturbance of local cultural practices

- and lifestyles

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Policy Recommendations

Is ecotourism a sustainable practice -- environmentally, economically, and culturally?

Has ecotourism fostered community empowerment, local income generation, linkages with existing communities, and environmental education, while promoting environmental sustainability?

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Why Study Uganda?

- . **Origin of the HIV is thought to be the Lake Victoria region of Africa.**
 - undetected for 20-30 years
 - brought from low endemicity areas into central areas

- . **Population/environment dynamics may have caused emergence of HIV/AIDS**
 - Historical/Political
 - Urbanization/Industrialization
 -

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Family Structure Transition

- Support
 - 1.2 Millions AIDS orphans
 - 38% taken by grandparents
 - 7% by aunts
 - 5% by uncles
 - 5% by sisters/brothers
 - 2% by children under 16

- **Family Unit still is main source of support and care for most Ugandans**

- -

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Epidemiology of HIV/AIDS

. Recognition of a new disease

- United States - 1981
- Retrospective Studies
 - Europe - 1976
 - Africa - late 1950's

. 30.6 Million Infected at end of 1997

- 11 people infected per minute
- Sub-Saharan Africa
 - 10% of World's Population
 - 2/3 of HIV/AIDS Cases

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Epidemiology of HIV/AIDS

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HIV/AIDS in Uganda

. Prevalence

- 930,000 infected individuals
- 9.51% prevalence rate in adults (15-49)
- 1,900,000 cases since beginning of epidemic
- 80% of cases in 15-45 age group

. AIDS Mortality Burden

- Leading cause of adult mortality
- 1/2 of all mortality
- 1/3 of mortality from infectious diseases

. Transmission

- 90% by heterosexual sex
- Vertical transmission also important

. Gender Differences

- 1:1 Overall Male to Female Ratio
- Females 15-19 - 6 times more likely to be infected
 - Leaving large orphan population
 - Increased vertical transmission

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HIV/AIDS in Uganda

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Transitions and the Emergence of HIV/AIDS

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Historical/Political Transition

. Pre-Colonial Period

- No national boundary
- Diverse tribes and kingdom monarchies
 - Buganda most powerful
 - Acholi and Lango

. Ugandan Protectorate

- 1898 Treaty with Buganda
- Force, threat of force, and peaceful alliances for other tribes & kingdoms
- Imperial (national) boundary established

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Historical/Political Transition

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Historical/Political Transition

. North/South Dichotomy

- South in Transition
 - Buganda located in fertile area
 - People receptive to British colonialism
 - Agriculture was expanded; cash crop system instated
 - Kampala established as commercial center
 - Indians recruited to lead economic class
 - Main trade routes developed
 - Educational transition
 - North stagnant
 - Arid land
 - People unreceptive to British colonialism
 - Agriculture was prevented
 - Lack of developed infrastructure
 - No educational transition
 - Recruitment of Northern tribes into military

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Historical/Political Transition

. Ugandan Independence

- 1962-Milton Obote becomes leader
 - Continued British Policies
- 1966-Kingdoms abolished
 - Obote became unpopular in the South
- 1971-Obote overthrown by Amin - Eight Year Reign of Terror Begins
 - Amin expels Indians in 1972
 - Destroys economy and foreign confidence
 - Removes commercial and industrial class
 - Sends industrial, agricultural, and urbanization transitions backwards
 - 1979-Amin overthrown in coup/war with Tanzania

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Urbanization Transition

. Migration was the direct result of British Colonialism

- Domestic Migration
 - Male
 - Female
- International Migration

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Urbanization Transition: Domestic

. Male migration

- Agricultural Push
 - Land originally owned by families
 - Families grew and resources diminished
 - Young men left to reduce food burden on family
- Labor Pull
 - British policies caused labor demand in South, especially in agriculture, and labor supply in North
- Social Pull
 - Young men encouraged to make money in cities and return with wealth to villages
- Result: Initial one-sided bulge of men into cities

. Female migration

- Economic Pull
 - Women not encouraged to migrate
 - Due to economic necessity
 - Most forced into commercial sex work

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Urbanization Transition: International

. “Asian” recruitment

- British brought in Indians to run commerce
- Indians comprised elite sector
-
-

. Result:

- Urbanization brought people to cities
 - Increased density, anonymity, and increased female sex work led to change in sexual behaviors

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Theories of HIV Emergence

- **The historical/political and urbanization/industrialization transitions provide a context in which hypotheses of HIV/AIDS emergence occurred.**
- **Three Hypotheses**
 - Migrant Worker Hypothesis
 - “Truck-Town” Hypothesis
 - Military Involvement Hypothesis

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Migrant Worker Hypothesis

- **Emergence as a result of population movement in search of labor**
- **Urbanization created a population that amplified HIV infection**
 - female sex workers
 - young male professionals
 - due to British policies & urbanization of 1950-60's
- **Return migration brought HIV to villages**
 - due to economic collapse during Amin dictatorship
- **Study of Migration and HIV Infection (Nunn, 1995)**
 - 5.5% Prevalence among those who had not moved
 - 8.2% - moved within a village
 - 12.4% - moved to neighboring village
 - 16.3% - those joining cohort

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Truck-Town Hypothesis

- . **Accounts for spread of HIV outwards from Kampala**
- . **Occurred mainly during the Amin reign in 1970's**
 - o Use of roads increased - encouraged by Amin
 - o Smuggling increased dramatically
- . **HIV Spread outwards along principle corridors of trade/ smuggling traffic**
- . **Towns developed along routes**
- . **Female commercial sex work soon followed into towns**
- . **Truckers and commercial sex workers became driving core population of HIV infection**
 - o 35.2% of truck drivers infected with HIV

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Military Involvement Hypothesis

- . Accounts for high seroprevalence in northern tribes (Lango & Acholi)**

- . Specifically due to 1979 overthrow of Amin**
 - Obote loyalists from these tribes recruited into Ugandan National Liberation Army (UNLA)
 - Fought in South
 - used commercial sex workers
 - Returned to North with infection

- . Shows positive statistical significance which cannot be accounted for by either migrant worker or truck-town hypotheses**

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Transitions and the Impact of HIV/AIDS

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Population Transition

- **Sub-Saharan Africa**

- 3% increase per year
- 1 billion people by 2025

- **Uganda**

- 20,791,000 current population
- 3.2% growth rate 1980-1995

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Population Transition

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Population Transition

. HIV/AIDS and Mortality

- Direct Effect of HIV on Mortality
 - 1.5 million additional deaths attributable to HIV by 2025
 - Reduction in population growth
 - In Rakai:
 - high prevalence parishes have negative pop. growth in 1990-1995
 - effects muted at district and national level
 - 0-4 age range smaller than older cohorts
 - Indirect Effects
 - smaller youngest age range will cause lower birth rates as this cohort ages to reproductive age
 - HIV/AIDS will shift to younger age ranges

. HIV/AIDS and Life Expectancy

- Current life expectancy is 41
- 5 year drop
-

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Population Transition

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Family Structure Transition

. Traditional Family - Clan

- Emphasis on continuity of clan network
- Made up of common ancestor and common totem under single residence
- Principle unit of economic productivity
 - need for many offspring
- Socialized young members
 - influenced behavior
 - social welfare
- Support system in times of sickness and death
 - orphans taken in by extended family, especially grandparents

. Modern Family

- Nuclear/conjugal families
- Minimal influence on behavior
- Minimal support

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Family Structure Transition

. Traditional/Modern Family Conflict

- Residence
 - Conjugal families cannot absorb multiple deaths
 - Nearby extended family unwilling/unable to help
 - Traditional family structure called upon
- Socialization
 - Families feel AIDS is due to a behavior; won't help/acknowledge members in need
 - stigma attached to disease
 - Social welfare is disrupted
 - Most productive members are removed
 - Grandparents must take care of orphans and provide for themselves
 -

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CAUSAL FACTORS

URBANIZATION: Swelling Urban Populations, Migration to Cities

WARFARE: Orphans, Child Soldiers

ABUSE IN THE HOME: Runaways, Prostitution, Cycles of Deterioration

POVERTY: Child Labor, Hawkers, Theft

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CONDITIONS ON THE STREET

- . **DRUGS**
- . **POLICE BRUTALITY**
- . **FORCED LABOR**
- . **SEXUAL EXPLOITATION**

Children sleeping on the streets of Bogota, Columbia.

South America has the largest number of street children in the world, up to 70 million by some estimates

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SUBSTANCE ABUSE

- . **ESCAPE FROM REALITY**
- . **ALCOHOL, SNIFFING OF PETROL AND RUBBER PRODUCTS AND MARIJUANA**
- . **“RESISTOLEROS” OF HONDURAS**
- . **HEALTH EFFECTS**
- . **AIDS**
- . **NEUROLOGICAL DAMAGE**

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POLICE BRUTALITY

- . OVER 4,000 CHILDREN HAVE BEEN MURDERED IN BRAZIL ALONE, DURING THE PAST 5 YEARS**
- . IN GUATEMALA, THE BODIES OF CHILDREN ARE ROUTINELY FOUND BEARING THE MARKS OF TORTURE AND MUTILATION**
- . 80% OF THE ADULT PRISON POPULATION OF SAO PAULO IS MADE UP OF EX-STREET CHILDREN**
- . THE DEATH SQUADS OF BRAZIL AND GUATEMALA ARE MADE UP OF POLICE OFFICERS HIRED BY MERCHANTS TO KEEP THE STREETS AND STOREFRONTS “CHILD FREE”**

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CHILD LABOR

Different Categories

- Paid vs. Unpaid
- ages 5-15 vs. 5-18
- employed vs. self-employed
- full-time vs. “marginal”

Global Comparisons

- India: from 40 to 100 million children
- Brazil: 7 million
- Philippines: 3.5 million
- Kenya: roughly 2 million
- Italy: 200,000

PROS

- Work can increase child’s sense of responsibility
- Work can build child’s self-esteem
- Work can provide opportunity to learn important skills and make child feel less marginalized
- Different cultural perceptions of maturity
- Children may provide a significant percentage of the total family income thereby helping to keep family alive

CONS

- Exploitative: 20 million child bonded workers in South Asia
- Hazardous working conditions: Mines, Sweatshops
- Lack of leisure time
- Girls are commonly forced to become sex workers

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SEXUAL EXPLOITATION

“Modern form of slavery”

Facts

- 800,000 child prostitutes in Thailand
- 10,000 boys between 6 and 14 serve foreign pedophiles in Sri Lanka
- Boys and Girls in India are sold to Middle Eastern sex organizations
- Virgins ranging from 8 to 12 are in demand because they are “safer” (free of stds)
- In western countries most of the sex workers have been sexually abused as children

Contributing factors

- Rapid Urbanization leading to break-up of families
- “Machismo”
- Foreign military bases
- International trade/tourism

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Slide 11

GHANA: VITAL STATISTICS

Government: Democracy headed by General J.J. Rawlings. He originally came to power through a coup but promised that within one year he would step down and hold democratic elections. Coincidentally he was “voted” into power.

Population: 17, 100,000 (1995)

Growth Rate: 3.0

Life Expectancy at birth: 59

Infant Mortality Rate: 73/100 live births

Child Malnutrition: 27%

Female Labor Force(% of total): 51

Gross Female Primary School Enrollment: 70%

GNP per capita: \$390

GNP/a(millions of US\$): 6,719

GDP: Agriculture-46% / Trade-59% / Investment-19%

Annual Deforestation Rate: 1.4% (1980-1990)

Ghana achieved its independence from England in 1959. A few years later, Flight Lieutenant J.J. Rawlings wrested power away from the military government in a brief coup d’etat. He then promised to step down after one year of office. In one years time he did indeed step down and held national elections. Coincidentally he was “voted” in as the president and has held the title ever since. He opened Ghana up to international investment which quickly transformed Ghana into one of the richest African countries. Economic prosperity combined with a stable government, helped to make Ghana one of the safest and most peaceful countries in the world.

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THE CIVILIAN CONSERVATION CORPS

A PLAN TO PROVIDE EMPLOYMENT AS WELL AS TO PROTECT THE NATION'S NATURAL RESOURCES

PART OF PRESIDENT ROOSEVELT'S "NEW DEAL"

SIGNED INTO LAW ON MARCH 31, 1933

1933: 13,689,000 UNEMPLOYED MEN IN U.S.

"THIS GREAT NATION WILL ENDURE AS IT HAS ENDURED, WILL REVIVE AND WILL PROSPER. SO...LET ME ASSERT MY FIRM BELIEF THAT THE ONLY THING WE HAVE TO FEAR IS FEAR ITSELF..." -FDR

ENROLLEES HAD TO BE:

- 18-25
- UNEMPLOYED
- UNMARRIED
- "RELIEF" FAMILIES
- PHYSICALLY FIT

PROGRAM LASTED NINE YEARS WITH 3 MILLION MEN HAVING SERVED THEIR COUNTRY.

200,000 BLACKS, 1000'S OF NATIVE AMERICANS AND 225,000 WORLD WAR I VETERANS

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SOME RESULTS OF THE CCC

- . **2,246,100,600 TREES PLANTED: SOIL EROSION CONTROL, “DUST BOWL”**
- . **38,087 VEHICULAR BRIDGES CREATED**
- . **23,725 NEW WATER SOURCES CREATED**
- . **5,875,578 EROSION CHECK DAMS MADE**
- . **100’S OF STATE PARKS**
- . **CONSTRUCTED RED ROCKS AMPHITHEATER IN CO., PALISADES PARKWAY ALONG THE HUDSON**
- . **“ARKANSAS FLOATING CAMP”: DEVELOPED STREAMS, SWAMPS AND BAYOUS INTO WATERFOWL REFUGES**

“SOIL SOLDIERS” AT THE FORT WRIGHT CCC CAMP. EXTENSIVE SOIL CONSERVATION WORK ON WHEATLANDS WAS PERFORMED

FRANK SINATRA WAS ONCE SEEN SINGING AT A CCC CAMP JUST BEFORE HE HIT IT BIG!

THE CCC MOLDED CHARACTER, SHAPED VALUES, CREATED WORK ETHIC: IS SUCH A PROGRAM WORTHY AND CAPABLE OF BEING EXPORTED AND TRANSPORTED TO ANOTHER COUNTRY? CAN THIS BE ADAPTED TO SUIT URBAN ENVIRONMENTS?

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THE SPORTS AND CULTURE ACADEMY FOR STREET CHILDREN

ACCRA, GHANA

* 110 STUDENTS

* 65 GIRLS / 55 BOYS

*MONDAY, WEDNESDAY AND FRIDAY: CULTURAL STUDIES/LITERACY/MATH

*TUESDAY AND THURSDAY: SPORTS- FOOTBALL, PING-PONG, TAE KWON DO

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Most of the teachers volunteer their time due to limited resources. As you can see, the school is in dire need of various supplies. For many of the children the food provided by the school is the only reliable source of food they receive. Corporal Punishment (Caning) is used extensively in Ghana although it is officially illegal to use in Ghanaian schools. The street child situation has not yet reached the terrible proportions seen in other parts of the world, but if policies and programs are not implemented soon, that may change.

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Above is a picture of the old Accra fishing port, once the economic and social centerpiece of the city. However, due to overfishing, the port was moved thirty miles away, leaving this area in abject poverty. Boats still go out to sea but the fleet is a fraction of its former size. Most of the children at the school come from this area, called Ga-Mashie. Others are from Nigeria, Togo and the northern regions of Ghana.

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Outline

- . **Niger**
- . **The Department of Agadez**
- . **The National Nature Reserve**
- . **The Air and Tenere**
- . **The Tuareg People**
- . **Management of the Reserve**
- . **The Tuareg Rebellion**
- . **Recommendations for Conservation and Development Programs**

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Niger

- . **Area of 1,267,000 sq km**
- . **Population of 9,389,000 (1997)**
- . **Population Density of 7.4 per sq km (1997)**
- . **Urban 17% Rural 83% (1995)**
- . **Birth rate (1996) 54.5/1000**
- . **Death rate (1996) 24.6/1000**

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Total fertility rate 7.4 (1996)

- **Total fertility rate 7.4 (1996)**
-
- **Life expectancy at birth (1996)**
 - male 41.1
 - female 40.2
-
- **Infant mortality rate 117.6/1000 live births**
-
- **Literate over age 15 (1995):**
 - Males 20.9%
 - Females 6.6%

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Agricultural Zones

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Topographic map

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Mosque in Agadez

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Tuareg rebellion and political instability

- **appropriate rural development**
-
- **ecotourism**
 - pros
 - cons
-
- **political representation**

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Creation of the Reserve

- . **1988**
- .
- . **National Reserve (multi-use)**
- . **NOT a National Park**
- . **WWF**
- . **IUCN**
- . **Niger government**

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- Endangered fauna:
 - Addax and Dama gazelle
 - Oryx
- Other flora and fauna:
 - cheetah, slender horned gazelle, ostrich, fennec, wild olive, wild sorghum



Five Factors Leading to the Creation of the Reserve

- . disappearance of aridland fauna**
- . increase in habitat destruction**
- . destruction of rich archaeological sites**
- . desire to conserve Niger's natural heritage for aesthetic, cultural, educational and scientific reasons**
- . desire to broaden country's tourist infrastructure**

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Air Tenere National Nature Reserve

-
- **77,360 sq km**
-
- **IUCN Category IV**
-
- **Conservation through management intervention**
-
-

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Ban hunting

- . **Ban hunting**
- .
- . **Resident populations remain**
- .
- . **Keep customary resource-use rights**
- .
- o fuelwood collection
- o harvesting of fruits and certain plants
- o livestock grazing

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Addax Sanctuary

- **12,805 sq km**
-
- **Category I- IUCN**
-
- **Primarily for scientific research and/or environmental monitoring**

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- any activity harming flora or fauna
- entrance
- circulation
- camping
- residence
- flying at low altitudes



PROHIBITED ACTIVITIES

PROHIBITED ACTIVITIES

-
- **hunting**
- **forest exploitation**
- **agriculture**
- **pastoralism**
- **mining or prospecting**
- **any activity modifying surface of land or vegetation**

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The Threats to the Reserve

- . **Overhunting by the military**
- . **Tourists chasing wildlife**
- . **Littering**
- . **Overgrazing**
- . **Exploitation of firewood**

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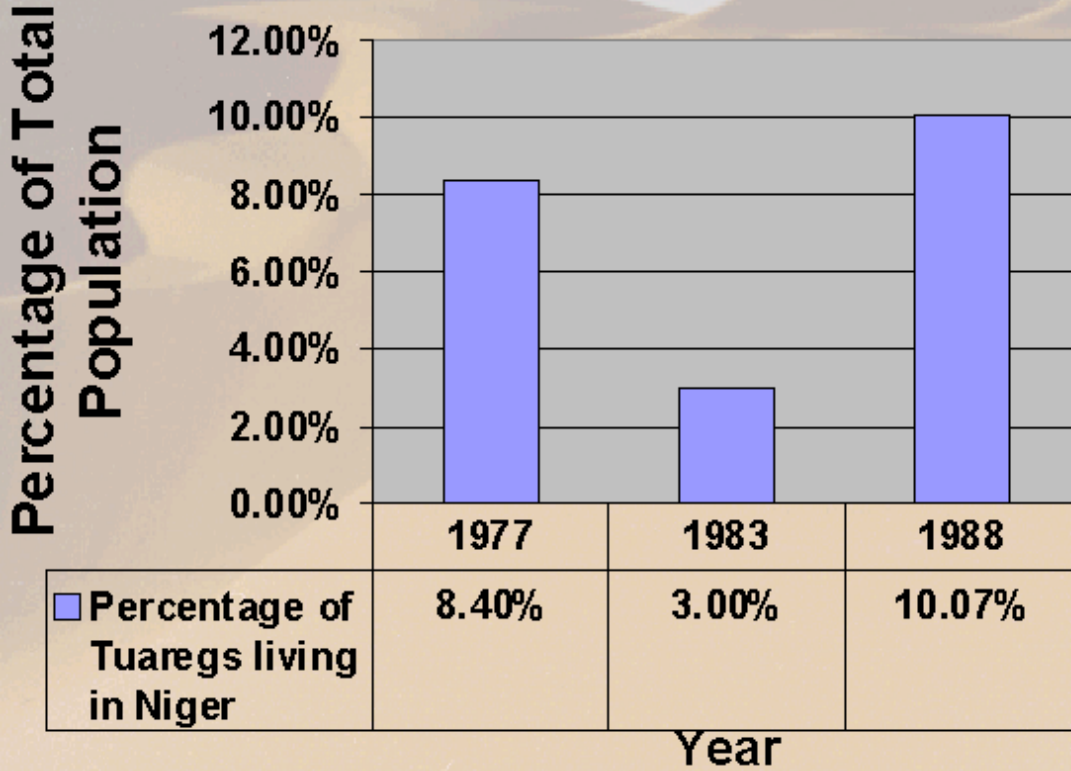
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Tuareg Population as a percentage of the Total Population of Niger 1977-1988



Tuareg People

-
- **2,500-3,000 Tuaregs in Reserve (1977)**
- **4500 Tuaregs living in Reserve (1992)**
- **Majority sedentary in Iferouane and Tin Telloust**
- **The rest are pastoralists in and around the Air Massif**

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WWF Objectives

- 1) to promote the conservation of flora and fauna, sustainable land use and development**
- 2) to improve the livelihood of the local people**
- 3) to train people in natural resource management**

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- dune stabilization
- management of water catchment areas
- draft animals
- biogas



Rural development activities

- . improved agroforestry techniques**
- . adobe houses to avoid use of wood**
- .**
- . improved wood-burning stoves**
- . tree nurseries for reforestation**

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- wind power
- animal husbandry
- terracing
- first aid training



- tourism falls
- no flights and still travel advisory-tourism still down
- but, once the conflict left the Reserve area local people restart the project



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Tuareg Rebellion

- . **1991**
- . **Civil war between Tuaregs and government**
- . **The T-line**
- .
- . **1992 Director of Air Tenere Conservation and Development Project was kidnapped**

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Recommendations

Conservation and Development Projects

-
- **Conservation and protected area management works best if local people are included in the plan from the beginning**
-
- **Is this a model? - low population density**

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My Role in Uganda.....

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What can be changed?

- Agricultural Reform: diversification
- Geographical Modeling (Chaos Theory)/Transition Theories: better prediction
- World Bank/NGOs: will their reforms work?
- Gender Reform
- World Systems Reform
- Time

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- HIV/AIDS Perinatal Study: The Mother-Loan Program
- Income Generating Activities (IGAs): On a local and global scale, what can they do ?
- What is the meaning of progress, anyway?
- Will Western Models work?

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Economic Transitions: A century of change

- . **Colonialism: Uganda moves into the World money market economy and experiences an increase of exports from 140 pounds (1908) to 63, 900 pounds (1965)**
- . **Independence: Boost in Economy**
- . **Idi Amin: Social and Economic destruction**
 - o Economy sunk 42% below its level in 1970
 - o Government expenditure, exports, and investment fell below 10% of the GDP
- . **Museveni: Economic revival?**

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UN estimates Uganda will maintain about 6% growth rate

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Composition of GDP

- . Agriculture is the most significant sector of the economy**
- . It employs 86% of the work force (World Bank)**
- . Agricultural products include: coffee, tea, cotton, tobacco, cassava, potatoes, corn, millet, pulses, beef, goat meat, milk and poultry**

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Exports

- . Uganda's exports include gold, cotton, coffee, tea, corn and fish**
- . Coffee is Uganda's major export**
- . Exports fell in the fiscal year 1989/1990 due to a decline in international coffee prices**
- . The UN estimates that exports will increase in the next decade due to reforms (tea, coffee and horticulture)**

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Tea Reform: Tea is now picked by a machine once a week.

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Problems: Economic Improvements?

I. Substantial increase in debt

- Debt services payments for 1996 amounted to \$184 million
- In 1995, Uganda's external debt was about \$3.4 billion

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II. Will debt relief and Structural Adjustment Programs (SAPs) help?

- Role of International Monetary Fund

-Purpose

-Problems

- Informal Labor Sectors: Are they included?

III. Issues of Diversity

- Environmental Overuse
- Employment: 86% of people are employed by Agricultural industry
- Agriculture is 99% of export revenue

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Measures of Health: Mixed Messages?

- Life expectancy at birth: 39.69 years
- Maternal Mortality: between 550-1000 deaths per every 100,000 births; Urban: 20 times more than Western; Rural: 60 times more than Western
- Immunizations: comparable to the U.S. rate for 1 year olds fully immunized
- Preventable Disease: HIV/AIDS, TB, Measles, Cholera, Polio etc.
- Access to Sanitary Water: One of the lowest in the world
- Infant Mortality: improved from 133 to 88/1000

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Infant Mortality Around the World

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Preventable?

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Demographic Transitions: improving?

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Total Fertility rate: 6.52 children born/woman

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Status of Technology

- 2.83/100 have access to telephones
- 80% of telephone access is in Kampala
- Internet capabilities; cellular phones
- Transportation: train, planes and automobiles
- TV: 193,000
- Problems: access and quality is unequally distributed

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- 4 Tier Model instituted by the British
- Issues of opportunity for class, location and gender
- In 1992-3, 1/3 of all children b/w 6-12 were not enrolled in school; 10% of those who do enroll in primary school drop out
- 61.8% of total population can read and write (age 15 and over)
- Free Primary Education?

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- Economic situation: are the current improvements really beneficial?
- Varying control over infectious disease
- Demographic improvements but may be due to disease
- Technology varies and is unequally distributed
- Literacy and education improving but little money is available

How is Uganda Stuck in Transition...?

Stuck in Transition

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Theories and hypothesis: why is Uganda stuck in transition?

- Internal unrest: political and cultural disruption
 - cultural clash
 - gender inequality
- Post-colonial nation: inequalities b/w groups
- World-wide inequality
 - World Systems Theory: hegemonic order of the world
- Mealow et al. (1992)

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Policy and reform suggestions

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LEWIS N. GARVIN

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EDUCATION UNIVERSITY OF MICHIGAN Ann Arbor, MI

Schools of Business Admin. / Natural Resources & Environment

Master of Business Administration / Natural Resource Policy, May 2000

- Emphasis in Environmental Corporate Strategy
- Candidate for Graduation with High Distinction
- Recipient of University of Michigan Merit Scholarship
- Scored in top 2% on GMAT (720)
- Elected President of Students for Responsible Business club
- Selected for Diversity Dinners Steering Committee
- Created business plan for Israeli technology start-up company

UNIVERSITY OF CHICAGO

Chicago, IL

Bachelor of Arts in Mathematics with General Honors, June 1993

- GPA: 3.8 / 4.0, Dean's List each of four years
- Phi Beta Kappa, Sigma Xi, National Merit Scholarship, Student Marshall

EXPERIENCE Summer 1998

MONSANTO

St. Louis, MO

Sustainable Development Sector Intern

- Coordinated efforts of 25-person cross-functional team working to identify where Monsanto can make strong contributions to sustainable development.
- Wrote "Opportunities in Sustainable Development," giving team members an overview of relevant environmental, demographic, and health trends.
- Created presentation showing business benefits of the pharmaceutical division's involvement which gained approval from top management.

1993-1997

ANDERSEN CONSULTING

Experienced Consultant, 1996-1997

Chicago, IL

- Developed framework to prioritize needs for oil terminal company's four-year technology strategy. Conducted interviews with client managers to define technology needs.
- Analyzed solution alternatives for \$6-10 million order fulfillment system. Evaluated costs, benefits, and impacts to business processes.
- Supervised five consultants and organized work of 11-member client team during order fulfillment system analysis.
- Led four all-day client team meetings with other pipeline companies to analyze order fulfillment systems and business processes.

Consultant, 1995-1996

Chicago, IL

- Designed and installed reporting application and datamodel for marketing and sales data for use by 100 users at pharmaceutical company.
- Created new strategies for using DSS Agent development software and shared expertise with client personnel and Andersen project teams worldwide.

Analyst / Experienced Analyst, 1993-1995

Chicago, IL

- Supervised six-person team during development of on-line auditing and financial reporting applications for trust bank.
- Led two project quality committees which developed mentoring program for project's 100 members and contest to solicit improvement ideas.

ADDITIONAL

- Ranked as "Outstanding" relative to peers during two out of three annual reviews with Andersen Consulting.
- Hiked over 700 miles on Appalachian Trail, Summer 1993.

January 1999

Lewis Garvin - Monroe Street Journal Articles

I have written several articles for the Monroe Street Journal (the Michigan Business School newspaper) since I began school in 1997. In the future, links to each article will be included below.

For now, you can find my articles by searching under my name in the MSJ Online archives.

[Monroe Street Journal Online](#)

[Return to Home Page](#)

Lewis Garvin - Research Projects

The following links show two examples of research I have performed in the School of Natural Resources and Environment.

SNRE 545: Population Environment Dynamics

[Two Birds With One Loan:](#)

[The Grameen Bank's Impact on Population Growth in Bangladesh](#)

SNRE 562: Resource Policy and Administration

[Biodiesel Legislation Political Analysis](#)

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- **Endangered fauna:**

- Addax and Dama gazelle
- Oryx

-

- **Other flora and fauna:**

- cheetah, slender horned gazelle, ostrich, fennec, wild olive, wild sorghum

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-
-
- **any activity harming flora or fauna**
- **entrance**
- **circulation**
- **camping**
- **residence**
- **flying at low altitudes**

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-
- **dune stabilization**
- **management of water catchment areas**
- **draft animals**
- **biogas**

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-
- **wind power**
- **animal husbandry**
- **terracing**
- **first aid training**

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-
- **tourism falls**
-
- **no flights and still travel advisory-tourism still down**
-
- **but, once the conflict left the Reserve area local people restart the project**

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