

Ford Urban Mobility Networks: Providing Solutions to Social and  
Environmental Problems in Slums of Sub Saharan Africa

by

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## Abstract

Although Sub Saharan Africa (SSA) is often viewed as predominantly rural, it is one of the most rapidly urbanizing regions of the world. SSA has one of the highest proportions of its urban population living in slums, as slums absorb most of this rapid urban growth. Since slums are often situated on the periphery of cities, transportation is a serious problem and contributes to the poverty of slum dwellers. By creating efficient, integrated transportation systems, New Mobility has potential to be one solution to the urbanization of poverty, as New Mobility systems increase an individual's accessibility to transportation solutions through highly integrated, environmentally sound, and socially equitable multi-modal transportation.

This project seeks to understand the unique characteristics of slums in Sub Saharan Africa and to determine in what form, to what extent, and under what conditions Ford Urban Mobility Networks (FUMN) are a feasible business. The New Mobility Business Model is adapted to SSA by focusing on accessibility and partnerships, in particular between Accessibility Partners (transportation and IT providers categorized by their ability to access a slum) and Support Partners (who provide other aspects of the New Mobility value network).

Determining the feasibility of providing FUMN solutions to a particular slum is achieved through a Market Assessment process, and determining how best to provide such solutions is achieved through Market Penetration Strategies. The Market Assessment involves using the Slum Evaluation Matrix and Business Scenario Guide to determine a likely Business Scenario for a given slum. The Slum Evaluation Matrix comprises 35 Indicators evaluated by risk and opportunity in 7 Categories, including Stability, Institutions, Infrastructure, Economy / Employment, Environment, Education and Health. The Business Scenario Guide allows FUMN to determine the likely Business Scenario, which are Profitable, Participatory, and Philanthropic. The Market Penetration Strategies involve co-creating custom solutions within the slum, building effective partnerships, and leveraging FUMN's competitive advantage when doing business in the "Badlands."

## Acknowledgements

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We thank Professor Tom Gladwin for teaching us to think systemically and view the world through an integrated lens of complexity with a focus on the most pressing issues of our generation. Professor Gladwin inspired us to tackle a problem that has never before been examined, challenged us to create innovative solutions and supported our efforts to focus on the social aspects of sustainability.

We thank Mr. David Berdish for providing us the opportunity to apply our education to an important, real-world problem. Without his passion and drive to move Ford forward into this critical new sector, this project would not have been possible. Dave motivated us to think creatively about how his company can achieve a triple bottom line objective while working soulfully within the “Badlands.”

We thank Jojo Amonoo for his creativity and patience in creating beautiful and informative Google Earth images.

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## Section 1: Introduction to Slums, New Mobility, and Ford Urban Mobility Networks

The purpose of this section is to introduce the concepts of slums in the context of urbanization, New Mobility, and Ford Urban Mobility Networks. An urbanizing world will be ubiquitous with slum growth and proliferation, particularly in the developing world. This trend is critical in the context of New Mobility, which seeks to provide integrated mobility solutions, since implementing New Mobility will require a tailored approach to serve slum populations. Previous Master's Project teams have identified New Mobility as a Blue Ocean Strategy for Ford Motor Company, which has led to the launch of Ford Urban Mobility Networks (FUMN) with pilot projects in India and South Africa.



Google Earth Image of the slums of Maputo, Mozambique

## Chapter 1. Introduction

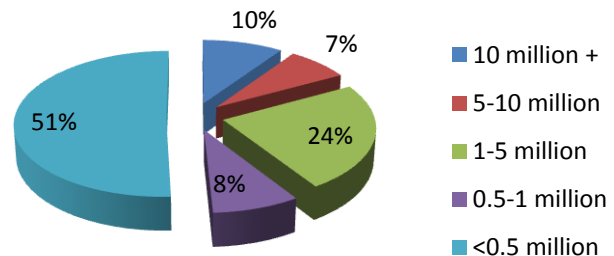
### An Urbanizing World

For the first time in human history, there are now more people in urban than rural areas than. The scale of urbanization is staggering; the 3.3 billion urban dwellers in 2007 will grow into 6.4 billion people by 2050<sup>1</sup>. By 2030, 60% of the total world population will be living in urban areas. The implications of this growth are enormous, including the fact that the world will have to build seven new megacities (10 million people or more) annually in order to accommodate this rapid urban growth<sup>2</sup>.

Most of this urbanization will occur in developing countries, with Asia being the major contributor (an increase of 1.8 billion), and Africa coming in a strong second (an addition of 0.9 billion people)<sup>3</sup>. While most of the increase in population is occurring in urban centers, the proportion of urban dwellers is still smaller in developing countries than in developed countries. This, however, is expected to change as soon as 2019<sup>4</sup>. Considering most of all world population growth is occurring in developing regions, the aforementioned urbanization trends mean that population growth is now a largely urban phenomenon.

Despite the fact that megacities often get more attention, the majority of urban growth will actually be concentrated in small cities (less than 500,000 inhabitants) (see Figure 1). It is expected that nearly half of the increase in urban population will be absorbed in these small urban areas.

Figure 1. Percent Distribution of Population by Urban Area in Less Developed Regions in 2025



Source: 2007 World Urbanization Prospects, United Nations

### The Growth of Slums

Considering that the overwhelming amount of urbanization will occur in developing countries that lack the institutional capacity as well as the resources to plan for growth, it is perhaps no surprise that an urbanizing world will mean a world full of slums. Half of the projected urban increase is expected to occur in slums, increasing from 32% of world total urban area in 2001 to 41% in 2030<sup>5</sup>. Projections indicate that the number of people in need of housing, basic infrastructure and services will be 2.825 billion in 2030. In other words, 2,580 houses will need to be built per hour<sup>6</sup>. The problem is on such a global scale that Target 11 of the Millennium Development Goals is to “have achieved a significant improvement in the lives of at least 100 million slum inhabitants” by 2020.<sup>7</sup>

Slums are a phenomenon that varies by city, region, and country. While the term “slum” has a predominately negative connotation in the English language, this is not universally true. Globally, the term slum refers to many different types of settlements which may be either illegal or informal. Illegal generally refers to squatter settlements that occupy an area without the right to be on or use the land or to settlements where the layout or type of housing may not have been given formal consent. Informal generally refers to well-established settlements in areas where the process of registering title to urban land and obtaining permission to develop it is a relatively recent introduction. Urban areas of African cities are predominately informal<sup>8</sup>.

The United Nations Human Settlements Programme (UN-HABITAT), the UN agency that deals primarily with slums, defines a slum as a settlement that has one or more of the following characteristics<sup>9</sup>:

- Inadequate access to safe water
- Inadequate access to sanitation and other infrastructure
- Poor structural quality of housing
- Overcrowding
- Insecure residential status

While this term helps operationally to track the slum phenomenon, at times it is only marginally useful because there is often no indication as to the degree of deprivation experienced by the communities<sup>10</sup>. For example, a household that experienced overcrowding but none of the other characteristics would be indistinguishable from a household that had no access to water, sanitation/infrastructure, quality housing, or secure residential status. In general, information about slum households is lacking in many or most developing areas<sup>11</sup>.

### *Slums in Sub Saharan Africa*

Despite the fact that Sub Saharan Africa (SSA) is the least urbanized region in the world, it already has an urban population as large as the urban population of North America<sup>12</sup>. Unlike many other regions in the world, urbanization in SSA is synonymous with slum growth; 72% of the region’s urban population lives in slums<sup>13</sup>. This trend will continue, as slums will absorb 208 of the projected 290 million additional African dwellers<sup>14</sup>. This is partly a result of continued poverty in African economies, but it is also a result of ineffective urban planning<sup>15</sup>.

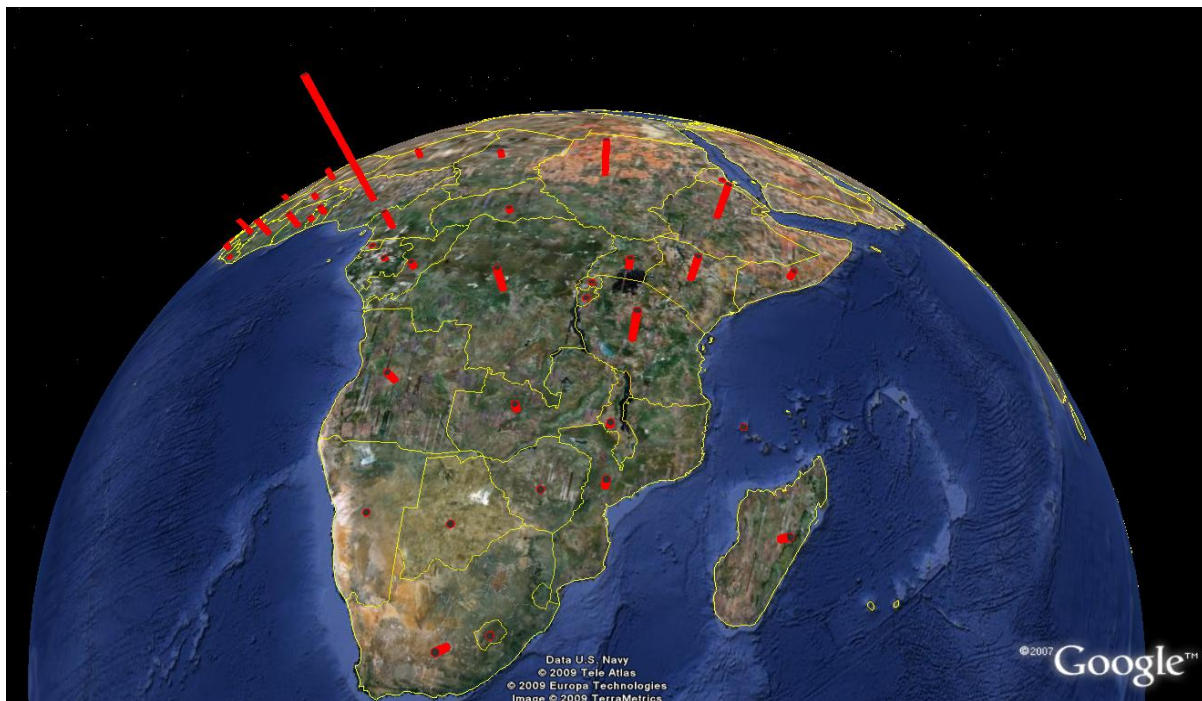
## Trends in Sub Saharan African Slum Growth

While much city-level data is close to non-existent in Africa, there are many emerging trends in the region.

### *Slum Growth and Expansion*

- Cities are expanding rather than densifying. In a study of ten different African cities of varying regions and sizes, all were expanding geographically, at times even faster than the population growth. Informal settlements accounted for most of this greenfield expansion<sup>16</sup>.
- The majority (67%) of urban/slum population growth will occur in cities with less than 500,000 inhabitants<sup>17</sup>.
- Rural-urban migration is a relatively small component of urban population growth. Most growth is occurring from within cities.

Figure 2. Google Earth Image of Slum Populations in Sub Saharan African Nations





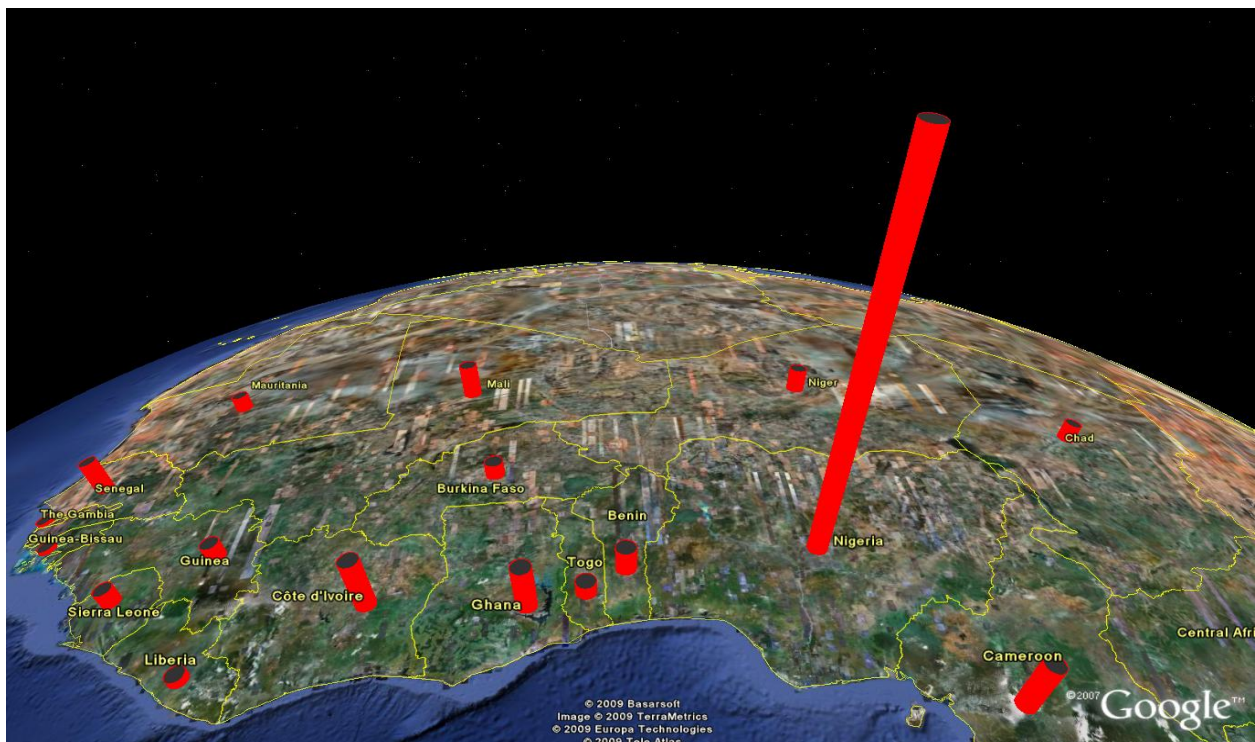
### *Slum Growth by Region*

African slum populations are unevenly distributed, with urban clusters around coasts, along rivers, and near lakes.

#### *West and Central Africa*

- The coast of West Africa has large areas of high-density settlements, especially by the coast. It is also the most mobile region, with an overall trend of increased migration south or to the coast.
- 7 of 25 West/Central African countries have more than half of their population living in urban areas. The entire region is expected to have an urban majority by 2025<sup>18</sup>.

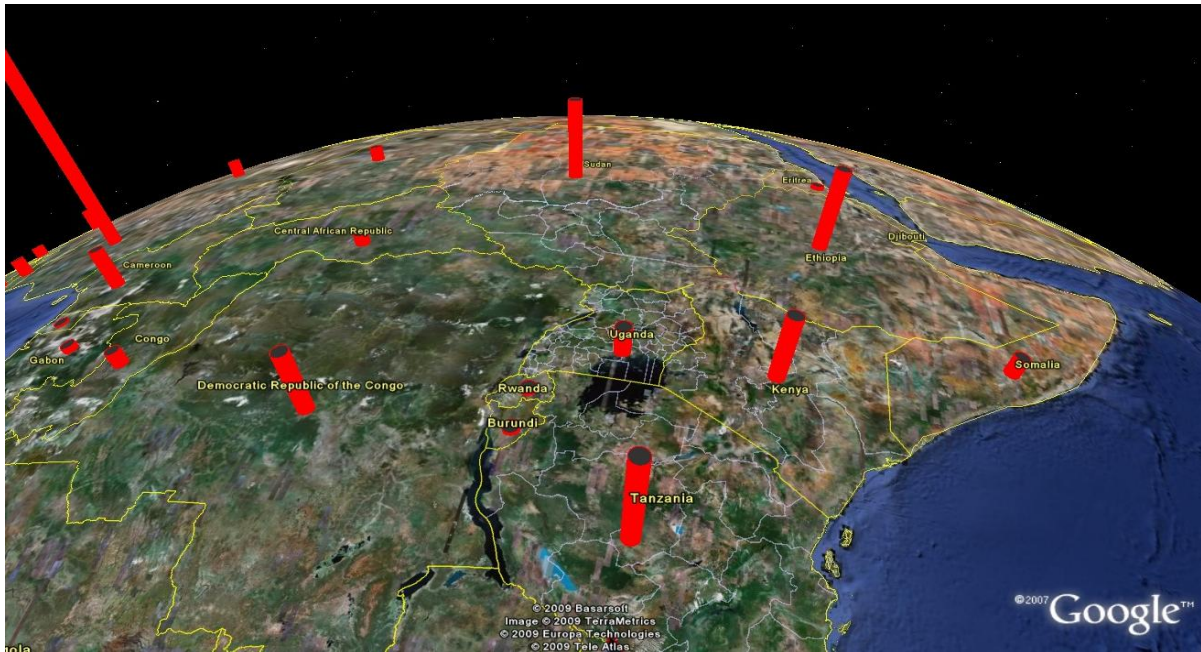
Figure 3. Google Earth Image of Slum Populations in Western Africa



#### *Eastern Africa*

- Eastern Africa is the least urbanized region of Africa but is rapidly urbanizing.

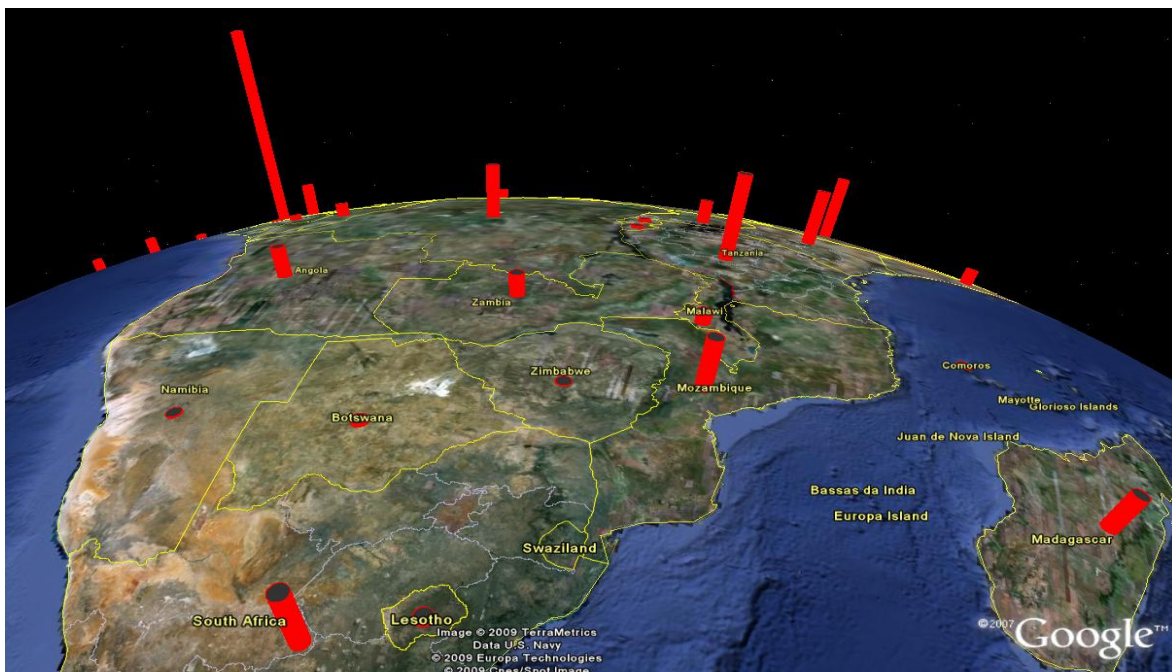
Figure 4. Google Earth Image of Slum Populations in Eastern Africa



*Southern Africa*

- Southern Africa has high rates of urbanization but the annual rates of urbanization are declining<sup>19</sup>.

Figure 5. Google Earth Image of Slum Populations in Southern Africa



### *Slums and Development*

- Slums bring increased private costs to individuals in the form of missed opportunities, spatial mismatch, health costs, inaccessibility to education, etc., which contributes to individual poverty<sup>20</sup>.
- Service delivery in small and medium cities (where most of the total slum populations are centered) is significantly poorer than in big cities, with detrimental effects on development<sup>21</sup>.

### *Demographics*

- Women-headed households are becoming increasingly prevalent (30% or more of total households in urban low-income settlements) in parts of Africa<sup>22</sup>.
- Senior citizens are currently located predominantly in rural areas, but this is expected to change before 2020<sup>23</sup>.
- Slum populations are overwhelmingly young. There is a youth bulge in slum populations, where 60% of all urban dwellers will be under the age of 18 by 2030.

### *Education*

- Providing education must become a priority considering that slum populations are predominantly young.
- Girls are less likely to be in school in African slums, either because of safety issues or because families do not have the resources to send them<sup>24</sup>.
- Schools may refuse to register slum children because of their slums' lack of legal status<sup>25</sup>.
- The quality of education in slums is generally significantly inferior to non-slum schools<sup>26</sup>.

### *Health*

- The lack of access to water and toilets is a significant contribution to high child mortality rates in African slums.
- Half of all new HIV infections occur in young people (age 15-24), particularly for girls. The high density of young people in slums is likely to exacerbate this trend<sup>27</sup>. The insanitary nature of slums is also likely to contribute to AIDS deaths as a result of a compromised immune system.



## *Economics*

- Not everyone who lives in a slum in Africa is poor. There is great heterogeneity among incomes of slum residents.<sup>28</sup>
- Urban economies in areas dominated by slum settlements are synonymous with informal economies, which can employ 60% of the urban labor force. Informal employment is comprised of both self-employment in informal enterprises and wage employment in informal jobs. Self-employment represents about 70% of informal employment in Sub Saharan Africa<sup>29</sup>.

## **Climate Change in Sub Saharan Africa**

There are huge environmental justice implications for Sub Saharan Africa relating to climate change. Although Africa has contributed the least to climate change by emitting fewer greenhouse gases per capita than any other region, it is the most vulnerable to climate change impacts because of its fragile or degraded ecosystems, widespread poverty, and limited capacity to adapt<sup>30</sup>. This is truly a case of the developing world paying for the excesses of the developed world.

The least-studied aspect of climate change is the trend of climate change refugees, or migrants who must emigrate either directly (either because of environmental disasters or the degradation of ecosystems) or indirectly (such as refugees from a conflict linked to failing environmental systems) as a result of the effects of climate change. During a press conference, Anna Tibaijuka, the Under-Secretary-General and Executive Director of UN-HABITAT, stated that about one-third of the urban poor were “environmental refugees” as a result of climate change in places like Africa where pastoral systems were no longer economically viable<sup>31</sup>. Since most of the incoming migrants to urban centers are absorbed by slums, climate change impacts will be a significant contribution to the growth of slums in SSA.

The effects of climate change will be felt in cities across SSA. Perhaps most importantly, rising sea levels put much of the population at risk, particularly on the West Coast of Africa where several large cities such as Accra, Lagos, and Abidjan are located. Climate change will also impact urban populations in terms of increased hazard from tropic cyclones, increased risk of flooding and landslides, heat and cold waves, and negative impacts on urban water quality and storage<sup>32</sup>.

Slums specifically are at great risk to climate change impacts, since many are built in high-risk areas such as steep hill slopes, deep gullies, or flood prone areas<sup>33</sup>. The poor structural quality of the housing also makes them susceptible to weather conditions associated with climate change.

## **Deep Sustainability: the Importance of Sub Saharan African Slums**

We decided to focus on the region of Sub Saharan Africa for several reasons. The problems facing the continent are numerous, complex, severe, and likely to be exacerbated by the effects of climate change. The logical companion to a problem or a risky situation, however, is an opportunity waiting to be seized. The problems facing the continent can therefore be looked at as opportunities for positive change if the potential of the continent is leveraged appropriately. It is absolutely clear that Sub Saharan Africa cannot be ignored or brushed off as a hopeless situation. The world cannot ignore a continent facing dire poverty for both moral as well as self-interested reasons. In an increasingly inter-connected world, the problems of some always become the problems of many, whether directly or indirectly.

If the situation and trends of Sub Saharan Africa are well understood, New Mobility solutions in Africa can represent an untapped market and a profitable business as well as an opportunity to make a difference on both a social and environmental level. It is the attempt of this project to understand as much as possible the risks and opportunities of starting a social enterprise in Sub Saharan Africa and make every possible attempt to recommend strategies for a successful business with a focus on helping the poor.

While the social aspect of the triple bottom line (or sustainability in general) is often secondary to the environmental aspects, we propose that a focus on social environmental justice is crucial to achieving a sustainable world, regardless of how the word “sustainable” is defined. While creating a low-cost electric car and a zero emissions electric grid is a step towards sustainability, it will not matter if a third of the world’s population does not have enough to eat or if millions of youth do not have an education or a productive outlet for their talents. No amount of technological innovation will matter if the majority of the world has to make the decision between feeding their family and conserving their natural resources. Therefore, in any endeavor there should be an emphasis on *Deep Sustainability*, where the social and environmental sides of sustainability are intricately intertwined, and you cannot speak of one without implicitly considering the other. The focus of our project is on Deep Sustainability in Sub Saharan Africa, which focuses on solutions that work to empower the poor and give them opportunities, rather than charity or aid. These opportunities will be provided in an equitable and environmentally sustainable way through New Mobility.

## New Mobility: One Solution to the Slum Crisis

New Mobility is a new way of thinking about transportation, wherein the purpose of the transportation system is not to increase the number of cars on the road but rather to increase an individual's accessibility to transportation solutions through highly integrated, environmentally sound, and socially equitable multi-modal transportation. The New Mobility industry focuses on more than simply manufacturing cars; rather, it aims to integrate everything involved in the transportation sector, such as Information Technology (IT) and geomatics, energy and utilities, logistics, real estate and design, finance and venture capitalism, and retail, tourism, and new entrepreneurial services<sup>34</sup>. While New Mobility (NM) has traditionally focused more on the movement of people and goods (i.e., mobility), there is a growing trend of placing more emphasis on accessibility and information dispersal (i.e., information technology services).

New Mobility originated in Bremen, Germany, and its solutions have been adopted in many other cities of the developed world. Bremen's integrated transportation system includes elements such as the following:

- Multi-modal hubs linking transit, cycling, car sharing, and taxis
- Car sharing services and residential developments with built-in car sharing
- Traffic calming to favor bicycles
- Bike and ride facilities
- Intelligent tramways
- An integrated smart card for transit, car sharing, and banking
- An integrated central station for all modes
- One umbrella organization for all 35 transit operators in the region<sup>35</sup>.

New Mobility is a relatively recent idea and has only been selectively adopted by developed countries. We believe that, if correctly adapted to the developing world, New Mobility solutions can make a significant impact on the urban poor.

Since transportation is rarely seen as a significant constraint to lifting a person out of poverty, international policies that aim to reduce poverty in the developing world, such as the Millennium Development Goals, tend to ignore it completely except in terms of building more roads to facilitate commerce. This is contrary to reality in many cities; the poor in Harare, Zimbabwe, for example, spend an average of 70 minutes per day traveling, compared to 55 minutes for the wealthy<sup>36</sup>. It is not uncommon for the poor to spend between 25-35% of their disposable income on transportation. This average is likely to under-represent the travel burden on the working poor since it does not take into

account the fact that many urban poor are elderly, children, women taking care of children, disabled, or otherwise not working regularly, and therefore spend no time on long-distance commuting<sup>37</sup>. The problem is so great that the World Business Council on Sustainable Development (WBCSD) observed that “lack of access to transportation and information are both symptoms of poverty and key factors in keeping families, communities and nations poor”<sup>38</sup>.

New Mobility seeks to increase information dispersal and decrease transportation inefficiencies by creating an integrated system. In the developed world, these benefits translate to the user wasting less time and enjoying the transportation sector more. In the developing world, the benefits mean that the poor can access transportation to find jobs, use less of their disposable income on transportation solutions that are minimally effective, and significantly reduce long travel times. In other words, a New Mobility integrated transportation system that effectively serves the poor can be one factor that reduces the burden of poverty on slum-dwellers.

## **Chapter 2. Introduction to the Business Case for Ford Urban Mobility Networks (FUMN)**

### **Ford Motor Company and New Mobility**

Having identified New Mobility as a Blue Ocean Strategy with the assistance of the 2005 SNRE master's project team, Mr. David Berdish of Ford Motor Company's Sustainable Business Strategies Division has continued to pursue New Mobility as a new business venture for the corporation. As described in the 2006 master's project team report, New Mobility has the potential to successfully address a variety of issues from a business perspective, especially for an automobile company such as Ford. The team found that "huge business and profit potential exists for any company that is able to access, understand and adequately serve this market, whether by providing new mobility services, or by acting as the facilitator and integrator of new and existing mobility options<sup>39</sup>." Additionally, increasing societal expectations that companies exhibit Corporate Social Responsibility in their operations coupled with growing concern for the negative environmental impacts of individually-based transportation systems provide great opportunity for Ford Motor Company to lead the way toward more sustainable mobility solutions.<sup>40</sup>

During the University of Michigan's SMART New Mobility Conference in June 2008, Ford's Executive Chairman and Chairman of the Board of Directors, Mr. William Clay Ford, Jr., announced that the company is developing "Ford Urban Mobility Networks." Ford Urban Mobility Networks (FUMN) will link a variety of transportation modes, services and information technologies to provide consumers with an integrated, highly accessible system of mobility options. Ford's primary role in the development and operation of these networks will be convener of the various public, private, non-profit and non-governmental organizations that will partner to create these mobility solutions.

### **The Business Case: A Ridership and Partnership Business Model**

While FUMN will be a novel business venture, there are some existing models of ridership and partnership based mobility businesses. Mr. Berdish has identified an existing business model that is, indeed, earning substantial profits by providing integrated mobility solutions to a large market. The Hong Kong Octopus consists of an electronic payment system that utilizes a contactless, stored-value smart card. The Octopus Card provides users access to a variety of public transportation services, including railways, buses, ferries, taxis and trams<sup>41</sup>. Octopus Group, the corporation that owns and oversees the operations of the Octopus system, earns one percent of all Octopus ticket sales. With ten million transactions per day, these earnings amount to \$3.7 billion annually for Octopus Group<sup>42</sup>.

This revelation led to thoughts of replicating aspects of the Octopus model and adapting it to FUMN's goals, capabilities and partnerships. Specifically, the development of FUMN as a corporate entity separate from Ford Motor Company is predicated on the assumption that the organization and its partners will earn royalties of one percent of increased ridership ticket sales of transportation service providers who decide to become partners in the system. A second important assumption is that the potential for increased ridership is a primary and highly motivating incentive for transportation service providers to enter into such a partnership. For example, in Cape Town, South Africa, public bus lines are currently operating at 50 percent of their available capacity<sup>43</sup>. The operators of these bus lines have already confirmed that if FUMN can help attract riders and decrease excess capacity on bus lines, they are more than willing to enter into a partnership through which FUMN and its partners receive a percentage of the profits from the increase in ticket sales.

One of the most important aspects of FUMN's proposed business model is that it fundamentally relies on the integration of partnerships across and among sectors. Ford's role as convener, or integrator, will be to bring together representatives from a broad array of organizations to assess a given metropolitan area and collaborate on systemic mobility solutions that will address the unique and specific needs of that area. The organizations involved in creating such a dynamic, multi-partnered collaborative will be different for each metropolitan area, but are likely to consist of transportation service providers, information technology product and service providers, financial service providers, energy and utility companies, governmental agencies, non-governmental organizations (NGOs) and non-profit organizations. While these organizations have diverse interests that will draw them to FUMN, it is the multi-faceted nature of the problem at hand that will allow them to design effective, systems-based solutions.

### **FUMN in the Developing World**

With intentions to expand Ford Urban Mobility Networks (FUMN) to regions throughout the developing world, including pilot projects already underway in Bangalore and Chennai, India, and Cape Town, South Africa, the need emerged to gain a better understanding of the unique circumstances that FUMN will encounter in the developing world. Additionally, in recognition of the megatrends described in the previous chapter, our master's project team identified an important reality of pursuing a business such as FUMN in the developing world: much of the urban population FUMN hopes to serve will be living in

slums. This realization led to important questions regarding the unique needs and circumstances of individuals living in slums, whether it would be feasible to serve those needs via New Mobility solutions, how FUMN would have to adjust its approach to work with the informal economy that dominates slums, and whether such an endeavor would be profitable for a company.

Sub Saharan Africa was chosen as an important region in which to examine these questions based on a number of alarming trends described in depth in Chapter 1. It was identified as a region in which Ford could leverage its unique strategic positioning as an internationally-located leader in Corporate Social Responsibility and human rights initiatives to make a significant positive impact socially and environmentally while potentially realizing profits. This trifecta of business objectives will constitute an endeavor with a triple-bottom line if FUMN is launched in a SSA market.

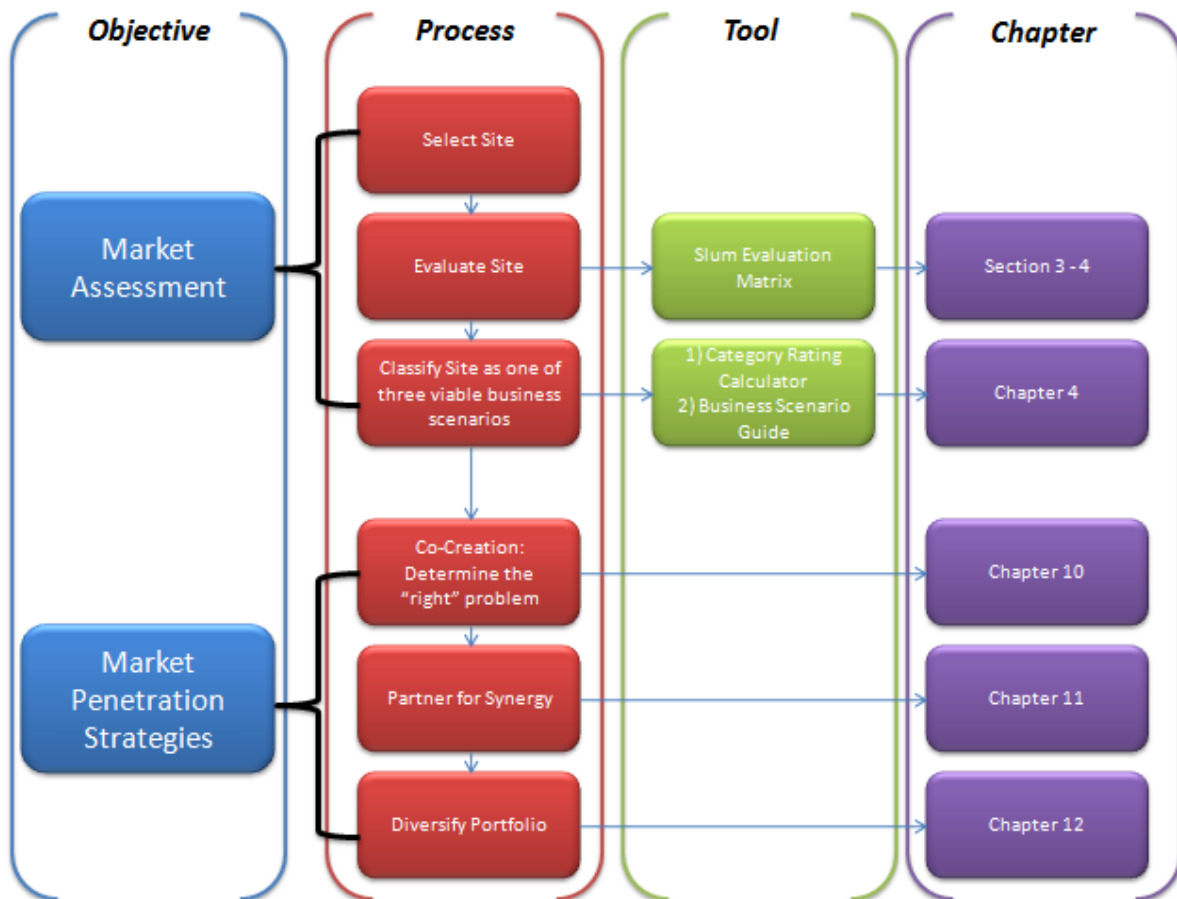
While our recommendations and market assessments are SSA-specific, it is important to keep in mind that they are likely to also be applicable to other regions. In many ways SSA is a worst case scenario since it is a region that combines poor governance, corruption, a prevalence of informal economies, insufficient infrastructure, and numerous other alarming trends. If a business can succeed in SSA, the strategies and lessons learned from a business in this region can no doubt be applied to developing countries in other regions of the world as well.

## Section 2. Objectives and Framework for FUMN in Sub Saharan African Slums

The overarching goal for this project is to aid FUMN in identifying smart investments and ideal partnerships while avoiding investing resources in unsuitable sites. In order to achieve this goal in the complex region of Sub Saharan Africa, the correct question needs to be asked: *Considering the unique characteristics of urban slums in Sub Saharan Africa, in what form, to what extent and under what conditions is New Mobility in SSA slums a feasible business for Ford?*

With this in mind, the purpose of this project is to provide both a market assessment as well as market penetration strategies for SSA urban slums in order to answer the above question. The processes and tools/strategies created to fulfill these objectives are detailed below and described visually in Figure 6.

Figure 6. The Processes and Tools that Fulfill the Market Assessment and Market Penetration Strategies Objectives





### *Market Assessment*

We have created tools to aid in the steps of completing a market assessment, which include 1) selecting a site, 2) evaluating the site, and 3) classifying a site of interest. These tools are a Slum Evaluation Matrix, Category Rating Calculator, and Business Scenario Guide, which will be introduced in Section 2 (chapters 3 – 4) and described in depth in Sections 3 – 4.

### *Market Penetration Strategies*

Once a slum site has been classified as a Business Scenario, we recommend that the process for market penetration consist of 1) co-creating solutions, 2) leveraging partnerships, and 3) diversifying FUMN's portfolio. Our project provides strategies for each of the steps in the process and identifies potential synergistic partners.

This section will discuss in depth how to adapt the traditional business case for New Mobility to SSA slums as well as detail our framework and methodology for completing a market assessment.

## **Chapter 3. Adapting the New Mobility Business Model to Sub Saharan African Slums**

### **Business Trends in Sub Saharan Africa**

It is necessary to comprehend the unique conditions and circumstances that will affect the expansion of FUMN business within Sub Saharan African slums. Putting the trends detailed in Chapter 1 into a business context, the World Economic Forum, the World Bank and the African Development Bank published the 2007 African Competitiveness Report in which they identify five themes that emerged from an analysis of Africa's competitive landscape<sup>44</sup>. The first of these themes emphasizes that African countries lacking sound policies with respect to supporting family enterprises, family dynamics, both male and female entrepreneurs, and high-quality educational systems are less likely to provide a sound business environment<sup>45</sup>. The second theme recognizes how significantly the general elusiveness of access to finance throughout Africa affects the limited success of business there<sup>46</sup>. Infrastructure is identified as the third theme, as it "remains one of the top constraints to business in Africa;" specifically, energy and transportation represent two of the greatest obstacles to increasing productivity and competitiveness throughout the continent. Within this theme, the report also cites the criticality of improving Africa's information and communication technologies infrastructure to improve the continent's likelihood of success in the global economy<sup>47</sup>. The fourth serious obstacle to doing business in Africa is the prevalence of corruption throughout much of African society<sup>48</sup>. The final theme recognizes that there are several examples of success throughout the continent, but also points out that Sub Saharan Africa lags behind in essential areas such as infrastructure and education<sup>49</sup>.

### **Adapting the New Mobility Business Model to SSA Slums: A Focus on Accessibility**

The conditions in SSA detailed in Chapter 1 and in the previous paragraph emphasize the importance of ensuring that appropriate, customized approaches are developed for implementing New Mobility solutions in Sub Saharan African slums. Additionally, in light of both the inherent reliance of transportation systems on infrastructure as well as the poor state of infrastructure in SSA, our team has concluded that the design of effective FUMN systems for the region must begin with the recognition that accessibility and mobility needs in SSA slums are very different from those in developed nations. In fact, in accordance with recent arguments regarding New Mobility research and conceptualization, mobility is actually of secondary concern to accessibility for individuals living in urban slums. Due to the realities of slum-living, which include both the tendency to be located on the periphery of metropolitan areas where land is cheapest as well as the common occurrence of solid-waste filled pathways (versus

hazard-free walkways or streets), people living in slums often have extremely limited access to any mobility services which may already exist.

To assist with the tailored approach of designing FUMN systems that will be effective in SSA slums, our team recommends focusing on accessibility, particularly with respect to the various partnerships that are essential to FUMN success. It is critical to note that our focus on accessibility, not only refers to vehicles serving slum dwellers, but also incorporates a slum dweller's ability to access information through IT systems. We have therefore developed terminology that facilitates such an approach.

### *Accessibility Partners*

*Accessibility partners* consist of transportation service providers, which include all types of transportation mode. They also consist of all types of IT services providers, ranging from cell phones to computer kiosks to integrated systems for payment. Depending on the level of accessibility a transportation or information service provider is capable of achieving within a slum, accessibility partners are classified accordingly.

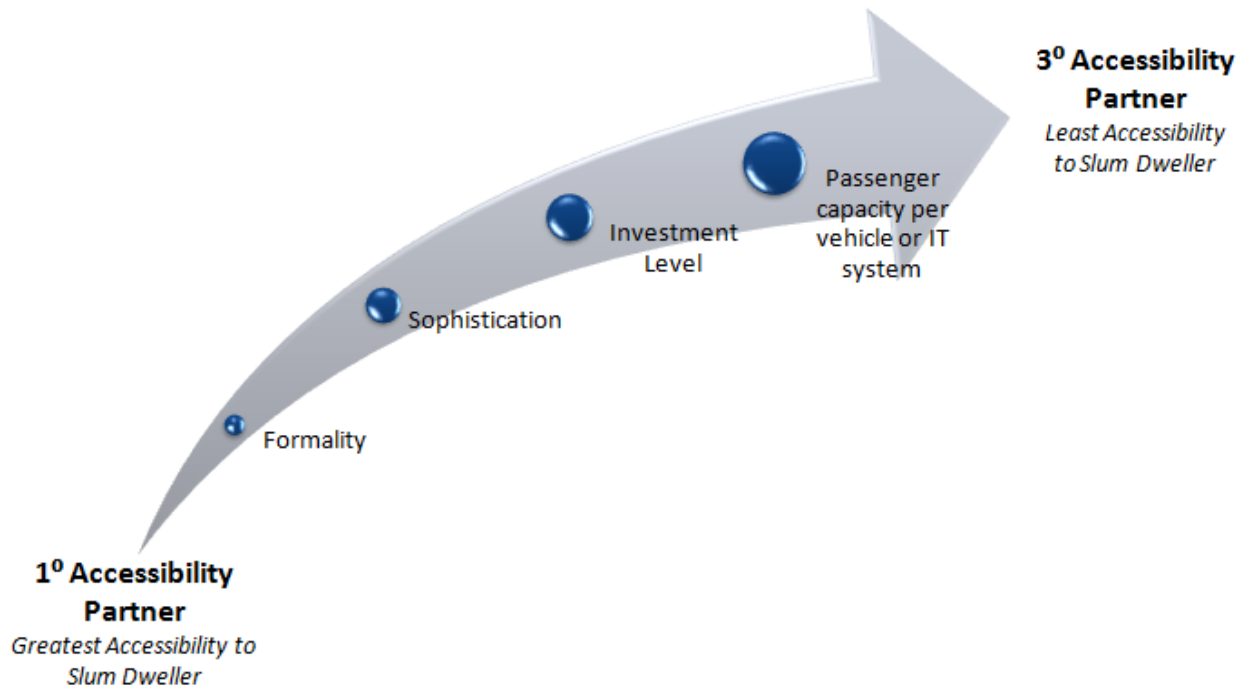
- *Primary*, or first degree, accessibility partners are those with the ability to reach the inner-most areas of a slum. Depending on the landscape and physical conditions of a given slum, an example of a primary accessibility partner might be a local bike-share company whose bikes are able to transport an individual to his or her residence within the slum. Similarly, this might include a cell phone service provider that is affordable for the average slum dweller.
- *Secondary*, or second degree, accessibility partners are those that cannot penetrate the slum deep enough to provide primary accessibility. Rather, an example of a secondary accessibility partner might be an entrepreneurial taxi company that is only able to reach central locations within or bordering a slum. Similarly, with respect to IT, this might incorporate centrally located hubs or kiosks that provide information about transportation providers.
- *Tertiary*, or third degree, accessibility partners, likewise, provide the next level of accessibility on this decreasing scale. To follow with this example, tertiary accessibility partners might consist of a bus line that provides transportation to and from the slum or a multi-modal, integrated smart card for payment, which require high levels of sophistication and investment..

While this example could be expanded upon to include additional modes of transportation and levels of accessibility, there are several important aspects of this accessibility hierarchy to keep in mind. First, it

is important to realize that a given level of accessibility can consist of multiple modes of transportation, multiple transportation service providers, as well as multiple information technology devices and service providers. *The defining aspect of a given accessibility level is simply the depth of its reach within the slum.* Second, within a FUMN system, each of these levels of accessibility will be integrated to link to one another. While in many cases, a primary accessibility partner will connect to a secondary accessibility partner and so on, it is just as likely that primary accessibility partners will link to tertiary accessibility partners. The key component is that the various levels of accessibility connect to one another to provide the integrated, seamless mobility solutions that FUMN aims to create.

Finally, it is useful to note that as accessibility decreases (primary being the highest level in the hierarchy), investment levels as well as the size, sophistication and formality of the businesses involved increase. In our example, this can be illustrated by recognizing that the primary accessibility partner (the bike-share company) is likely smaller and less sophisticated than the tertiary accessibility partner (the bus company), which might be owned by the city and which requires greater investment and sophistication to operate. This relationship is illustrated below.

Figure 7. Characteristics of Accessibility Partners as Degree Increases

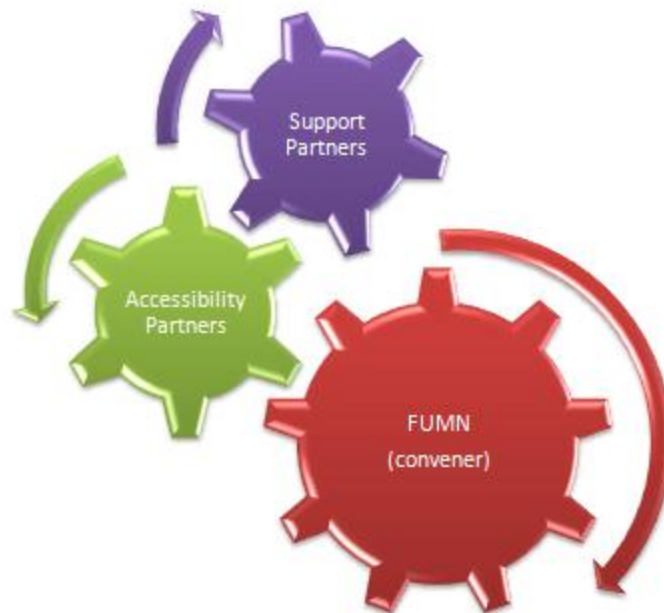


## Support Partners: Completing the FUMN Value Network

A final term that is useful when considering the wide variety of partnerships that will be involved in creating effective FUMN systems in slums is *support partners*. While accessibility partners are those that are integral to providing transportation within the FUMN system, support partners are those that supply all other aspects of the FUMN value network. It is likely that certain support partners are not interested in mobility per se, but would be interested in funding or providing expertise to a FUMN system because it would aid in achieving their primary objective, such as improving a slum community's access to education or health services. This complex partnership system will synergize different capabilities with the ultimate goal of servicing a bundle of needs. Support partnerships include, but are certainly not limited to the following: investors, IT product and service providers, real estate and design firms, local and central government agencies, multilateral institutions, energy and utility companies, non-profits and NGOs.

Using this terminology, FUMN's role as described in Chapter 2 will be to convene Support Partners and Accessibility Partners. Figure 8 below illustrates this concept.

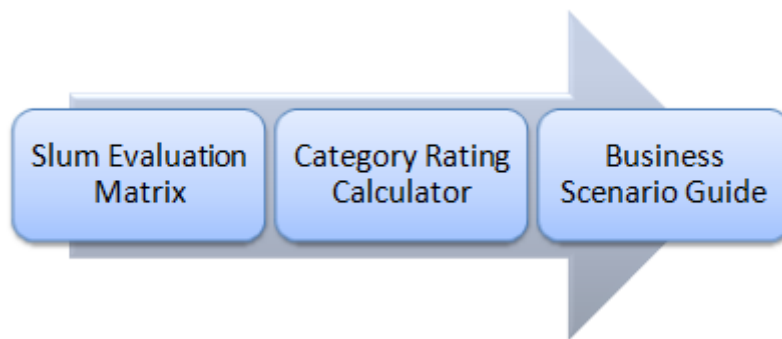
Figure 8. FUMN's Role as a Convener among Accessibility and Support Partners



The accessibility framework and emphasis on partnerships provide the foundation for the tools that we have created for completing a market assessment of a site of interest chosen at FUMN's discretion. These tools are described in the following chapter.

## Chapter 4. Market Assessment Process

This chapter describes, in detail, the step-by-step process through which Ford Urban Mobility Networks can conduct a Market Assessment, which will aid the company in determining whether to operate within a given slum and, if so, how to go about doing so. The following high-level process flow diagram depicts, in chronological order, each of the three major steps in this process; each step is named according to its respective process tool, which has been custom-designed to guide FUMN decision makers through this process.



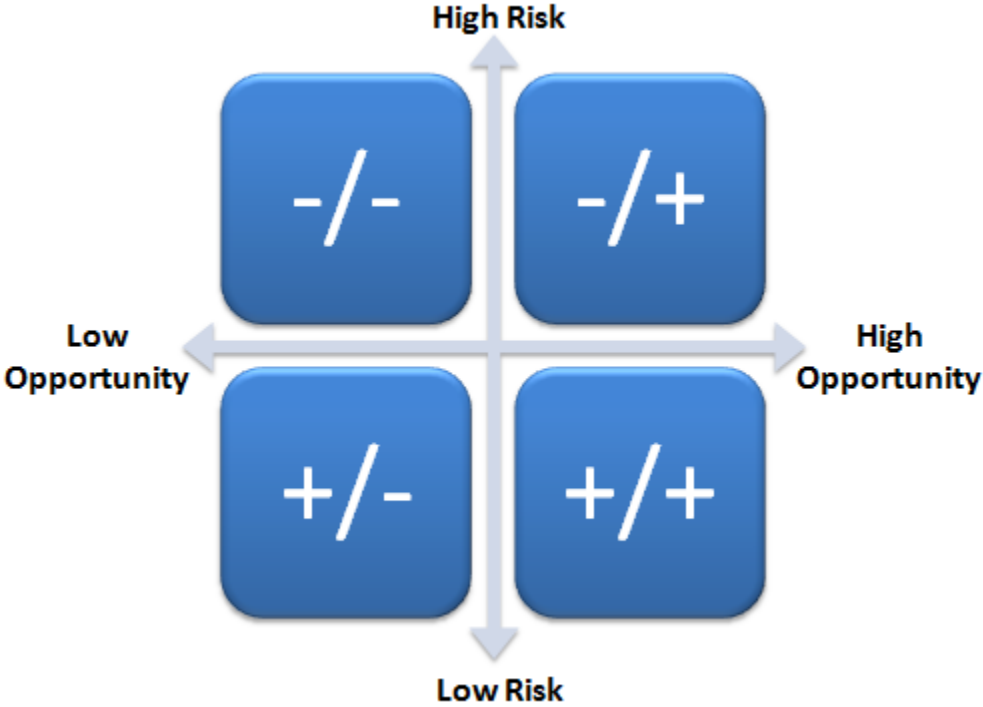
The tools created to conduct a Market Assessment are in the lens risk and opportunity as a result of the nature of doing business in an international environment. As noted by Professor Thomas Gladwin of the University of Michigan, a multinational corporation has to contend with differences such as new institutions, forces, and problems that require new policies, approaches, and techniques<sup>50</sup>. These differences will vary with degree as a result of dealing with the following conditions:

- *Environmental variability*, or the rate and predictability at which nations are changing
- *Environmental complexity*, which refers to how nations transmit information and interpersonal relations (either overt/explicit or covert/silent)
- *Environmental hostility*, which refers to the extent to which the goals of private enterprise are viewed as legitimate and acceptable
- *Environmental diversity*, which refers to how much culture, economics, and politics are shared in common between nations of the business and the prospective site
- *Environmental interdependence*, which refers to how tightly linked nations are via flows of communication, goods and services, people, and intergovernmental policies<sup>51</sup>.

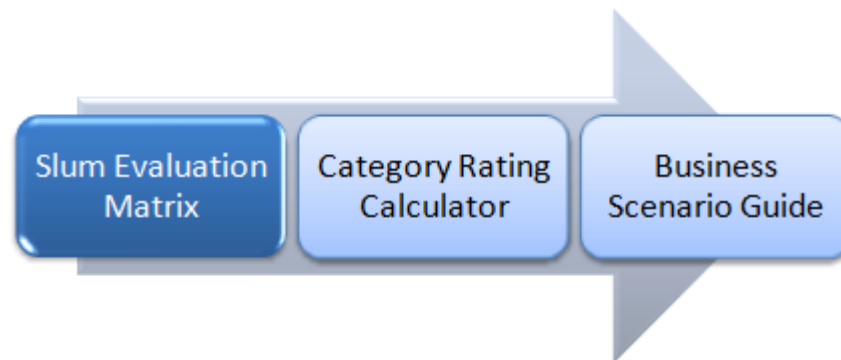
FUMN has the potential to be an enormous opportunity by the very nature of being a Blue Ocean Strategy. The natural compliment to opportunity is risk, especially if an inappropriate market is chosen. The degree of risk faced by a corporation in an international setting will ultimately depend on the degree of environmental variability, complexity, hostility, diversity, and interdependence.

When analyzing a market for its suitability, it is best to maximize opportunity and minimize risk. This relationship is depicted visually below. High Opportunity/Low Risk situations (+/+) are obvious candidates for market penetration, and High Risk/Low Opportunity are equally obvious “no-go” situations. High Risk/High Opportunity and Low Risk/Low Opportunity (-/+ and +/-, respectively) are situations with suitability that is much less obvious to the decision maker.

Figure 9. Risk vs. Opportunity Scenarios



## Step 1: Slum Evaluation Matrix



When considering a given slum as a region of potential business for FUMN, the first major step is to thoroughly evaluate the slum for its business potential in terms of risk and opportunity. The Slum Evaluation Matrix tool has been created based on extensive research and iterative systems thinking exercises to provide the template and methodology through which a slum can be evaluated to determine its associated risk and opportunity levels.

The Slum Evaluation Matrix consists of 35 carefully selected Indicators, which have been bundled into groups of five and placed within seven corresponding Categories.

The seven Categories are further bundled into two overarching Categories, which are 1) Fundamental Business Categories, and 2) Deep Sustainability Categories. Fundamental Business Categories contain Categories and Indicators that will directly affect FUMN's core business operations and include Institutions, Infrastructure, Stability, and Employment/Economy. As will be illustrated in Step 3, these Categories are most influential in determining a slum's business potential. Deep Sustainability Categories contain Categories and Indicators that reflect social and environmental conditions, particularly the Millennium Development Goals. While these Categories are very important to the evaluation of a slum as well as the determination of its business potential, they represent the broader social and environmental aspects of sustainability that are central to FUMN decision making. They will also be integral when considering which Support Partners are appropriate for select markets. Figure 10 below contains an overview of the Categories and Indicators included in the Slum Evaluation Matrix.



Figure 10. An Overview of the Slum Evaluation Matrix

Category		Indicators				
Fundamental Business Categories	Stability	Recognition by Government	Level of Corruption	Water and Food Shortages	Conflict	Crime Within Slum
	Institutions	Informal Trade Organizations	Prevalence of Entrepreneurship	NGO Presence	Slum Self-Organization	Access to Financial Services
	Infrastructure	Area of Accessible Roads Per Person	Existing IT Infrastructure	Rate of Slum Expansion	Existing Energy Infrastructure	Solid Waste Disposal
	Economy / Employment	Characteristics of the Informal Economy	Proportion of Income Spent on Transportation	Levels of Unemployment	Needs Met Within the Slum	Proportion of Population Living in Extreme Poverty
Deep Sustainability Categories	Environment	Toilets Per Person	Expected Influx of Climate Change Refugees	Greenfield Development	Water Access	Risk of Flooding as a Result of Climate Change
	Education	Proportion of Girls in School	Access to Secondary and Tertiary Education	Proportion of Population that are Students	Literacy Rates	Proportion of Population with Primary Education
	Health	Proportion of Population Chronically Undernourished	Malaria Rates	Access to health care / medications	HIV / AIDS Rates	Child Mortality Rates

Each of the seven Categories represents one segment (or mini-matrix) of the Slum Evaluation Matrix. Within each Category, its respective Indicators make up the vertical axis of the matrix. The horizontal axis consists of the following four risk and opportunity levels: High Risk / Low Opportunity, Low Risk / Low Opportunity, High Risk / High Opportunity, and Low Risk / High Opportunity. This horizontal axis is consistent across all seven Categories.

Using the Stability Category, here is an example of what the axes of one segment of the Slum Evaluation Matrix look like.

Figure 11. Axes of the Slum Evaluation Matrix

STABILITY	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Recognition by government				
	Level of corruption				
	Water and food shortages				
	Conflict				
	Crime within slum				

Within each Category, the inner cells of the matrix have been filled in to provide a qualitative assessment of what each of the four levels of risk and opportunity entail for each Indicator.

Again, using the Stability Category for illustrative purposes, below is a completed segment of the matrix.

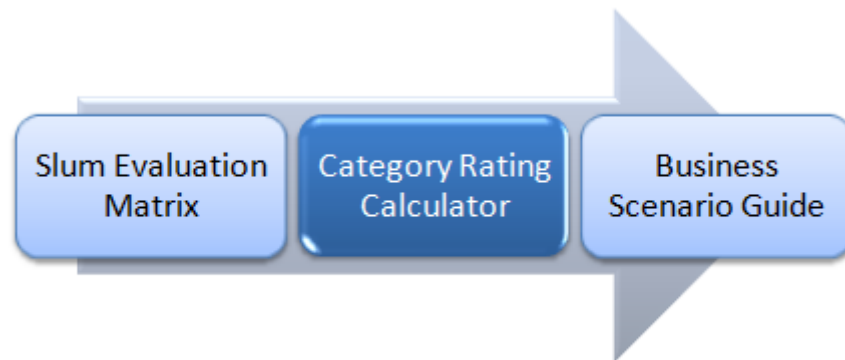
Figure 12. Qualitative Assessments of Indicators in the Slum Evaluation Matrix

STABILITY	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Recognition by government	Actively demolishing	Refusal to recognize	Recognized but ignored	Recognized and upgrading
	Level of corruption	Endemic at all levels of society	At high levels but business can still function		Low at all levels of society
	Water and food shortages	High risk of conflict resulting from current and future shortages	No current shortages, but likely as climate change effects are seen	Shortages are predicted and considerable public/private will to create efficient food/water supply systems	Site has well-planned food and water delivery/supply systems
	Conflict	High risk of political instability	A history of conflict (within past few decades) but recent political stability		A long history of peace
	Crime within slum	High rates of violent / organized crime	Mid-levels of crime (organized and theft), low levels of violent crime		Low levels of most types of crime

In evaluating a given slum, the evaluator will work through the Slum Evaluation Matrix one Category at a time. The first step is to identify where the slum falls within the Category for each of its five associated Indicators. Once identified, the evaluator “rates” each Indicator by placing an “X” in the appropriate risk /opportunity column associated with that Indicator. This step can be accomplished within the Category Rating Calculator (described below). After all five Indicators within the Category have been rated, the next step is to compare those ratings to the Threshold Line. Per the example above, the Threshold Line is the heavy blue line. This line acts as a preliminary screening guide; if any Indicator within a Category receives a rating that falls to the left of the Threshold Line, the slum under consideration presents a non-viable business scenario and should therefore not be pursued as a business venture.

Assuming that the slum being evaluated has no Indicator ratings that fall to the left of the Threshold Line, the evaluator moves onto the next step in the process.

## Step 2: Category Rating Calculator

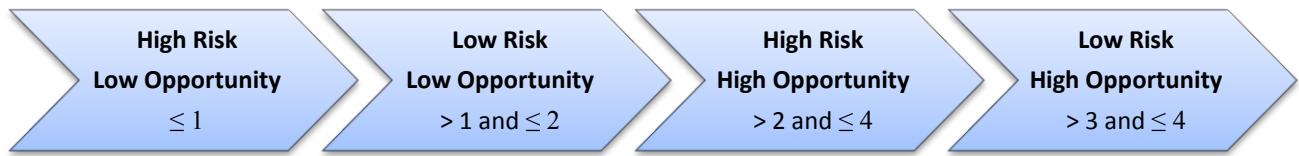


For this step in the process, the evaluator will continue to work on a Category-by-Category basis. A Category Rating Calculator has been developed and provided within Microsoft Excel for ease of use. If the evaluator did not rate the Indicators directly in the Calculator, the first step is to transfer the ratings into the Calculator. The Calculator is designed in such a way that the user need only enter the ratings (by typing an “X” in the appropriate cells). The associated Category rating will then be calculated and displayed.

Described herein is the logic behind the Category Rating Calculator. For a given Category, each of the risk / opportunity columns is weighted; High Risk / Low Opportunity has a rating of 1, Low Risk / Low Opportunity has a rating of 2, High Risk / High Opportunity has a rating of 3, and Low Risk / High Opportunity has a rating of 4. Additionally, each Indicator is weighted with a pre-determined percentage. (Our team has assigned Indicator percentages based on our research; however, FUMN will have the ability to change these percentages, should experience indicate that adjustments are necessary.)

The Calculator tallies the number of “X”s per column, accounting for the fact that merged columns will each receive half (0.5) of an “X.” For each “X” (or fraction thereof), the Calculator multiplies it by its column weighting and then by its Indicator percentage. The resulting products within each column are summed. Next, all columns are summed, resulting in the Category’s numerical rating. Finally, using that number, the decision criteria depicted in Figure 13 below are applied to determine the qualitative risk / opportunity rating for the Category.

Figure 13. Relative Weightings of Risk / Opportunity Scenarios for the Category Rating Calculator



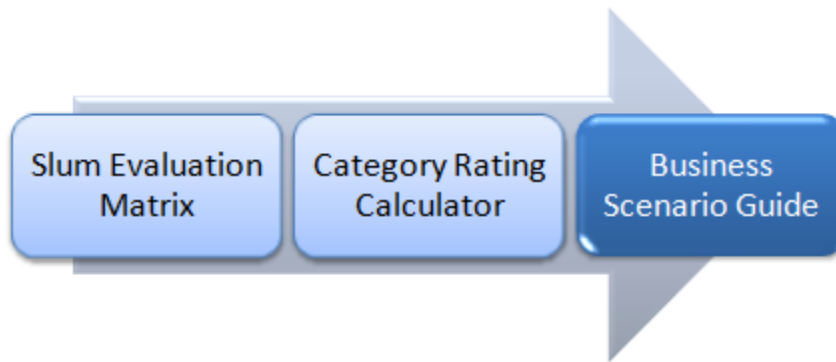
Below is an example of what a Category Rating within the Calculator looks like. When the user enters in Indicator ratings, the Calculator performs the appropriate computations and displays the resulting Category Rating. Here, the Stability Category for this imaginary slum has a Category Rating of “Low Risk / High Opportunity.” Notice that none of the indicator ratings fall to the left of the Threshold Line; it is therefore appropriate to proceed to the next segment of the matrix to continue evaluating the slum.

Figure 14. An Example of a Category Rating

Stability					
Percentage	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
30%	Recognition by government				x
15%	Level of corruption		x		
10%	Water and food shortages		x		
30%	Conflict		x		
15%	Crime within slum				x
<b>CATEGORY RATING: LOW RISK, HIGH OPPORTUNITY</b>					

Once all 35 Indicator ratings have been entered into their associated Categories within the Category Rating Calculator and all seven Categories have received a Category Rating, the evaluator is equipped to proceed to Step 3 of the Market Assessment process.

### Step 3: Business Scenario Guide



This step of the process entails consolidation of the seven Category Ratings obtained in the previous step. The evaluator simply enters the Category Ratings into the Business Scenario Worksheet (provided as a separate worksheet tab within the Category Rating Calculator). These results are then compared to the Business Scenario Guide, which consists of three matrices, to determine the given slum's associated Business Scenario. There are four possible scenarios, three of which represent viable business opportunities; these are labeled Profitable, Participatory, and Philanthropic. As depicted below, each Business Scenario represents a different risk/opportunity combination.

Figure 15. The Risk / Opportunity Classifications of the 3 Viable Business Scenarios



Each of the matrices below represents one of three viable Business Scenarios within which a slum could fall. Here, again, is a Threshold Line (depicted in dark blue). The Threshold Line is used to help identify which Business Scenario the slum that is being evaluated falls within. Each Category must have a Category Rating of at least the column which is directly to the right of the Threshold Line. For example, for a slum to be considered a Profitable Business Scenario, the Institutions, Infrastructure and Stability Categories must each have a Low Risk / High Opportunity rating. At the same time, the Economy / Employment and Environment Categories must each have either High Risk / High Opportunity or Low Risk / High Opportunity ratings. And finally, the Education and Health Categories may have any of the four possible ratings for the slum to be considered Profitable.

**Profitable Business Scenario**

This scenario is the least tolerant of risk in the Fundamental Business Categories, since it represents the most viable business opportunity in the absence of many Support Partnerships. More risk is tolerated in the Deep Sustainability Categories since Support Partners are not necessarily needed to offset risks in the Fundamental Business Categories.

Figure 16. Profitable Business Scenario

<b>PROFITABLE</b>		HR / LO	LR / LO	HR / HO	LR / HO
<b>Fundamental Business Categories</b>	Institutions				x
	Infrastructure				x
	Stability				x
	Economy / Employment			x	x
<b>Deep Sustainability Categories</b>	Environment	x	x		x
	Education	x	x		x
	Health	x	x		x

A Profitable Business Scenario has the following characteristics:



- High opportunity
- Plays to FUMN's competency as a convener
- Capital requirements / investment relatively low
- Support partnerships ideal, but not integral
- Increased risk of competition
- Financial returns are greater than or equal to social returns
- Increased access to partners that seek financial returns
- Decreased access to partners that prohibit profits

**Participatory Business Scenario**

This scenario is a “break-even” scenario and will likely have a business model similar to that of a social enterprise or other hybrid profit/nonprofit business. The Participatory Business Scenario provides more flexibility regarding how the Fundamental Business Categories have been rated than does the Profitable Scenario; in general, though the risk is great, there is a high opportunity to launch a successful business in this region. Since Support Partners are necessary to the viability of the business, High Risk / Low Opportunity is not tolerated in the Deep Sustainability Categories.

Figure 17. Participatory Business Scenario

PARTICIPATORY		HR / LO	LR / LO	HR / HO	LR / HO
<b>Fundamental Business Categories</b>	Institutions			X	X
	Infrastructure			X	X
	Stability			X	X
	Economy / Employment		X	X	X
<b>Deep Sustainability Categories</b>	Environment		X		X
	Education		X		X
	Health		X		X

The Participatory Business Scenario has the following characteristics:

- Requires support partnerships to make up for less ideal Fundamental Business Categories situation
- Profit – minimal or break even
- Financial returns equal to social returns
- Limited access to partners that seek financial returns
- Limits some support partners to technical rather than financial support

### *Philanthropic Business Scenario*

This Business Scenario represents a situation where FUMN services can provide great social returns but are not likely to be profitable because of unsuitable conditions across the Fundamental Business Categories. In other words, more risk is tolerated in the Fundamental Business Categories since the risks are offset by Low Risk, High Opportunity situations in Deep Sustainability Categories.

Figure 18. Philanthropic Business Scenario

<b>PHILANTHROPIC</b>		HR / LO	LR / LO	HR / HO	LR / HO
<b>Fundamental Business Categories</b>	Institutions		X	X	X
	Infrastructure		X	X	X
	Stability		X	X	X
	Economy / Employment	X	X	X	X
<b>Deep Sustainability Categories</b>	Environment				X
	Education				X
	Health				X

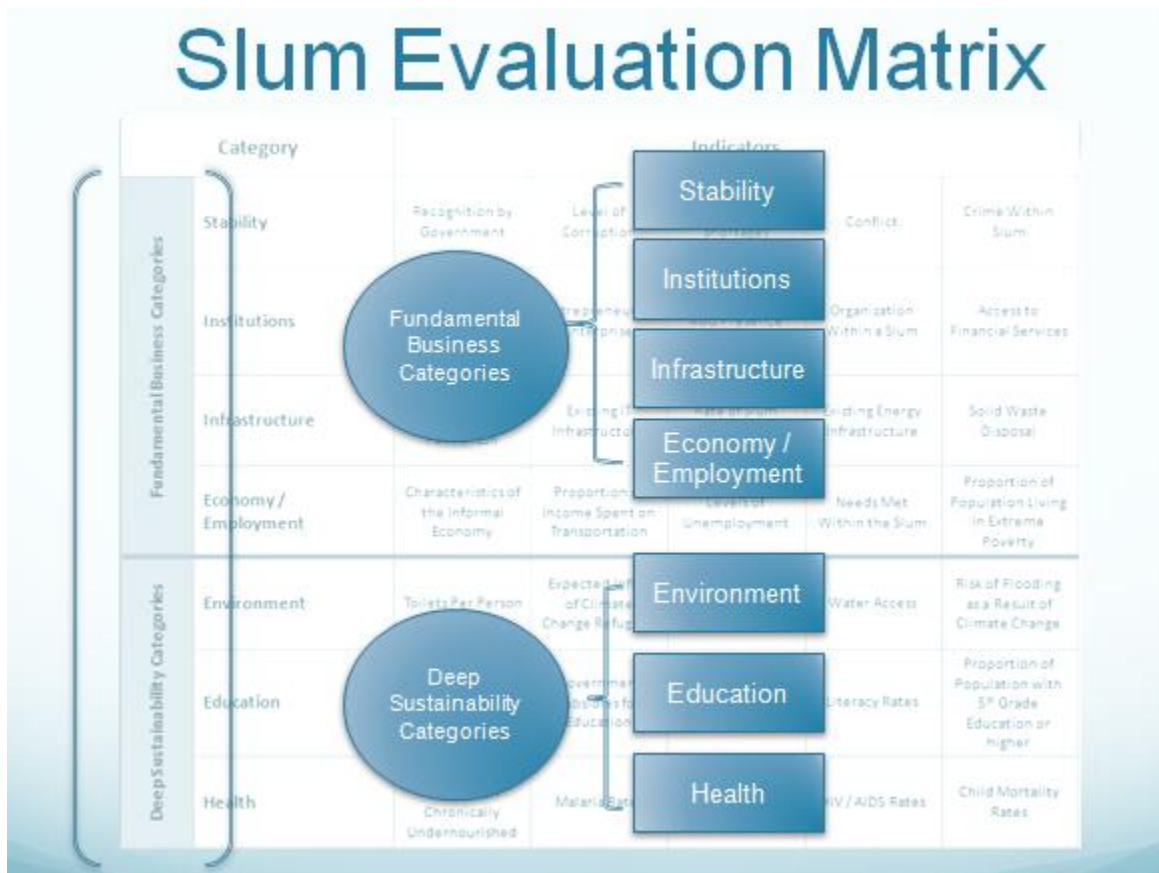
The Philanthropic Business Scenario has the following characteristics:

- Requires support partnerships to make up for less ideal Fundamental Business Categories situation
- Social returns greater than financial returns
- Competition not an issue
- Increased access to partners that do not allow profits
- Decreased access to partners that require financial returns

The following sections will describe in detail the information needed to fill in each of the Indicators. Section 3 will describe the Fundamental Business Categories in depth, while Section 4 will examine the Deep Sustainability Categories.

## Section 3. Fundamental Business Categories

As described in Chapter 4, there are two overarching sets of Categories: Fundamental Business Categories and Deep Sustainability Categories.



The following section (chapters 6-9) describes each of the Indicators within the four Fundamental Business Categories, which include the following:

- Stability
- Institutions
- Infrastructure
- Economy / Employment

Each Fundamental Business Category chapter is prefaced by an introduction to that Category, followed by five sub-sections that describe the Category's associated Indicators through a risk / opportunity lens.

## Chapter 5. Stability Category

Stability is fundamental to a functioning society because it reduces fear and uncertainty. There are many facets to stability, including environmental, political, social, and macroeconomic. In an environmentally stable society, the human population does not exceed the carrying capacity of the surrounding ecosystem, which reduces the risk of crop failures, droughts, depleting natural resources, undermining ecosystem services, etc. In a politically stable society, the change in a regime does not lead to violent conflict or the end of a viable business when friends in high places are removed. In a socially stable society, people can have long-term time horizons and plan for an education rather than worry about providing food. In an economically stable society, businesses are not at the mercy of deep recessions, highly variable inflation, and frequent financial crisis.

Since a functioning, stable society is the ideal medium for a viable business, the Stability Category is emphasized in the Business Evaluation Matrix. Unfortunately, various aspects of stability are especially lacking in many areas of Sub Saharan Africa as a result of corruption, political and ethnic conflict, abject poverty, and low development rates. Slums are likely to be both victims and perpetrators of instability; the poor are often disproportionately affected by factors that cause instability, such as corruption and crime, but the informal nature of the settlements also decreases accountability for both the government as well as the slum dwellers.

Since local and national conditions are heavily correlated with respect to their contribution to stability, we include a mix of national and local Indicators. These include 1) the recognition of the slum by the government (both local and national), 2) the level of corruption at all levels of society (private, public, etc.), 3) the risk of drought and food shortages, 4) conflict, and 5) the amount of crime within the slum.

The goal of the Stability Category is not to rule out all areas that are even remotely unstable, since this could conceivably eliminate the continent as a whole except for the richest areas of specific cities. The goal of this Category is to increase awareness of which Indicators contribute to instability on both a macro (country, region) and micro (city, slum) scale, advise which conditions can be worked with and which cannot, and increase Ford's ability to forecast risks and change its business strategy accordingly to adapt to the specific conditions of the target city.

Figure 19 below provides the Stability Category segment of the Slum Evaluation Matrix.

Figure 19. Slum Evaluation Matrix: Stability Category

STABILITY	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Recognition by government	Actively demolishing	Refusal to recognize	Recognized but ignored	Recognized and upgrading
	Level of corruption	Endemic at all levels of society	At high levels but business can still function		Low at all levels of society
	Water and food shortages	High risk of conflict resulting from current and future shortages	No current shortages, but likely as climate change effects are seen	Shortages are predicted and considerable public/private will to create efficient food/water supply systems	Site has well-planned food and water delivery/supply systems
	Conflict	High risk of political instability	A history of conflict (within past few decades) but recent political stability		A long history of peace
	Crime within slum	High rates of violent / organized crime	Mid-levels of crime (organized and theft), low levels of violent crime		Low levels of most types of crime

## Recognition by Government Indicator

Poor urban slum dwellers are now the dominant market sector for urban land demand. When this demand cannot be met through formal, legal channels, it results in what is known as “self-help urbanization,” which is when slum dwellers transform the city to meet their needs in a way that often conflicts with laws and urban development plans<sup>52</sup>. This self-help urbanization has led to the massive urban slum proliferation since the 1980s in Sub Saharan Africa<sup>53</sup>.

City authorities view slums in many ways, and the actions they take to deal with slums will reflect this. Negligence of slum populations often occurs because authorities simply assume that slums are illegal, unavoidable, and temporary in nature<sup>54</sup>. Others associate slums with illegality and social ills; in other words, as breeding grounds for crime, prostitutions, drug trafficking, and disease<sup>55</sup>. In these situations, city authorities often respond to slums with forced eviction or resettlement (either with compensation or without). Eradication of informal settlements (which was a continuation of urban slum clearances that started under colonial rule) was the general rule for many African governments until well into the 1980s<sup>56</sup>. It has since been demonstrated that eradication in whatever form does not solve the slum problem, but merely forces the poor to move to the city periphery. This in turn exacerbates urban poverty because the poor have little or no access to basic services or infrastructure on the periphery<sup>57</sup>.

The outright demolition of slum areas has become slightly less prevalent after the right to housing and protection from forced eviction became part of the international political agenda. There has been a growing movement to rectify the slum situation through self-help and in situ upgrading, though there is much criticism surrounding the effectiveness of this method<sup>58</sup>. The current accepted best practice for housing interventions in developing countries is now participatory slum improvements, which have only been adopted on a limited scale<sup>59</sup>. It is considered to be better because it works for the very poor, with the community at the outset, and takes a more holistic approach.

## Government Recognition in SSA

- *Southern Africa*: Forced eviction is commonplace in this region, often taking place with little or no notice, without compensation and contrary to national and international law. Environmental health, physical, or other risk conditions are often cited to justify eviction/forced removal<sup>60</sup>.

- *Eastern Africa:* Since slums are particularly associated with social ills in this region, there has been little political will to address or reduce urban poverty. However, interventions are occurring on a limited basis, including Addis Ababa's program to house 500,000 slum dwellers<sup>61</sup>.
- *Western Africa:* The fragmented urban city, where the rich/middle-class retreated to gated communities, is a pervasive urban phenomenon in this region<sup>62</sup>. It is likely that this region has a policy of negligence.

### ***Risk Analysis***

The lack of government recognition of slum communities poses a high risk to FUMN because it increases the likelihood of inhumane slum removal methods. This could be a disastrous waste of capital for FUMN if it invests its resources in serving a community that could be bulldozed away at any time.

It is also assumed that various levels of government will be involved in FUMN activities at all times in order to effectively co-create solutions (see Chapters 10 and 11). The government's viewpoint of slums will affect how well they can be integrated into the co-creation process.

### ***Level of Recognition Risk/Opportunity Assessment***

#### **High Risk, Low Opportunity: *Actively Demolishing***

- In this situation, the government views slum communities as breeding grounds of social ills and has an active, ambivalent policy toward these communities. Slum communities are seen as illegal squatters with no right to the land, and there is little attention to the right to housing and protection against forced eviction.
- This is a "no-go" situation.

#### **Low Risk, Low Opportunity: *Refusal to Recognize***

- In this situation, the government has a policy of negligence toward these communities and takes no steps toward formalizing slum dwellers' tenure. There is a distinct laissez-faire attitude, where slums are seen as illegal but unavoidable.

#### **High Risk, High Opportunity: *Recognized but ignored***

- Similar to the "refusal to recognize" situation, this situation consists of a policy of negligence. Slum proliferation is recognized as a problem resulting from failing government policies and



there is general agreement from decision-makers that the poor have right to housing. However, there is either a lack of political will or a lack of funds to create enabling situations for slum communities.

***Low Risk, High Opportunity: Recognized and upgrading***

- In this situation, the government is actively supporting upgrading or participatory slum improvement. The government will likely adopt a facilitative role in getting things moving while maintaining financial accountability and adherence to quality norms.

## **Level of Corruption Indicator**

Rampant corruption is a serious drain on any society regardless of its level of economic development. As defined by Transparency International (TI), a global coalition against corruption, corruption is operationally defined as “the misuse of entrusted power for private gain<sup>63</sup>”. This differs from transparency, which is defined as “a principle that allows those affected by administrative decisions, business transactions or charitable work to know not only the basic facts and figures but also the mechanisms and processes<sup>64</sup>”. TI focuses mainly on corruption in the private sector.

Transparency International stresses that even in societies entrenched with political, economic, legal and social institutions, corruption will flourish in an environment where “temptation coexists with permissiveness<sup>65</sup>”. When huge disparities of income are combined with minimal chance of punishment and a complete lack of accountability, corruption will be ubiquitous to many sectors and levels of society. Some argue that corruption varies from culture to culture, especially in regions where gift-giving is integral to negotiating and relationship-building; however, every culture has its limits and knows when an action is unacceptable. For this reason, TI has a national chapter system, where a society’s own citizens rate their perception of corruption. This is used to form TI’s Corruption Perception Index (CPI), through which they rate corruption on a scale of one to ten (where one indicates rampant levels of corruption and ten indicates remarkably low levels) and rank countries on both a z the conditions that facilitate corruption (described above) are present in most SSA countries. UN-HABITAT also notes that “corrupt practices entrenched in the societal fabric of many countries are now, possibly, the single-most important blockage to equitable social, economic and political development<sup>66</sup>”.

Of the 47 SSA countries reviewed, 30 scored below 3 (indicating rampant corruption), 14 scored between 3 and 5 (indicating that experts and businessmen consider corruption to be a serious challenge), and three scored above 5 (Botswana, Cape Verde, and Mauritius).

## ***Corruption in Slums***

Transparency International also publishes a Corruption Barometer, which outlines an individual’s experiences with corruption. A major trend in most parts of the world including Sub Saharan Africa is that the poor are often the most penalized by corruption; those who earn less must pay more for basic services<sup>67</sup>. The services with the most problems involving bribery are (in descending order) the police, the judiciary, registry / permit services, the education system, medical services, and electricity

providers<sup>68</sup>. The Corruption Barometer also indicates that bribery in the education and health sectors is a serious problem in Africa<sup>69</sup>.

### *Risk Assessment*

Corruption poses high risks for a business as well as high costs for society. Corruption damages political institutions because they lose their legitimacy; economic structures because it hinders fair market structures, competition, and investment; social trust because bribery becomes the norm and drains the country of able and honest citizens who often decide to emigrate; and the environment, because environmental projects are easy targets for siphoning off public money into private accounts<sup>70</sup>.

While it is impossible to quantify the true cost of corruption for a business, several principles emerge from various studies. One study in Uganda (CPI of 2.6) indicates the following:

- Of the firms studied, more than 80% needed to pay a bribe during a typical business year
- The amount of a bribe is generally not a fixed sum for a certain service, but rather depends on a firm's perceived "ability" to pay; the more it "could" pay, the more it had to pay
- There is no evidence that firms paying higher bribes receive more beneficial government favors in return<sup>71</sup>.

While every country is different, these principles are likely to hold true in other countries as well. This study indicates that it is also likely that corruption may pose a significant problem for New Mobility when forming both Accessibility and Support partnerships, especially when the partnership is with the government or a government agency. Every effort must be taken to understand local conditions to ensure that, even if the business must work within the existing corrupt system, the poor are not disproportionately penalized by a business that was created to try to help them.

### *Corruption Risk / Opportunity Evaluation*

**High Risk, Low Opportunity:** *Endemic at all levels of society*

- In this situation, it is likely that bribes will be prevalent in most sectors and heavily affect the poor. This may include bribes to police, teachers, utilities, health providers, etc. The wealthy can grab land and natural resources with impunity and companies bid on government contracts with no transparency. The public views officials siphoning off public funds to private accounts as the norm. There is virtually no accountability or enforcement, and transaction costs are very high for a business.

- This is a “no-go” situation.

**Low Risk, Low Opportunity / High Risk, Low Opportunity:** *At high levels, but business can still function*

- This situation may have many of the aspects of the High Risk, Low Opportunity situation. The main difference is that while corruption is still part of society, it does not pose a significant obstacle to the business. It is likely that the government and other members of society are taking active measures to decrease corruption and have demonstrated some degree of success. While the poor are still affected, the business can be structured in a way that does not disproportionately penalize them.

**Low Risk, High Opportunity:** *Low at all levels of society*

- In this situation, corruption may still be present, but it is low at all levels of society. Anti-corruption policies have been proven to work, and officials are held accountable for siphoning off public funds or other corrupt practices. Barriers to entry for local entrepreneurs are low.

## Water and Food Shortages Indicator

The risk of water and food shortages is already a problem in many Sub Saharan African countries and is likely to be exacerbated by the effects of climate change. At least 14 African nations are already facing water stress or scarcity and many more will start experiencing water and food stresses over the next decades<sup>72</sup>.

Water shortages are of particular concern over most parts of Africa; currently Africa has the lowest proportion (38.3%) of urban households with access to piped water<sup>73</sup>. It is important to note that "access" does not necessarily mean that the water is affordable or safe to drink. This statistic may also be inflated; in Addis Ababa, Ethiopia, a UN-HABITAT survey showed that the proportion of low-income urban residents with access to water dropped from 89% to 21% when the operational definition of "access" included variables such as cost and quality.

Urban food shortages are also a looming concern, since urbanization often converts nearby agricultural areas into urban periphery zones. This conversion strains food supply and distribution systems because distances between food producers and consumers grow and food becomes more expensive<sup>74</sup>. The associated transportation cost is especially problematic when urban demand greatly exceeds the production capacity of surrounding areas. Changing social conditions also lead to different consumption patterns which strain the system further. For example, it is often impossible to prepare traditional foods in multi-story buildings. This causes a shift toward the consumption of other staple foods, which are often imported and highly processed<sup>75</sup>.

### *Water and food shortages in SSA*

- *West Africa's* fertile agricultural lands are increasingly threatened by population growth and urban greenfield expansion, thereby increasing the risk of food shortages.
- *East Africa* is particularly at risk of shortages as a result of climate change. Nairobi residents already experience frequent water rationing. Droughts and famines are likely to result in climate change refugee migration flows to urban areas, further contributing to the strain placed on urban food and water supply systems. A lack of access to sufficient water is likely to be the major limiting factor in urban growth, to the extent that UN-HABITAT strongly recommends that policy makers promote urbanization only in intermediate cities in order to take some pressure off of urban supply systems<sup>76</sup>.

- *Southern Africa* is also at risk for water shortages as a result of the recurrent droughts it faces, which may be associated with climate change<sup>77</sup>. The urban water supply mostly depends on rain-fed dams where, in some instances, agricultural irrigation has primacy over urban water use<sup>78</sup>.

### ***Water and Food Shortages in Slums***

Slum dwellers are likely to be particularly affected by water shortages since they are not likely to have access to piped or high quality water<sup>79</sup>. A decrease in food and water supply resulting from a shortage may also make water too expensive for many of the slum dwellers who have difficulty purchasing these necessities even in good times.

### ***Risk Assessment***

This Indicator is placed in the Stability Category because food and water shortages are likely to be either a direct or indirect cause in varying types of conflict. Cities such as Maputo, Mozambique have already experienced urban violence as a result of food and fuel shortages<sup>80</sup>.

### ***Water and Food Shortage Risk / Opportunity Assessment***

**High Risk, Low Opportunity:** *High risk of conflict resulting from current and future shortages*

- In this situation, the region or city has already experienced food/water riots or other conflicts resulting from shortages. Ineffective distribution systems are already taxed and will not be able to support urban growth; there is little political will to address the problem.
- This is a “no-go” situation.

**Low Risk, Low Opportunity:** *No current shortages, but likely as climate change effects are seen*

- In this situation, the region/city is not currently experiencing food/water shortages, but distribution systems are either strained or will be strained as urbanization increases. The site is also in a city/region where climate change will likely exacerbate water/food shortages; experts predict that these shortages will occur if current climate change patterns continue.

**High Risk, High Opportunity:** *Shortages are predicted and there is considerable public/private will to create efficient food/water supply systems*

- In this situation, shortages have already occurred or are expected to be a problem in the future as a result of climate change. There is political will to address these problems by creating

efficient food and water distribution systems in addition to water/agricultural land conservation strategies.

**Low Risk, High Opportunity:** *Site has well-planned food and water delivery/supply systems*

- In this situation, the site has well-managed food and water delivery/supply systems in place. Shortages have not occurred and are not likely to be a problem in the future.

## **Conflict Indicator**

A vital component of maintaining stability within any region of the world is the effective prevention and resolution of deadly conflict. Conflict stems from a wide variety of deeply-rooted tensions among people regarding hardship or inequality. Such tensions often emerge when residents of a region experience wide-spread disease, poverty, economic overdependence on extraction and exportation of primary commodities, or discrimination based on race, ethnicity or religion<sup>81</sup>.

### ***Conflict in Sub Saharan Africa***

Conflict throughout Sub Saharan Africa increased dramatically during the 1990s. Between 1960 and 2008, more than one-third of SSA countries experienced war<sup>82</sup>, and in 2000 more than half of Africa was affected by conflict<sup>83</sup>. Conflict in SSA is now predominantly regional<sup>84</sup>, with central and eastern Africa experiencing the majority of it in recent years<sup>85</sup>.

The prevalence of conflict throughout SSA has greatly contributed to the lack of social, political, economic and environmental stability within its war-torn regions. Such conflict has caused the economic growth of the entire continent to be constrained, millions of people to be uprooted, a large reduction in food production, major losses of infrastructure, and as many deaths per year as are caused by epidemic diseases<sup>86</sup>. These trends, which decrease the likelihood of success for business endeavors attempted in areas of high-conflict, also highlight the importance of fully assessing the level of conflict within a region and its respective affect on a potential FUMN slum site.

### ***Conflict in Cities***

The relationship between conflict and cities is complex. Understanding fundamental aspects of this relationship is valuable when determining whether to develop FUMN systems for slum sites within a particular city.

Cities, especially in the developing world, are a source of conflict. The Worldwatch Institute reports that increasing contact among diverse religious and ethnic groups within growing cities leads to increasing unrest among these groups<sup>87</sup>. At the same time, cities provide refuge from conflict to people who have been displaced from rural areas<sup>88</sup>. These forces lead to a reinforcing loop within the system – a trend which can be described by the following statement: an increase in urbanization leads to an increased probability of conflict, and vice-versa. Indeed, Population Action International reported that during the 1990s, countries that experienced rapid urbanization (4 percent or more per year) were twice as likely to suffer civil conflict<sup>89</sup>.



Cities and conflict are also highly correlated with respect to institutions and infrastructure. Cities tend to be targets during conflict or war due to the economic costs that can be inflicted on a city through the destruction of housing and infrastructure as well as the subsequent emigration of skilled workers from the city<sup>90</sup>. In Africa, the impact of conflict is exacerbated by the continent's relative lack of development. For example, availability and use of electricity are 75 percent lower in regions that have been affected by conflict than in regions that have not<sup>91</sup>.

With these considerations in mind, it is also important to recognize that following conflict, cities are integral to the economic recovery of a nation, particularly with respect to security and small-scale entrepreneurship. Cities recovering from conflict tend to attain better levels of security than rural areas. This tendency increases the likelihood that investors will concentrate their capital in cities<sup>92</sup>. Additionally, private entrepreneurs tend to emerge in post-conflict cities, especially as water and electricity service providers, due to the business opportunities presented by the concentration of populations within cities<sup>93</sup>.

### *Conflict in Slums*

Another aspect of the relationship between cities and conflict lies in the fact that conflict contributes significantly to the proliferation of slums<sup>94</sup>. Conflict often generates large-scale exodus of rural populations to urban areas, where the populations then tend to end up in slums<sup>95</sup>. This trend is especially evident in Sub Saharan Africa, which is the region of the world with the most conflicts as well as the highest proportion of its urban residents residing in slums<sup>96</sup>.

Conflict not only contributes to the growth of slums, but also has a major effect on existing slums. The persistence of poverty experienced by and the lack of resources available to many slum dwellers cause these people to be more vulnerable to precarious economic and environmental conditions and susceptible to a greater degree of risk than populations living in environments that offer safety and access to resources<sup>97</sup>. This reality emphasizes the importance of incorporating effective solutions to social problems into sustainability efforts, just as FUMN aims to do.

## *Risk Assessment*

Conflict or the threat of conflict presents a great risk to business investments and employees since areas that have experienced conflict recently are likely to do so again in the near future<sup>98</sup>. FUMN has the potential to be particularly vulnerable since cities are often targeted during conflict.

## *Conflict Risk / Opportunity Evaluation*

**High Risk, Low Opportunity:** *High rates of political instability*

- In this situation, the city, region or nation has experienced widespread conflict in the recent past or is currently experiencing violent conflict. Alternatively, current political instability may indicate that conflict is likely in the near future.
- This is a “no-go” situation.

**Low Risk, Low Opportunity / High Risk, High Opportunity:** *A history of conflict (within past few decades) but recent political stability*

- In this situation, there has been conflict in the past decades followed by a period of peace and stability. Both foreigners and citizens of the country are investing in the country, indicating that they expect stability in the future.

**Low Risk, High Opportunity:** *A long history of peace*

- In this situation, the country has a long history of political stability and peace. There have been several peaceful regime changes and no hint of future conflict.

## Crime Within Slum Indicator

In many rapidly urbanizing countries in the developing world, an increase in city size and density is closely associated with increased crime and violence. This is mostly a result of poor urban planning, design, and management since the physical layout of cities often puts citizens and property at risk<sup>99</sup>.

While poverty is often cited as the root cause of crime and violence, there is increasing evidence to suggest that other factors play a larger role. Crime is often seen as a survival alternative for the poor, yet the crime rate is low in many poor communities with informal social, cultural, and religious values that constrain behavior<sup>100</sup>. A functioning community is therefore just as important as more formal governance. Another prevalent viewpoint is that inequality is a major cause of crime. The theory of “relative deprivation” (when the poor regularly see the rich with the majority of the wealth) states that individuals or groups are more likely to engage in violence if they perceive a gap between what they have and what they deserve<sup>101</sup>.

According to UN-HABITAT, there are many different types of crime that are prevalent in cities around the world, including:<sup>102</sup>

- Political (state and non-state violence)
- Institutional (violence of state and other “informal” institutions, including the private sector)
- Economic (organized crime, business interest, delinquents, robbers)
- Economic/social (gangs, street children, ethnic violence)
- Social (intimate partner violence inside the home, sexual violence in a public area, child abuse, gratuitous/routine daily violence)

Homicides are often used as a proxy for violent crime. Another manifestation of crime rates is the growing demand for private security and the proliferation of gated communities<sup>103</sup>. Organized crime is perceived as prevalent in Africa, particularly in poor areas<sup>104</sup>.

## Crime in Slums

Despite the stereotype that the poor are perpetrators of crime, victimization surveys conducted by UN-HABITAT have shown that people living in poverty are more likely to be victims of crime than higher-income residents<sup>105</sup>. The effects of crime are also considerably more intense for people living in poverty, since they lack adequate fall-back systems (e.g., insurance and savings), thereby making recovery from the material impacts of crime difficult. The poor are also more psychologically vulnerable resulting from a feeling of helplessness and powerlessness to improve their situation. In cities such as Nairobi and

Johannesburg, the poor (often slum dwellers) cite safety and security as a major concern equally important to hunger, unemployment and a lack of safe drinking water<sup>106</sup>.

### ***Risk Assessment***

Crime is a serious problem for business in many cities across Sub Saharan Africa. In 2001, 61% of firms in Kenya reported experiencing criminal victimization<sup>107</sup>. Crime impedes growth and development and discourages foreign investment and domestic economic activity in several ways, including the following<sup>108</sup>:

- Employees resist working or leaving work after dark when streets are insecure
- Employers and investors are less likely to invest in cities where their assets are likely to be destroyed or stolen, further decreasing the livelihood sources of the poor
- Both individual improvements in standards of living and entrepreneurial investments in buildings or services are hindered by the likelihood of crime and violence
- Women are less likely to pursue education in high crime areas due to fear of violence.

### ***Crime Risk / Opportunity Assessment***

**High Risk, Low Opportunity:** *High rates of violent and/or organized crime*

- In this situation, murder rates and other violent crimes are extremely high. Organized crime is likely prevalent, especially within the slums. There is a pervasive feeling of victimization among slumdwellers, to the point where they feel isolated, vulnerable, and helpless. Business is impossible except in conjunction with organized crime leaders, and the business is extremely likely to suffer great economic losses resulting from theft and vandalism.
- This is a “no-go” situation.

**Low Risk, Low Opportunity / High Risk, High Opportunity:** *Mid-levels of crime (organized and theft); low levels of violent crime*

- In this situation, crime such as theft and vandalism is an issue, but violent crime is low. Organized crime is present but does not significantly impact doing business within the slum.

**Low Risk, High Opportunity:** *Low levels of most types of crime*

- In this situation, most types of crime rates are low or manageable. There are likely cultural, social, or religious values within the community that informally restrain behavior.

## Chapter 6. Institutions Category

### The Informal Economy

The informal economy is the dominant economic player in the region, comprising 72% of non-agricultural productivity<sup>109</sup>. An informal economy encompasses any type of informal employment, whether within formal enterprises (such as non-standard wage employment) or within informal enterprises (such as self-employment in micro-enterprises or wage employment in informal businesses)<sup>110</sup>. While the formal economy traditionally consists of large scale, capital intensive and governmentally recognized firms, the informal economy is characterized by its extra-legality, or in a realm between legality and illegality. The authors of “Reconsidering Informality,” state the following:

“The forms of unregulated production, distribution and service provision, the incomes they yield and their position in relation to legal codes and law enforcement may vary widely both between countries but also within the same city. Their degree of legitimacy and illegitimacy and the extent to which better-off segments of the urban population are involved also varies between cities and countries...it is their extra-legality that is the salient characteristic of informal economic activities, not the type or size of the enterprises nor the incomes earned there.<sup>111</sup>”

The informal economy is the dominant player in SSA because there are many costs to formalizing a business, such as high taxes and long, expensive registration procedures. In order for the informal economy to be dominant, the benefits to formalizing, which include increased access to commercial buyers in the formal economy, more favorable credit markets, legal protection, and obtaining foreign exchange, do not outweigh the costs<sup>112</sup>.

### The Interface between Formal and Informal Economies

Although using separate terms such as “informal” and “formal” economies implies that these are separate worlds, in reality they are never functionally separate. The point of contact between these two entities is what some term an “interface.” According to the authors of “Reconsidering Informality”, the interface

“highlight[s] encounters between entities or processes that are governed by different rules- the outcomes may be neutral, implying non-recognition

or accommodation, or they may entail conflict or cooperation. These meetings may include individuals or groups, practices and beliefs, institutions or systems. They take place in public places and courtrooms, spontaneous and planned encounters, households and networks, and in people's minds<sup>113</sup>".

While this theoretical definition is difficult to conceptualize operationally, it is imperative to understand how the informal and the formal economies are linked together. Local NGOs or CBOs (Community Based Organizations) often play an active role in serving the needs of or representing slum communities, as do organizations that represent informal workers, such as street vendors. Microfinance Institutions serve as an important link between the formal economy, which has access to credit, and the informal economy, whose workers often do not have access to credit. Regulatory frameworks that aid in formalizing businesses and enabling entrepreneurs are another strategy for integrating the two economies.

Ideal slum sites for New Mobility solutions will harness the productivity of the informal sector and slum dwellers, rather than suppressing it. This chapter examines the interface between the informal and formal sectors or between informality and formality generally, by analyzing institutions that often act as the interface. These institutional entities include informal trade organizations, entrepreneurs, NGOs, self-organized slum dwellers, and financial service providers.

Figure 20. Slum Evaluation Matrix: Institutions Category

Institutions	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Informal Trade Organizations	No local organizations that represent informal trade workers	Many local, highly dispersed organizations that represent informal workers	Many local, highly dispersed organizations that represent informal workers in a hostile political climate	National organizations that link many local informal trade worker organizations
	Prevalence of Entrepreneurship	No entrepreneurs	Few entrepreneurs resulting from an unfavorable legal and regulatory climate		Many entrepreneurs; enabling regulatory and legal environment
	NGO Presence	NGOs are nonexistent or disreputable and/or inexperienced	A few reputable, experienced NGOs in the area		Many reputable NGOs in the area with experienced in the issue of interest
	Slum Self-Organization	No self-organization of any kind	Few CBOs, specialized in issues of tangential interest		Diverse Assortment of Community Based Organizations
	Access to Financial Services	No MFIs	MFIs that are biased towards medium or large enterprises	Many unregulated MFIs	Many MFIs that favor micro enterprises in the informal sector

## Informal Trade Organizations Indicator

Since informal work arrangements are extra-legal, they often have no outlet to represent themselves, which can leave them open to exploitation. There have been attempts in the past few decades to remedy this by creating organizations that represent the view of street traders, market vendors and other informal economy workers. They are mostly local and attempt to address immediate problems such as harassment by local authorities, high market levies, poor maintenance of markets, and lack of vending space, although they often provide social welfare to other members in terms of training or in the case of funerals or illness<sup>114</sup>. They often serve as outlets to address conflict within the group<sup>115</sup>.

Most of the regulation of the informal economy occurs locally, which usually means that these organizations are extremely local and do not have major links with other organizations<sup>116</sup>. There have also been attempts, however, to nationalize the problems of the informal economy by groups such as StreetNet Ghana Alliance and the Alliance for Zambia Informal Economy Associations. These groups have potential to be effective forces for change since, although most of the enforcement is on the local level, all important policy decisions are at the central government level<sup>117</sup>.

## Risk Analysis

As discussed in the “Characteristics of the Informal Economy” Indicator, the lack of protection for informal workers leaves them open to exploitation. This can be a serious risk to any major corporation working with them, no matter how indirectly. The presence of an informal trade organization, particularly for local transportation providers, would help alleviate these risks by giving these workers a place to represent themselves. These organizations can also be useful when attempting to co-create solutions. The presence of a national organization (which links together many small, local informal organizations) would be a particular asset when attempting to understand the slum market and when co-creating solutions (see Chapter 10).

## Risk vs. Opportunity Assessment

**High Risk, Low Opportunity:** *No local organizations that represent informal trade workers*

- There are no local organizations or systems of self-representation for informal trade workers.

**Low Risk, Low Opportunity:** *Many local, highly dispersed organizations that represent informal workers*

- There are many organizations that operate on an extremely local level; they have no interaction with each other and are geographically dispersed and difficult to find.



**High Risk, High Opportunity:** *Many local, highly dispersed organizations that represent informal workers in a hostile political climate*

- There are many organizations that represent informal workers, but they are operating in a hostile local or national environment that makes it difficult to band together.

**Low Risk, High Opportunity:** *National organizations that link many local informal trade worker organizations*

- There are many local, informal trade worker organizations that are connected by one or more larger groups that seek to create a platform for their issues on a national level.

## Prevalence of Entrepreneurship Indicator

According to the Journal of Developmental Entrepreneurship, “there is no shortage of entrepreneurs or people willing to take risks to start business activities” in Africa<sup>118</sup>. Entrepreneurship is a part of life in Africa since self-employment is a key driving-force, although it takes different forms than its Western counterpart. Most are small and medium enterprises (SMEs) in the easy-to-enter trading center and only provide a limited range of products; they also tend to under-exploit technology as a capital resource<sup>119</sup>. Women-owned businesses likely account for one-third of all firms and are the majority of businesses in the informal sector<sup>120</sup>.

Entrepreneurship is also prevalent in the mobility sector. With the general failure of governments to provide adequate mass transportation, the private sector has taken over transport in East Africa and plays an essential role in urban mobility<sup>121</sup>.

## Risk Analysis

Entrepreneurship will either flourish or be stifled by the legal and regulatory climate. In particular, property rights, labor laws, personal security, the performance of the judiciary, and the time and cost to register, license, and operate a business are important factors in the competitiveness of the private sector<sup>122</sup>. If these climates are unfavorable, they pose a risk to FUMN.

## Risk vs. Opportunity Assessment

**Low Risk, High Opportunity:** *No entrepreneurs*

- There are few successful entrepreneurs but they are in unrelated industries.

**Low Risk, Low Opportunity / High Risk, High Opportunity:** *Few entrepreneurs resulting from an unfavorable legal and regulatory climate*

- The institutional framework in this scenario is weak, thereby preventing successful entrepreneurs.

**Low Risk, High opportunity:** *Many entrepreneurs resulting from an enabling regulatory and legal environment*

- This is an enabling environment for entrepreneurs, where property rights, labor laws, and costs to register are low.

## NGO Presence Indicator

NGOs (Non-Governmental Organizations) will be essential to achieving FUMNs goal of servicing a bundle of needs. They will also be crucial in the co-creation process (see Chapter 10) since they will likely have expert knowledge of the area or subject of interest. Of particular interest are NGOs such as Shack/Slum Dwellers International and Cities Alliance, which are intimately acquainted with the every-day realities of working with slums.

While NGOs have become indispensable to official agencies, it is important to note that they are not a panacea to solving all problems. NGOs are frequently criticized for their lack of accountability (usually in terms of governance or performance management) since they lack the financial “bottom line” accountability of private sector organizations or the political accountability of the public sector<sup>123</sup>. While this criticism often comes from those who seek to undermine the efforts of NGOs, there is some truth to this claim. NGOs can serve as a front for other activities; in Russia, NGOs are often perceived as covers for organized crime, in Bangladesh and Pakistan they are sometimes seen as fronts for fundamentalist causes, and in Central Asia they are at times platforms for failed politicians<sup>124</sup>. It is important to recognize that even established NGOs that are considered reputable in some parts of the world may have a different reputation in other parts of the world. In many developing regions, people view Human Rights organizations as a way to promote Western democracy<sup>125</sup>.

## Risk Analysis

NGOs are fundamental to achieving FUMN’s goals (particularly as Support Partners), but they must be chosen with care. They should have some basic voluntary accountability mechanisms such as elections, board appointments, standards and codes of conduct, etc. They should have a good reputation, be able to provide annual reports or other publications regarding previous work accomplished, and show a certificate of incorporation. If more local NGOs are desired, they should be referred by larger, established NGOs or by the World Bank, United Nations, or other renowned development agencies.

## Risk vs. Opportunity Assessment

**Low Risk, High Opportunity:** *NGOs are nonexistent or disreputable, and/or inexperienced*

- Since NGOs are core to FUMN needs-bundling, they must be reputable and experienced. In this scenario there are either no local NGOs, or they are disreputable or a front for another cause.

**Low Risk, Low Opportunity / High Risk, High Opportunity:** *A few reputable, experienced NGOs in the area*

- In this scenario, there are a few local NGOs tangentially experienced (or with limited experience) with the issue of interest. They are able to show certificates of incorporation, documentation of previous work, and are likely referred through a larger NGO.

**Low Risk, High opportunity:** *Many reputable NGOs in the area that have experience with the issue of interest*

- There are many NGOs of various sizes working in diverse issues of interest. They are known for their consistent performance.

## Slum Self-Organization Indicator

While NGOs may serve as an adequate proxy for slum dwellers' needs, it is also critical to involve grassroots organizations, or Community Based Organizations (CBOs). These groups are defined as locally-based membership organizations that work to develop their own communities and vary in size, type and range of interests, management structure, nature of constituency, and level of interaction with other groups and actors<sup>126</sup>. CBOs located in slums may include the following types of organizations:

- Residents associations and societies
- Savings and credit groups
- Child care groups
- Minority support groups
- Clubs
- Advocacy groups

The heterogeneous needs represented by the organizations listed above all reflect the slum community in some way. These organizations may be informal and entirely outside the state, or they may have some semi-official or official legal status; the vast majority are not profit making<sup>127</sup>. The most common associations are local development associations (such as village councils or neighborhood associations) and interest associations (such as women's clubs)<sup>128</sup>.

## Risk Analysis

Engaging CBOs enhances the legitimacy of attempts at needs-bundling. Although NGOs are expected to have worked in the communities and can therefore speak for their needs, CBOs reflect the heterogeneous nature of slum populations and are often the only form of self-governance. Ignoring or overlooking these groups, especially if their efforts are in line with FUMNs goals, can decrease the legitimacy and effectiveness of FUMN servicing slums.

## Risk vs. Opportunity Assessment

**Low Risk, High Opportunity:** *No self-organization of any kind*

- The slum is too recently settled or there is no interest in any form of self-governance or CBO formation.

**Low Risk, Low Opportunity / High Risk, High Opportunity:** *Few CBOs, specialized in issues of tangential interest*

- There are a few CBOs that could represent the slum dwellers, but some may be organizations that are not relevant to FUMN activities (such as a sport or leisure group).

**Low Risk, High opportunity:** *Diverse Assortment of Community Based Organizations*

- There are many existing organizations that could potentially work in conjunction with NGOs or FUMN itself, particularly women's groups, savings and credit groups, or local development associations, such as village councils or neighborhood associations.

### **Access to Financial Services Indicator**

According to UN-HABITAT, “Coupled with security of tenure, access to credit is key to unleashing the vast potential of the urban poor to improve their living and working environments and livelihoods<sup>129</sup>”. Micro-credit institutions, therefore, are a crucial aspect of leveraging the capabilities of slum dwellers. As defined by the International Monetary Fund, “microfinance institutions” (MFIs) are “financial institutions dedicated to assisting small enterprises, the poor, and households who have no access to the more institutionalized financial system, in mobilizing savings, and obtaining access to financial services<sup>130</sup>.” MFIs can vary greatly and include commercial banks, state-owned development banks, and even postal offices<sup>131</sup>.

Access to credit in Africa is generally very poor. For example, it is estimated that only 5-6% of the population has access to the banking sector<sup>132</sup>. This occurs for many reasons, including the following:

- Banks require large minimum deposits
- Information is asymmetric (i.e., slum dwellers have no formal address or way of being contacted, and no way to prove regular income if they work in the informal economy)
- Individuals tend to lack collateral
- It is difficult to enforce legal rights<sup>133</sup>

MFIs are a means through which to meet the financial service needs of the poor and to strengthen the link between the formal and informal sectors of the economy, since it is assumed that entrepreneurs will eventually graduate to conventional loans as they grow their businesses<sup>134</sup>.

### **Risk Analysis**

The degree of integration of slum dwellers into FUMN systems will be minimal without a functioning microfinance sector. However, the sector should fit most, if not all, of the following requirements:

- There should be a dedicated law for regulating the sector; at a minimum, MFIs should be regulated under existing commercial banking laws<sup>135</sup>.
- MFIs should be adapted to local conditions, particularly when community ties are weak (as is the case for the urban jobless). This may entail devising a variation of the traditional Grameen model<sup>136</sup>.
- Similarly, MFIs should be built on pre-existing informal sector banking practices (such as susu and tontines).

- Policies should encourage deposit collection, rather than merely offering credit schemes, to encourage saving.
- Governments should make every attempt to ensure that MFIs favor disadvantaged, self-employed individuals rather than better-off small and medium enterprises. A recent study in South Africa observed that a small, medium and micro enterprise (SMME) program tended to be biased toward small and medium enterprises rather than micro enterprises in the informal economy<sup>137</sup>.

### *Risk vs. Opportunity Assessment*

#### **Low Risk, High Opportunity:** *No MFIs*

- There are no MFIs and a very small percentage of the population has access to financial services. It is likely that no one in the slum can fulfill the minimum requirements demanded by traditional financial institutions.

#### **Low Risk, Low Opportunity:** *MFIs that are biased toward medium or large enterprises*

- There are MFIs, but this is a low opportunity scenario since they favor medium or large enterprises in either the formal or informal sector and are not likely to greatly benefit the poor.

#### **High Risk, High Opportunity:** *Many unregulated MFIs*

- This is a high opportunity situation since a proliferation of MFIs increases the poor's access to credit. It is a risky situation since these MFIs are unregulated and could potentially exploit the poor. They may also favor credit over savings, which does not allow the poor to take full advantage of credit services.

#### **Low Risk, High opportunity:** *Many MFIs that favor micro enterprises in the informal sector*

- There are many MFIs, perhaps even under an umbrella MFI organization (such as the Federation of Rural Savings and Loans Cooperatives in Benin<sup>138</sup>), that offer a full range of financial services that benefit the poor in the informal sector. Their practices are adapted to their clientele (e.g., an urban center with few community ties) and traditional methods of saving money (susu or tontine).



## Chapter 7. Infrastructure

Infrastructure is the foundation of a modern society and a crucial element of New Mobility business. This section examines physical infrastructure (such as the abundance and quality of roads) as well as infrastructure indirectly crucial to business, such as energy and IT systems. Infrastructure in Sub Saharan Africa is poor even when compared to other developing regions, but some areas (such as West African road networks) and industries (such as a rapidly expanding mobile phone industry) show considerable progress.

Figure 21. Slum Evaluation Matrix: Infrastructure Category

Infrastructure	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Area of Accessible Roads per person	Low area per person and no room for roads to expand; Congestion is unavoidable	Low area of accessible roads per person but room to expand	Adequate area of accessible roads per person but little to no room to expand	Adequate area of accessible roads per person and room to expand
	Existing IT Infrastructure	Low IT infiltration, low capacity to expand	High IT infiltration, low capacity to expand	Low IT infiltration, high capacity to expand	High IT infiltration, high capacity to expand
	Rate of Slum Expansion	Rate of Expansion Outpaces Infrastructure Provision	Low rates of expansion, low infrastructure provision		Rate of Expansion in pace with infrastructure provision
	Existing Energy Infrastructure	Chronic and severe energy shortages for both electricity and transport fuels	Intermittent energy shortages and no capacity to expand	Adequate energy infrastructure but little to no capacity to expand	Adequate energy infrastructure in place with capacity to expand
	Solid Waste Disposal	Lack of adequate solid waste disposal makes roads impassable	Intermittent waste disposal management; roads often impassable		Adequate solid waste disposal methods; streets passable

## Area of Accessible Roads per Person Indicator

As can be expected, road provision varies greatly by country and region in Sub Saharan Africa. There is a clear pattern that coastal regions are better provisioned with surfaced roads, including coastal West Africa, the Great Lakes region, and South-Eastern Africa<sup>139</sup>. West African nations average about 20% of their annual budget to the transport sector, with good results; for example, the road network in Ghana has increased to 60,000 km<sup>140</sup>. Another clear pattern is that landlocked countries have the highest burden for transportation costs (up to 55% higher than coastal areas) as a result of their remote locations and lack of adequate road provision<sup>141</sup>.

The fundamental problem with African road networks is inadequate institutional capabilities to manage them, resulting in poor transportation networks<sup>142</sup>. The combination of poor physical infrastructure combined with poor logistical infrastructure contributes to the elevated transportation costs that drain both businesses as well as the general population.

## Risk Analysis

The risk of inadequate accessible roads<sup>1</sup> per person is twofold. The most obvious is the fact that roads are a fundamental aspect of any mobility-oriented business. The fewer accessible roads per person there are (which takes into account both how many roads there are as well as how many people they must serve, i.e., congestion), the more difficult it will be to create an efficient New Mobility solution.

The other aspect of inadequate road provision for the population is the indirect costs to any business in the region. Whether FUMN's New Mobility solutions focus on mobility itself or IT services, the indirect costs of inefficient transportation systems and logistics (e.g., customs and border clearance, the ability to track shipments, etc.) will elevate the cost of doing business.

## Area of Accessible Roads per Person Risk vs. Opportunity Assessment

**High Risk, Low Opportunity:** *Low area per person and no room for roads to expand; Congestion is unavoidable*

- The combination of few existing roads and a rapidly expanding population will make congestion inevitable. There is little to no institutional capacity to provide roads in the near future.

**Low Risk, Low Opportunity:** *Low area of accessible roads per person but room to expand*

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<sup>1</sup> The term "accessible" roads can incorporate both paved/surfaced roads as well as dirt roads as long as they are driveable and well established.

- In this situation, there are few roads to service the population, but there is institutional will to increase road networks as well as physical/spatial room to expand these roads.

**High Risk, High Opportunity:** *Adequate area of accessible roads per person but little to no room to expand*

- An adequate area of accessible roads for the population makes this a good candidate in the short term. However, if there is no room to expand road provision to accommodate a growing population, this can make New Mobility solutions more difficult in the future.

**Low Risk, High Opportunity:** *Adequate area of accessible roads per person and room to expand*

- Road provision is adequate and expanding, although many roads in the network may be poorly maintained. There is physical room to expand these roads in the future to accommodate a growing population.

## Existing IT Infrastructure Indicator

When examining IT infrastructure in terms of internet usage, Sub Saharan Africa clearly lags behind other developing regions of the world. Despite having nearly 14% of the world's population, SSA has access to only 19,512 international circuits, or 0.16% of the global total; this represents fewer international circuits than Ireland for a population 200 times larger<sup>143</sup>.

The real success story for IT infrastructure in SSA lies in its mobile phone industry. Africa is the fastest growing market for cell phones in the world, with mobile penetration rates doubling from 6.5 per 100 inhabitants in 2003 to 13.1 per 100 inhabitants in 2005<sup>144</sup>. This growth is driven predominantly by the private sector (often by African firms) and is largest when the mobile market is competitive<sup>145</sup>.

Official figures of mobile phone ownership in SSA are very small and obscure the fact that while ownership is low, access is high<sup>146</sup>. One Vodafone study states the following:

“We have learned that people in Africa use mobile phones very differently. Most striking is the accessibility of mobile phones. While penetration rates are by the standards of developed world countries very low, the way in which mobiles are informally shared between people, the formation of private resellers of mobile services and the provision of mobile phones for public use, all increase accessibility, even in rural communities. The impact of mobiles extends well beyond what might be suggested by the numbers of subscribers alone<sup>147</sup>”.

Mobiles are adaptable to the African market because they solve cash flow problems by offering prepay services and capital requirements since SIM cards make it possible to avoid owning a phone when it is possible to borrow another<sup>148</sup>.

The high accessibility of mobile phones presents an enormous opportunity for the delivery of pro-poor services. For example, the Open Knowledge Network project is running a pilot project using SMS push and pull services to spread information about health (particularly HIV/AIDS), jobs, and community news in Nairobi slums<sup>149</sup> (see Figure 22).

It is important to note that the African cell phone market is not homogenous. When looking at the entire continent (including North

Figure 22. Using Cell Phones in Slums to Spread Information



Africa), 25% of subscribers live in South Africa, 13% live in Nigeria, and 25% live throughout the rest of SSA.

### ***Risk Analysis***

IT infrastructure is important to any business, and ideally should be widespread with a capacity to expand. Cell phones have the potential to be a great asset to a New Mobility business, since they are pro-poor (that is, the business model is adaptable to people living in poverty). A competitive cell phone market with many providers is likely to be the best indicator of IT infrastructure (rather than cell phone subscription rates or internet usage rates).

### ***Existing IT Infrastructure Risk vs. Opportunity Assessment***

**High Risk, Low Opportunity:** *Low IT infiltration, low capacity to expand*

- Both subscription rates as well as access to mobiles and/or other IT services are low, and there is little capacity to expand and address the shortfall.

**Low Risk, Low Opportunity:** *High IT infiltration, low capacity to expand*

- The low capacity to expand makes this less of an opportunity than other situations; existing high IT infiltration rates makes it a low risk situation.

**High Risk, High Opportunity:** *Low IT infiltration, high capacity to expand*

- Data may indicate that subscription services to mobile phones or other IT services are low, but there is evidence that IT services will expand rapidly in the near future.

**Low Risk, High Opportunity:** *High IT infiltration, high capacity to expand*

- This is likely to be one of the top African markets; there are both high subscription rates as well as widespread access to mobile phones. A competitive market is likely to increase mobile phone infiltration.

### **Rate of Slum Expansion Indicator**

Since Sub Saharan Africa is a rapidly urbanizing continent, slum expansion (rather than urban densification) will be inevitable for most cities. It is important to understand at what rate slums are expanding in order to correctly assess the problem. For example, East Africa currently has a low proportion of slum dwellers. The current state of slums in the region masks the fact that it has high rates of slum increase and is likely to catch up to slum prevalence seen in other regions of Africa<sup>150</sup>.

### **Risk Analysis**

Rapid slum expansion poses a risk for FUMN if infrastructure cannot keep pace, thereby making FUMN solutions more difficult to implement. It is not expected that infrastructure will be of the same quality as that in the developed world; rather, there must be at least some infrastructure.

### **Rate of Slum Expansion Risk vs. Opportunity Assessment**

#### **High Risk, Low Opportunity: *Rate of Expansion Outpaces Infrastructure Provision***

- In this situation, rapid slum expansion will outpace infrastructure provision. The lack of physical infrastructure will be the biggest risk, particularly road provision.

#### **Low Risk, Low Opportunity / High Risk, High Opportunity: *Low rates of expansion, low infrastructure provision***

- In this situation the slum growth and expansion rate is low, or the slum growth rate is high but slums are densifying rather than spreading out. In either case, infrastructure provision cannot keep pace.

#### **Low Risk, High Opportunity: *Rate of Expansion in pace with infrastructure provision***

- In this situation, slums are either not expanding or infrastructure provision is in line with slum expansion.

## Existing Energy Infrastructure Indicator

For this Indicator, “energy infrastructure” comprises both electricity and oil or other energy sources for transportation systems.

Surveys of 1,800 firms in eight countries in SSA indicate that deficient utility infrastructure is a serious impediment to doing business<sup>151</sup>. Electricity, which is often expensive, unreliable, and in short supply, is most often cited as the biggest constraint, with African firms generally losing as much as 3-7% of their sales as a result of unreliable electricity<sup>152</sup>. Inadequate electrical infrastructure originates mainly from government failures and a prevalence of state-owned monopolies<sup>153</sup>. For example, it takes 174 days to get connected to a power grid in Zambia, compared to 18 days in China<sup>154</sup>.

Data on energy used for mobility is more difficult to come by, but there are shortages even in oil-rich countries, such as Nigeria. Even though the economy is overly dependent on the oil sector (which comprises 20% of GDP), economic, political, and social problems contribute to an inefficient and inadequate energy infrastructure<sup>155</sup>. In general, inadequate supply and distribution networks are a serious constraint to infrastructure for energy provision.

## Risk Analysis

New Mobility solutions, while more environmentally-friendly than traditional transportation networks, still require energy. A lack of electricity and transportation fuel is likely to pose a substantial cost to doing business in regions where there is inadequate supply.

## Existing Energy Infrastructure Risk vs. Opportunity Assessment

**High Risk, Low Opportunity:** *Chronic and severe energy shortages for both electricity and transport fuels*

- In this situation, electricity is expensive and unreliable, with blackouts posing a serious cost to doing business. Transportation fuels are either expensive or a combination of inadequate supply and inefficient distribution networks contribute to a stagnating transportation sector.

**Low Risk, Low Opportunity:** *Intermittent energy shortages and no capacity to expand*

- In this situation, there are frequent blackouts and fuel shortages, and there is little to no institutional capacity to improve by expanding energy infrastructure.

**High Risk, High Opportunity:** *Adequate energy infrastructure but little to no capacity to expand*

- In this situation, poor energy infrastructure likely poses a small cost to doing business, but it is relatively adequate. The lack of a capacity to expand poses a risk if the region is growing substantially.

**Low Risk, High Opportunity:** *Adequate energy infrastructure in place with capacity to expand.*

- In this situation, electricity is reliable and the supply of transportation fuels is adequate and dependable. There is institutional capacity to expand energy infrastructure to meet the needs of a growing population and/or a growing economy.



## Solid Waste Disposal Indicator

The first thing most non-slum dwellers observe in slum areas is the trash littering the streets. Given that slums are characterized by poor service provision and are often not formally recognized by governments, it is no surprise that there is hardly a slum in any city of Africa in which waste is properly disposed<sup>156</sup>. In some places such as Nairobi, private companies collect solid waste at double the cost, but these private companies reach only about 30% of slum households<sup>157</sup>. Inadequate waste and collection disposal negatively impacts ecosystems of cities, aids in the degradation of the urban environment, and poses a health hazard to urban populations<sup>158</sup>.

## Risk Analysis

Inadequate or nonexistent waste disposal methods result in trash littering the streets of slums. This can cause streets within the slum to be impassable, making it difficult or impossible to provide mobility solutions (other than walking) within the slum.

## Solid Waste Disposal Risk vs. Opportunity Assessment

**High Risk, Low Opportunity:** *Lack of adequate solid waste disposal method makes roads impassable*

- In this situation, municipal solid waste collection is nonexistent or severely inadequate, and/or private companies are nonexistent or prohibitively expensive. Solid waste litters the streets and renders them impassable to any vehicle.

**Low Risk, Low Opportunity : High Risk, High Opportunity:** *Intermittent waste disposal management; roads often impassable*

- In this situation, waste disposal is intermittent and often inadequate. Roads are generally walkable, although many are likely impassable to any kind of vehicle.

**Low Risk, High Opportunity:** *Adequate solid waste disposal methods; streets passable.*

- In this situation, litter is still a part of slum life but there are collection methods that assuage the problem. The streets are generally passable for small vehicles.

## Chapter 8. Economy / Employment

This chapter examines the economic and employment aspects of a particular site, including the characteristics of the informal economy, proportion of income spent on transportation, levels of unemployment, needs met within the slum, and the proportion of the population living in extreme poverty.

It is important to note two things about this chapter. First, the descriptions for various risk versus opportunity situations are extremely qualitative rather than quantitative (e.g., we include “high proportion living in poverty” rather than giving a specific percentage of the population). Since the values are likely to be relative, a specific number would be misleading and not particularly useful.

Secondly, this Category is a Fundamental Business Category and therefore examined in terms of its affect on the viability of FUMN as a business. It is logical from a business perspective that areas doing well economically are areas in which to focus. This is not to say that poor areas (which encompass much of Sub Saharan Africa) should be overlooked; rather, the risks involved in penetrating these areas should be thoroughly understood and offset by Support Partners. This is reflected by lenient threshold (“no-go”) lines for this Category.

Figure 23. Slum Evaluation Matrix: Economy / Economics Category

Economy / Economics	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Characteristics of the Informal Economy	Little regulation, exploitation likely		No current regulation, but FUMN can lobby for measures to prevent exploitation	Regulation makes exploitation unlikely
	Proportion of Income Spent on Transportation	Small proportion, making FUMN uncompetitive		Large proportion, making FUMN competitive	
	Levels of Unemployment	High levels of unemployment, minimal job growth/creation	Medium levels of unemployment, slow job growth	High levels of unemployment but rapid job growth	Low levels of unemployment
	Needs Met Within the Slum	Majority of Needs met within the slum		Most Needs Fulfilled Outside of Slum	
	Proportion of Population Living in Extreme Poverty	High proportion living in extreme poverty	Med-level proportion of extreme poverty		Low proportion living in extreme poverty

## Characteristics of the Informal Economy Indicator

As discussed in depth in Chapter 6 in the “Interface between the formal and informal economies” Indicator, informal economies are characterized by their extra-legality rather than by the size or type of enterprises prevalent within the sector. According to one study on informal economies in Africa,

“the forms of unregulated production, distribution and service provision, the incomes [informal economies] yield and their position in relation to legal codes and law enforcement may vary widely both between countries but also within the same city. Their degree of legitimacy and illegitimacy and the extent to which better-off segments of the urban population are involved also varies between cities and countries. It is their extra-legality that is the salient characteristic of informal economic activities, not the type or size of the enterprise nor the incomes earned there.<sup>159</sup>”

Informal economies are ubiquitous to urban Sub Saharan markets. The informal economy is estimated to account for 78% of nonagricultural employment in Africa, 93% of all new jobs created, and 61% of urban employment. It is particularly important for women in Africa, as it is estimated to represent 92% of job opportunities outside of agriculture<sup>160</sup>. It is also estimated that 70% of informal employment is self-employment, particularly for women<sup>161</sup>. Not surprisingly, the informal economy contributes a great deal to national economies; one study estimates the figure at about 40% of GDP<sup>162</sup>.

There are several disadvantages of having such large and widespread informal economies. Since they are not formal they cannot be taxed, which further contributes to the problem of small government budgets. According to the International Labor Organization (ILO), the informal nature of the employment also means that workers are denied several essential securities, including the following<sup>163</sup>:

- *Labor market security*, or adequate employment opportunities.
- *Employment security*, or job stability and protection against arbitrary dismissal
- *Job security*, or the opportunity to develop a “niche” and develop a sense of occupation through enhancing competences
- *Work security*, or protection against accidents at work or illness resulting from a disregard of health and safety regulations
- *Skill reproduction security*, or widespread opportunities to gain and retain skills through apprenticeships or employment training

- *Income security*, or the provision of adequate incomes
- *Representation security*, or the ability to participate in independent trade unions or other forms of collective action.

The lack of government regulation or social provision makes informal operators vulnerable to exploitation. Harassment, endemic bribery and extortion practiced by public officials are problems often faced by informal operators<sup>164</sup>. This is a severe limitation to harnessing the economic potential of the sector; when informal operators cannot count on fair and impartial enforcement of laws and regulations, they must rely on interpersonal networks when their business is threatened<sup>165</sup>. This means that their incentive is to cultivate local relationships rather than to seek outside partners who could expand their horizons and markets. Essentially, without some form of regulation or social provision, informal enterprises of any size will remain small and undercapitalized<sup>166</sup>.

Regulating the informal economy may take several forms. As stated by the ILO, the most basic aspect of regulation is that it must provide informal workers with legal and social protection as well as representation and recognition. A further step is for the government to enable those in the informal economy to move into formal work by ensuring that workers and entrepreneurs have the capacity, flexibility, and legal/political framework to do so<sup>167</sup>.

### ***Risk Analysis***

The lack of security for informal workers as described above opens the window for exploitation. If Primary Accessibility Partners within the slum are informal, they may be a target for bribes or harassment if their business is seen to be more profitable. In contrast, the lack of regulation of Accessibility Partners could defeat the social mission of serving slums, since there is no method to ensure that they are serving the poorer population rather than a richer population with greater capacity to pay for an efficient service. Basic regulation of the industry will provide better social protection for those using FUMN's service.

### ***Informal Economy Characteristics Risk vs. Opportunity Assessment***

**High Risk, Low Opportunity / Low Risk, Low Opportunity:** *Little regulation, exploitation likely*

- A large, completely unregulated informal economy opens the window for exploitation. The possibility of under-serving the slum community could be detrimental to FUMN's reputation, particularly if the business is seen as primarily a social mission in the area.

- This is a “no-go” situation.

**High Risk, High Opportunity:** *No current regulation, but FUMN can lobby for measures to prevent exploitation*

- In this situation, there may be very little to no regulation or ineffective implementation of regulations. However, FUMN’s strategic position of offering a service that would greatly increase a city’s efficiency may give them bargaining power to insist on some form of regulation to increase worker protection.

**Low Risk, High Opportunity:** *Regulation makes exploitation unlikely*

- In this situation, government policies at all levels are working with (not against) the informal economy. They recognize the potential for the sector and are working to strengthen regulation and social protection for the workers in this sector; therefore, exploitation is less likely.

### **Proportion of Income Spent on Transportation Indicator**

Transportation costs are high everywhere in Africa, particularly in inland countries; whether local, regional, national, or international, the inordinately high costs for a typical African country are at least twice those of their Asian counterparts<sup>168</sup>. As discussed in Chapter 1, the poor often spend a great deal of time and their disposable income on transportation. Since slum dwellers often live on the periphery of cities, it can be expected that transportation costs will be especially high for them, particularly if job opportunities, markets, or education and health services are located far from slum sites. The proportion of income spent on transportation for slum dwellers is an ideal proxy to understand the burden of transportation inefficiency on slum households and to what extent this perpetuates the cycle of poverty. This information also helps FUMN understand what cost structures are appropriate when serving this community.

### **Risk Analysis**

The risk involved is the unlikely scenario where transportation costs are not high for the poor. In such a case where transportation is subsidized, efficient, or costs are low, FUMN cannot be competitive. However, the poor likely spend so much on transportation that even minimal efficiency gains that lower costs for slum dwellers would make FUMN competitive in this market.

### ***Proportion of Income Spent on Transportation Indicator Risk vs. Opportunity Assessment***

**High Risk, Low Opportunity / Low Risk, Low Opportunity:** *Small proportion of income makes FUMN uncompetitive*

- Transportation is inexpensive and efficient, making FUMN uncompetitive.
- This is a “no-go” situation.

**High Risk, High Opportunity / Low Risk, High Opportunity:** *Large proportion of income makes FUMN competitive*

- The proportion of income spent on transportation is so high that any efficiency gain makes FUMN competitive.

## Levels of Unemployment Indicator

Despite impressive economic growth in the recent decade (5.4% from 2005 to 2006), unemployment is still a problem in the African region, which currently houses 11.9% of the world's labor force<sup>169</sup>. While the informal economy may absorb some of the unemployed, there are often significant entry barriers to informal employment that exclude many of the unemployed, such as required experience and social networks<sup>170</sup>.

The 2006 overall unemployment rate in Sub Saharan Africa was 9.8%; this figure, while large, is an average and may be misleading. It does not reveal the uneven distribution of unemployment within countries (rural vs. urban), between countries and regions, or across age and gender groups<sup>171</sup>.

The actual toll of unemployment must be looked at in specific areas in order to understand its affects on slum populations and the viability of a business. While unemployment rates differ from place to place, it is certain that unemployment will remain a huge problem as only 8.6 million jobs are created every year to absorb the 9-10 million people who are simultaneously added to the workforce<sup>172</sup>.

## Risk Analysis

Dependency rates are already large in Sub Saharan Africa because of various factors such as HIV/AIDS and a large youth population. High unemployment rates increase the dependency rates per household, placing additional strain on the resources of those that can find work. While unemployment rates may not be accurate if they do not take into account the informal economy, they can give an indication of how strained households are and how transportation services would likely be used. They can also indicate how important it is to create solutions that trade some efficiency gains for employing more people.

## Levels of Unemployment Risk vs. Opportunity Assessment

**High Risk, Low Opportunity:** *High level of unemployment, minimal job growth/creation*

- High levels of unemployment and minimal job growth or creation will create an area that is economically stagnating unless the informal economy is vibrant.

**Low Risk, Low Opportunity:** *Medium levels of unemployment, slow job growth*

- This is a situation where unemployment is a constraint but the job outlook is improving, albeit slowly.

**High Risk, High Opportunity:** *High levels of unemployment but rapid job growth*

- This is a region that is experiencing rapid economic growth; while unemployment rates are currently high, rapid job growth is likely to occur in the near future to alleviate the situation.

**Low Risk, High Opportunity:** *Low levels of unemployment, rapid job growth*

- This is an ideal economic situation, where unemployment is not high and prevalent, and the job outlook is good or improving.



### **Needs Met Within the Slum Indicator**

In any business venture, it is important to know the habits of the market you are trying to serve. Since slums are a spatial as well as economic and social phenomenon, the needs of slum dwellers will vary substantially from slum to slum; the movement patterns of the dwellers of various slums will reflect this. Fragmented, remote slums will likely require that the dwellers leave the slum to meet every need, further increasing their reliance on transportation systems. In some cases, it is possible that many needs (such as going to the market, working, health services, education, etc.) will be locally available in the slum. It will be crucial to understand the movement patterns of slum dwellers and plan accordingly in order to increase the profitability and/or social viability of the business venture.

### **Risk Analysis**

The more basic needs of slum dwellers met within the slum, the less their reliance on transportation. This is not likely to be a substantial risk for FUMN systems, since slums inherently lack access to certain services. A lack of reliance upon transportation for basic needs provision may not necessarily decrease FUMN's competitiveness, since one can assume that if a slum dweller had increased accessibility and mobility, he/she would likely use FUMN systems for other mobility needs besides needs provision. That said, this is a useful Indicator because it gives important insight into the usage and movement patterns of the market FUMN is attempting to serve.

### **Needs met within the slum Risk vs. Opportunity Assessment**

**High Risk, Low Opportunity / Low Risk, Low Opportunity:** *Majority of needs met within the slum*

- In this situation, slum dwellers work, go to school, and buy most of their goods within the slum. Mobility would likely be used for non-essential activities.

**High Risk, High Opportunity / Low Risk, High Opportunity:** *Most needs fulfilled outside of slum*

- In this situation, the slum-dwellers rely heavily on mobility to survive. This likely means that mobility represents a large portion of their time and income, no matter what mode of transportation they take.

### **Proportion of Population Living in Extreme Poverty Indicator**

Between 1981 and 2001, the number of people living in extreme poverty in Sub Saharan Africa increased from 164 million to 314 million, including 144 million men and women of working age<sup>173</sup>. SSA has the largest number of working poor in total employment of any region, and it is estimated that 55% of people employed in SSA live in extreme poverty (under \$1 a day)<sup>174</sup>. The proportion of the population living on under \$1 per day and under \$2 per day has changed little over the past ten years<sup>175</sup>. (While the \$1 per day or \$2 per day proxy is most common, it may be helpful to use national poverty line statistics.) This Indicator is most helpful for the population in a particular slum, but if this data is unavailable the population for the city would be valuable as well. (A national statistic is not as valuable since, depending on the country, it may reflect rural poverty more than urban poverty).

### **Risk Analysis**

The needs of those living in extreme poverty are fundamental, and the extremely poor are likely to value or afford transportation only after other basic needs (food, water) are met. If a large population is living in these conditions, the market for FUMN services is potentially very small unless substantial subsidies make the cost extremely low.

### **Proportion of Population Living in Extreme Poverty Risk vs. Opportunity Assessment**

**High Risk, Low Opportunity:** *High proportion living in extreme poverty*

- If a high proportion of the population is living in extreme poverty, the market for mobility is potentially small since the poor must make choices between basic necessities and mobility.

**Low Risk, Low Opportunity / High Risk, High Opportunity:** *Mid-level proportion of extreme poverty*

- A substantial proportion of the population lives in extreme poverty, either in terms of \$1 per day or \$2 per day proxies or using the national poverty line.

**Low Risk, High Opportunity:** *Low proportion living in extreme poverty*

- A low proportion of the population lives in extreme poverty (either \$1 or \$2 per day, or under the national poverty line).

## Section 4. Deep Sustainability Categories

The next section will examine the risk and opportunity of Indicators in the Deep Sustainability Categories. The Deep Sustainability Categories contain Indicators that represent social and environmental problems faced by the African continent in general and many slum-dwellers in particular. These Categories include Environment, Education, and Health, with many of the Indicators reflecting a Millennium Development Goal.

As discussed in Chapter 1, *Deep Sustainability* is a way of looking at sustainability issues by putting the social and environmental justice issues at equal footing with environmental issues, since these issues are fundamentally and intricately intertwined. These Indicators represent opportunities to identify situations for FUMN to convene Support Partners interested in using FUMN services as a means to achieve their goals. As such, the risk opportunity assessment for these Indicators is different from that of the Indicators in the Fundamental Business Categories. *The risk for these Indicators is not the problem itself (e.g., malaria, HIV, or low education rates), but rather the lack of urgency or Support Partners interested in the problem.*

While it may seem counter-intuitive that a “small” problem (i.e., low levels of malaria infections) is high risk, there needs to be a sense of exigency to solve the problem in order to effectively convene Support Partners together. These Support Partners, whether providing financial or non-financial resources (see Chapter 11) will be essential in situations where the Fundamental Business Category outcomes indicate a less-than-ideal situation.

The risk vs. opportunity assessment for all Indicators in the Deep Sustainability Categories will therefore remain consistent across all Indicators. These situations are as follows:

<b>High Risk, Low Opportunity:</b>	<i>A small “problem” with no sense of urgency.</i>
<b>Low Risk, Low Opportunity / High Risk, High Opportunity:</b>	<i>A sizeable “problem” with some sense of urgency; Support Partners prioritize other sites.</i>
<b>Low Risk, High Opportunity:</b>	<i>A large problem with sense of urgency; this is a priority site for Support Partners.</i>

## Chapter 9. Deep Sustainability Categories

### Environment Category

Figure 24. Slum Evaluation Matrix: Environment Category

Environment	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity / High Risk High Opportunity	Low Risk High Opportunity
	Toilets per Person	Adequate toilets per person, diseases caused by improper sanitation not a priority; no sense of urgency	Diseases caused by improper sanitation prevalent; sense of urgency	Rampant diseases caused by improper sanitation; high sense of urgency
	Expected Influx of Climate Change Refugees	Few climate change refugees seeking refuge in slum; no sense of urgency	Moderate level of climate change refugees seeking refuge in slum; sense of urgency	Large numbers of climate change refugees seeking refuge in slum; high sense of urgency
	Greenfield Development	Minimal greenfield development occurring; no sense of urgency	Moderate levels of greenfield development occurring; sense of urgency	High level of greenfield development occurring; high sense of urgency
	Water Access	Adequate access to safe drinking water; no sense of urgency	Limited access to safe drinking water; sense of urgency	Inadequate access to safe drinking water; high sense of urgency
	Risk of Flooding as a Result of Climate Change	Low risk of flooding; no sense of urgency	Increased incidence of flooding; sense of urgency	Recurring flooding; high sense of urgency

#### *Toilets per Person Indicator(MDG)*

- This Indicator serves as a proxy for sanitation goals and is MDG 7, target 3 (halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation).
- In 15 of the 54 countries in Africa, sanitation coverage is less than 25%. It is estimated that only 52% of urban dwellers have access to a sanitation facility<sup>176</sup>. Overall, progress for the MDG is stagnating in urban areas and few countries are on target for achieving the MDG.

#### *Expected Influx of Climate Change Refugees Indicator*

- The accepted prediction for climate change migrants by 2050 is about 200 million people, particularly those resulting from disruptions of monsoon systems and other rainfall regimes, droughts of unprecedented severity and duration, and coastal flooding resulting from sea-level rise<sup>177</sup>. This figure has been cited by the IPCC, the Stern Review's "The Economics of Climate Change". Other estimates range from 25 million to 1 billion people<sup>178</sup>.

- It is expected that many of the people affected by climate change will migrate to urban areas, and most likely to slums.
- This figure represents ten times the number of today's entire documented refugee and internally displaced population. It also represents one in every 45 people in the world in 2050<sup>179</sup>.

### *Greenfield Development Indicator*

- Greenfield sites are natural or agricultural land converted to housing or other urban land use, usually at the urban fringe or in peri-urban areas<sup>180</sup>.
- The rapid conversion of greenfield sites to accommodate growing cities is cited as a contributing factor to food insecurity in Sub Saharan Africa<sup>181</sup>.

### *Water Access Indicator(MDG)*

- This Indicator serves as a proxy for sanitation goals and is MDG 7, target 3 (halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation).
- Inadequate access to water may be a result of a strained supply (due to drought, for example), or of institutional inability to provide water infrastructure resulting in a dependency on water vending.
- Only 58% of people in Sub Saharan Africa (including rural populations) had access to improved drinking water in 2006. This is well behind the MDG target<sup>182</sup>.
- According to the IPCC, "Climate change and variability have the potential to impose additional pressures on water availability, accessibility, supply and demand in Africa. It is estimated that around 25% of Africa's population currently experiences water stress, with more countries expected to face high future risk<sup>183</sup>."

### *Risk of Flooding as a Result of Climate Change Indicator*

- According to the IPCC, "frequent natural disasters, such as droughts and floods, have largely constrained agricultural development in Africa, which is heavily dependent on rainfall, leading to food insecurity in addition to a range of macro- and micro-structural problems<sup>184</sup>."
- Many slums are at risk of flooding since these settlements are structurally unsound and often located on floodplains<sup>185</sup>.

## Education Category

Figure 25. Slum Evaluation Matrix: Education Category

Education	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity / High Risk High Opportunity	Low Risk High Opportunity
	Proportion of Girls in School	Proportion of girls equal to proportion of boys in school; no sense of urgency	Consistently fewer girls than boys in school; sense of urgency	Very low proportion of girls in school relative to boys; high sense of urgency
	Access to Secondary and Tertiary Education	Adequate access to secondary and tertiary education; no sense of urgency	Limited access to secondary and tertiary education; sense of urgency	No access to secondary and tertiary education; high sense of urgency
	Proportion of Population that are Students	High proportion of population are students; no sense of urgency	Moderate proportion of population are students; sense of urgency	Low proportion of population are students; high sense of urgency
	Literacy Rates	High literacy rates for both males and females; no sense of urgency	Moderate literacy rates for males and females or literacy imbalance between genders; sense of urgency	Low literacy rates for both males and females; high sense of urgency
	Proportion of Population with Primary Education	High proportion of population with primary education; no sense of urgency	Moderate proportion of population with primary education; sense of urgency	Low proportion of population with primary education; high sense of urgency

### *Proportion of Girls in School Indicator (MDG)*

- This Indicator serves as a proxy for MDG 3: “Promote gender equality and empower women,” with a target of “eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015.”
- Although much progress has been made in Sub Saharan Africa towards reducing gender disparity, 89 girls enroll in primary school for every 100 boys, and 80 per 100 for secondary school enrollment<sup>186</sup>.
- The worst region for enrollment of girls is in Western and Central Africa, where drought, food shortages, armed conflict, poverty, lack of birth registration, child labor, and HIV/AIDS contribute to low school enrollment and high dropout rates<sup>187</sup>.

### *Access to Secondary and Tertiary Education Indicator*

- Most Sub Saharan Africans have limited access to secondary and tertiary education; half of the countries have enrollment rates of no more than 26% for secondary education and 2.5% for tertiary education<sup>188</sup>.

- There is a significant gender disparity for tertiary education, with fewer than five girls to every 10 boys enrolled. They are often confined to “feminine” fields such as social sciences, humanities, services and health-related courses<sup>189</sup>.

#### *Proportion of Population that are Students Indicator*

- In 2005, 62% of Africa’s overall population was under the age of 25<sup>190</sup>.
- It is important to know the size of the student population in a particular slum to determine the extent to which academic services should be emphasized when attempting to bundle services.

#### *Literacy Rates Indicator*

- Increasing the size of the literate population in Sub Saharan Africa will be a major asset to development. Although much progress has occurred since 1990 in terms of increasing literacy rates, the absolute number of illiterate African adults has increased to 136 million, mostly as a result of demographic growth<sup>191</sup>.
- There are gender disparities in literacy rates for 75% of countries in the region, with 52% of women being literate, compared to 68.9% of men. There are also regional differences; with Western African countries have lower literacy rates, while Southern African countries have higher literacy rates<sup>192</sup>.

#### *Proportion of Population with Primary Education Indicator(MDG)*

- This Indicator serves as a proxy for MDG 2: “achieve universal primary education,” and its associated target to “ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling<sup>193</sup>.”
- In Sub Saharan Africa, net enrollment of children of primary school age recently reached only 71%<sup>194</sup>.

## Health Category

Figure 26. Slum Evaluation Matrix: Health Category

Health	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity / High Risk High Opportunity	Low Risk High Opportunity
	Proportion of Population Chronically Undernourished	Low proportion of population chronically undernourished; no sense of urgency	Moderate proportion of population chronically undernourished; sense of urgency	High proportion of population chronically undernourished; high sense of urgency
	Malaria Rates	Low incidence of malaria; no sense of urgency	Moderate levels of malaria; sense of urgency	Rampant rates of malaria; high sense of urgency
	Access to Health Care / Medications	Adequate access to health care and medications; no sense of urgency	Inconsistent access to health care and medications; sense of urgency	Extremely limited access to health care and medications; high sense of urgency
	HIV / AIDS Rates	Low incidence of HIV / AIDS; no sense of urgency	Moderate incidence of HIV / AIDS; sense of urgency	High incidence of HIV / AIDS; high sense of urgency
	Child Mortality Rates	Low level of child mortality; no sense of urgency	Moderate level of child mortality; sense of urgency	High level of child mortality; high sense of urgency

### *Proportion of Population Chronically Undernourished Indicator (MDG)*

- This Indicator serves as a proxy for MDG 1: Eradicate extreme poverty and hunger, as well as the target to “Halve, between 1990 and 2015, the proportion of people who suffer from hunger.”
- Twenty-eight percent of children under five are underweight in Sub Saharan Africa.
- Changing food prices hit the poor the hardest. Prices have been escalating because of rising demand resulting from changing diets, economic growth, an expanding world population, urbanization, use of food crops for biofuel, and inappropriate subsidies and agricultural practices<sup>195</sup>.

### *Malaria Rates Indicator (MDG)*

- This is MDG 6: Combat HIV/AIDS, malaria, and other diseases. The target is to “have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.”
- In a subset of 22 Sub Saharan African countries, covering nearly half the region’s population, the proportion of children with malaria who received anti-malarial medicines dropped from 41% in 2000 to 34% in 2005.



### *Access to Health Care / Medications Indicator (MDG)*

- This is a proxy for MDG 5: Improve Maternal Health. The target is to “reduce by three quarters, between 1990 and 2015, the maternal mortality ratio” and “achieve, by 2015, universal access to reproductive health.”
- Only 47% of childbearing women in Sub Saharan Africa have access to a skilled health worker (doctor, nurse, or midwife) at the time of delivery<sup>196</sup>.
- Progress towards reducing maternal mortality in Sub Saharan Africa, the region with the highest level, has been negligible<sup>197</sup>.

### *HIV / AIDS Rates Indicator (MDG)*

- This is MDG 6: Combat HIV/AIDS, malaria, and other diseases. There are two targets: “Have halted by 2015 and begun to reverse the spread of HIV/AIDS,” and “Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it.”
- The vast majority of the 33 million people living with HIV in 2007 lived in Sub Saharan Africa, with women representing a growing share of the people newly infected<sup>198</sup>.

### *Child Mortality Rates Indicator (MDG)*

- This is MDG 4: Reduce child mortality. It includes a target to “reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.”
- Sub Saharan Africa accounts for about half the deaths of children under five in the developing world. The leading causes of childhood deaths are pneumonia, diarrhea, malaria, and measles<sup>199</sup>.

## **Section 5. Sub Saharan African Slum Market Penetration Strategies**

The previous sections have aided in identifying an ideal site for FUMN by performing a Market Assessment. After the Market Assessment has been completed, a site can be classified into three viable Business Scenarios (Profitable, Participatory, and Philanthropic) and chosen as a possible candidate for FUMN once co-creation strategies are put in place.

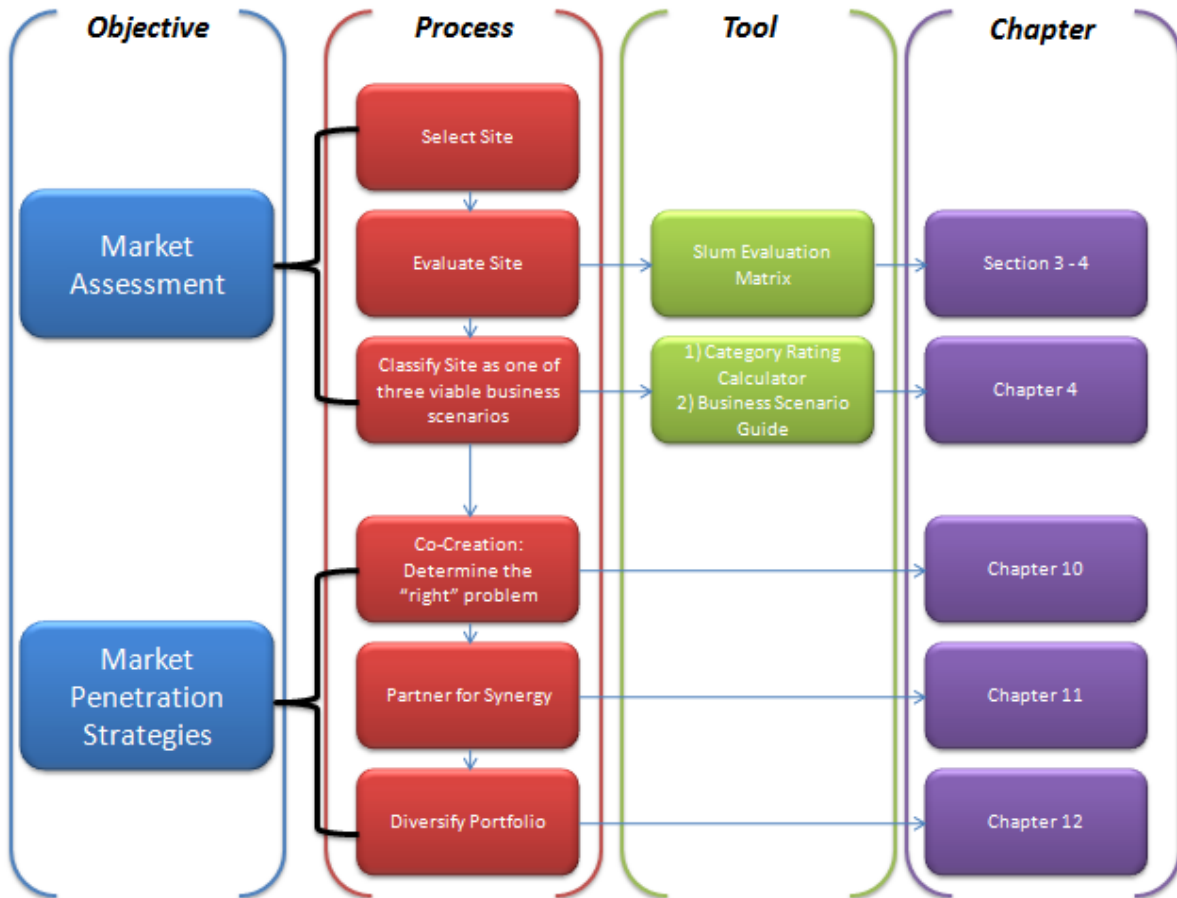
The following section examines what strategies are necessary for successful Market Penetration. We recommend that co-creation be a critical first step in the process once after a Market Assessment has taken place. Once the “right problem” has been determined, as described in Chapter 10, it will be necessary to find Support Partners to complete FUMN’s value network. Chapter 11 explores topics about partnerships in addition to identifying potential future Support Partners. Chapter 12 illustrates concepts regarding conducting business in the Badlands, including the relationship between the Business Scenarios and the competitive environment, degree of difficulty in implementation, and what changes in business approach are needed.

## Chapter 10. Co-Creating Solutions

The previous chapters have focused on the importance of selecting a proper site for FUMN implementation by first categorizing a slum into its appropriate Business Scenario to conserve resources such as time and money. Once a site has been categorized as a particular Scenario and chosen as a site of interest, it is of the utmost importance that a considerable amount of time and energy be invested to co-create solutions with the poor in order to realize meaningful social returns. This step is particularly important when dealing with Participatory and Philanthropic Scenarios.

We recommend that co-creation be the first step in a Market Penetration strategy (as shown in Figure 27 below). This recommendation is in line with the World Business Council for Sustainable Development (WBCSD)'s Sustainable Livelihoods guidelines, as described below.

Figure 27. The Processes in the Market Penetration Strategy Objective



## **Sustainable Livelihoods Business**

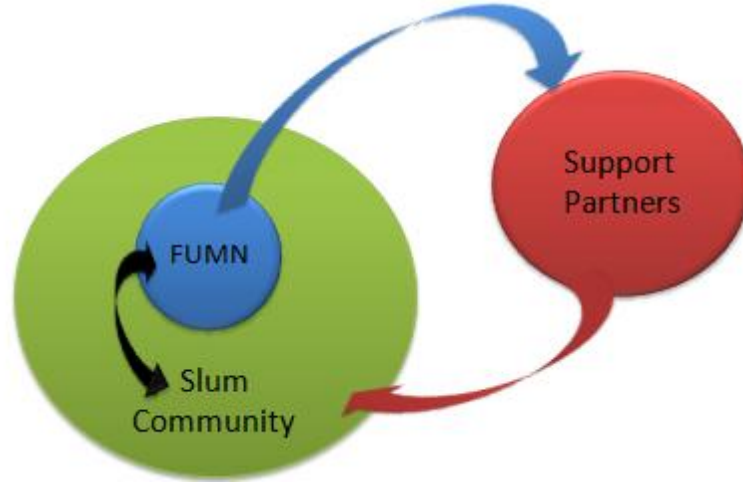
The work that has been accomplished to date in the development of FUMN as well as the concepts and recommendations within this report incorporate the Sustainable Livelihoods business model philosophy as described by the WBCSD. These are projects undertaken by companies that seek to do business with the poor in emerging markets in ways that benefit both the poor and the company<sup>200</sup>.

Successful Sustainable Livelihoods business models encompass three important components. First, companies pursuing SL businesses focus on their core competencies to ensure consistency across their primary business activities and the SL project<sup>201</sup>. FUMN is focusing on its core competency by acting primarily as a convener in the mobility sector, and the SL aspect of this endeavor is incorporating slum dwellers into FUMN systems. Second, SL businesses create partnerships across sectors to capture innovative synergies and potentially create solutions that address a bundle of needs simultaneously<sup>202</sup>. Partnering across sectors to provide synergistic solutions to a variety of needs is also fundamental to FUMN's objectives. In many situations, FUMN will partner with organizations to not only lower the burden of transportation costs to slum dwellers, but also to service other primary needs such as improving access to health and education. Finally, successful SL businesses localize the creation of value by incorporating local knowledge, resources and individuals into the value network<sup>203</sup>. Ideally, FUMN will work directly with the slum dwellers it intends to serve to thoroughly understand the needs of that specific community and utilize local capabilities. This process is also known as co-creation.

### **Co-creation: The Right Solution to the Right Problem**

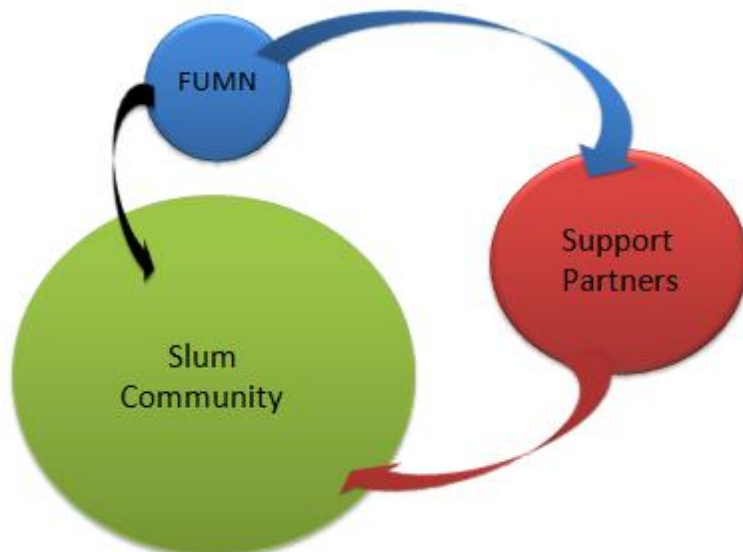
Co-creation is a critical step between selecting a site and implementing FUMN because it will aid in what we term “finding the right solution to the right problem”. The right solution to the right problem is determining what the local community considers to be their biggest priority, (e.g., water delivery/infrastructure, food provision, HIV drugs, electricity, mosquito nets, etc.) by talking with appropriate local leaders, NGOs, or the slum dwellers themselves. After the right problem has been identified, FUMN should then convene appropriate Support Partners to aid the community. When FUMN convenes from inside the slum (as shown in Figure 28 below), the community is more likely to take ownership of its stake in the project, which will increase the project’s likelihood of making a positive and significant social impact.

Figure 28. FUMN Finding the Right Solution to the Right Problem by Convening from the Inside Out



For SL businesses, it is easy to find the right solution to the wrong problem. Such a situation could result if FUMN were to convene from the outside in by determining the greatest problem the slum faces through little interaction with the slum dwellers themselves (as pictured below). While the suggested Market Assessment leads FUMN in the direction of finding the “right problem”, it is important that solutions are found for the problems prioritized by the slum community. Otherwise, even the most carefully deliberated partnerships and strategies for improvement are likely to fail since the people with the problems are not consulted when crafting the solutions.

Figure 29. FUMN Finding the Right Solutions to the Wrong Problem by Convening from the Outside In



The co-creation step will require significant investments in time, energy, and capital. Investing in this step, however, will save resources in the long-run by avoiding investments in a venture that is fundamentally socially unsustainable. As noted by the WBCSD, SL projects require “additional focus and significant change in the way we do business and the way we think about doing business...success will require companies to think beyond conventional wisdom<sup>204</sup>.”

## Chapter 11. Leveraging Partnerships for Slum Market Penetration

At this point in the process of conducting a Slum Market Assessment and developing a Slum Market Penetration plan, a FUMN evaluator will have classified the site under consideration, per its appropriate Business Scenario (i.e., Profitable, Participatory or Philanthropic). Additionally, having implemented the proper co-creation strategies, such as those described in Chapter 10, FUMN will have also identified the “right” problem. It is now time to start co-creating the right solution to that problem.

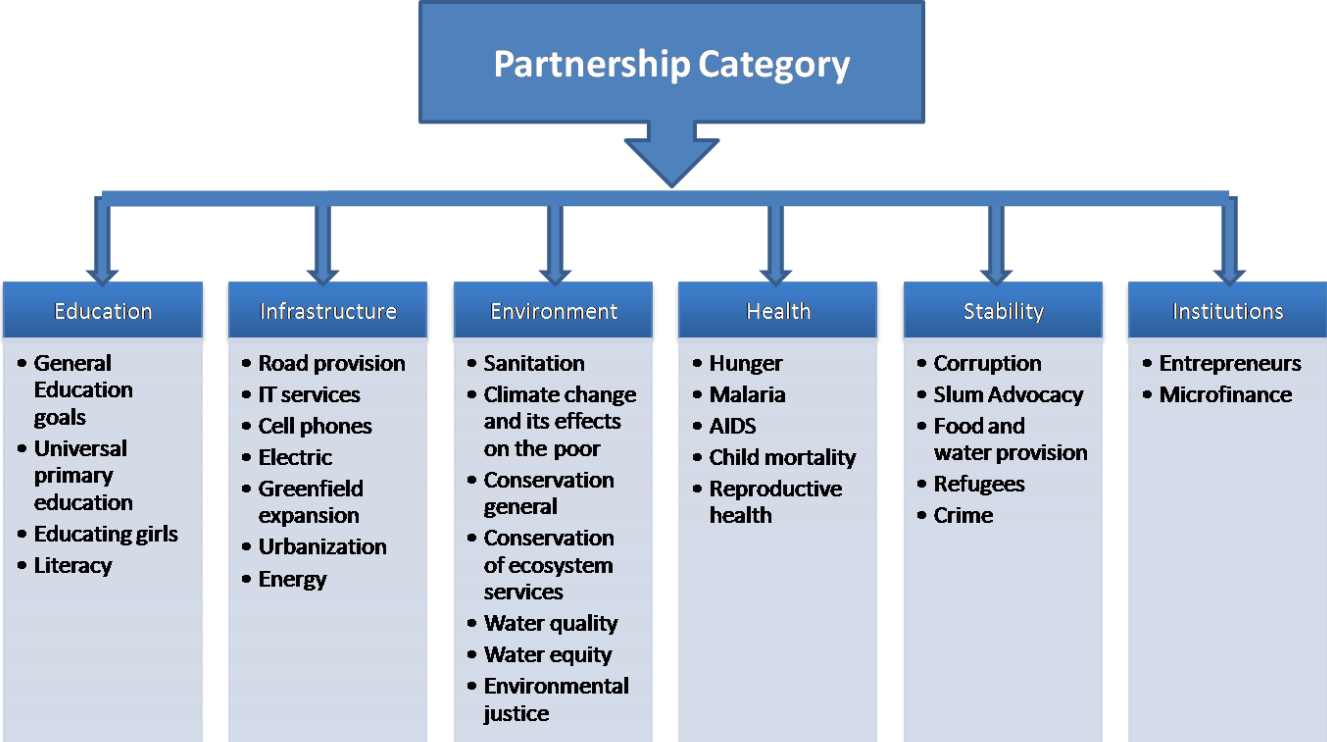
As was also described in Chapter 10, one of the three building blocks of Sustainable Livelihoods businesses is forming partnerships across sectors. Many different types of companies and organizations will be interested in utilizing FUMN systems to achieve their various objectives. Some of these entities may be attracted by the respective business cases they are able to make for providing services that slum dwellers need and/or want. Many other organizations will be primarily interested in partnering to provide FUMN products and services primarily because of the population being served within slums. Building effective, cross-sectoral partnerships with all types of organizations to address a bundled set of needs will lead to synergistic solutions to the problems faced by people living in slums.

Partnering to create a SL business such as FUMN helps ensure that all the necessary resources are assembled and aligned toward developing the right solution to the right problem. Partners can bring a variety of resources to the table, both financial and non-financial. Some partners, such as individual or corporate investors hoping to earn a return on their investment, will be interested in providing the patient capital required to build a SL enterprise. Other partners (such as the United Nations or local NGOs interested in achieving the Millennium Development Goals) can be looked to for expertise or logistical support.

There are several important points to keep in mind regarding partnering. Partner networks should be formed to offset potential risks. This can be achieved by selecting partners who are very familiar with the local market and can therefore help build local support for the SL business<sup>205</sup>. Partners should be involved with a site project at the beginning and should work together to align goals to ensure that a unified vision is being worked toward from the outset<sup>206</sup>. Expectations on both sides of a partnership should be clearly set, understood and managed. Specific strategies should be designed that address problems holistically while drawing upon the respective strengths of each partner<sup>207</sup>. Finally, because successful partnerships require time in order for trust and cohesiveness to fully develop, managers should remain on site long enough to foster this organic process<sup>208</sup>.

The following table has been designed to assist FUMN in identifying potential external partners. They are arranged by subject area under specific categories (see Figure 30 below). Note that local NGOs/community leaders and city/regional/national governmental figures are not specifically included in any section because it is assumed that these entities will be included at all steps of the process whenever possible.

Figure 30. Potential Partners by Subject and Category





## Education

	Fund Type	Organization Name	Program Name
<b>General Education Goals</b>	<b>Financial</b>	Global Partners for Development	Education
		World Bank	Basic Education Sector Project
		International Development of Computer Education (IDCE) program	Computer Literacy
	<b>Non-Financial</b>	Association for the Development of Education in Africa (ADEA)	Education in Africa
		The South African Education and Environment Project (SAEP)	Early Childhood Development High School Academic Support and Enrichment
		JET Education Services	School Development and Support
		The Human Sciences Research Council (HSRC)	Education, Science and Skills Development
		Student Partnership Worldwide	Education
		African University Foundation	Education

	Fund Type	Organization Name	Program Name
<b>Universal Primary Education</b>	<b>Non-financial</b>	Agency for International Development (USAID)	Africa Education Initiative (AEI)
		Global Literacy Project (GLP)	Global Literacy Project
		UNICEF	Education
		UNDP (Millennium Development Goals)	Africa
		EDC	Education Development Center

	Fund Type	Organization Name	Program Name
<b>Literacy</b>	<b>Financial</b>	Tostan	Improving Literacy and Math Skills
	<b>Non-Financial</b>	African Education Project	Literacy
		SIL (Summer Institute of Linguistics)	Literacy Training
		Project Literacy	ABET

	Fund Type	Organization Name	Program Name
<b>Educating girls</b>	<b>Financial</b>	Global Partners for Development	Women's Economic Development
		UNGEI	Narrow the gender gap
		Tostan	Promoting Girls' Education
	<b>Non-financial</b>	Imfunido	ICT
		International Monetary Fund(IMF)	Gender Gap in education
		Jifunze	Jifunze Project
		UNICEF	Education

### Infrastructure

	Fund Type	Organization Name	Program Name
<b>Road provision</b>	<b>Financial</b>	Emerging Africa Infrastructure Fund	
		EU-Africa Infrastructure Trust Fund	
		The New Partnership for Africa's Development	
	<b>Non-financial</b>	World Bank	Roads and Bridges Management and Maintenance Programme
		World Bank	Sub Saharan Africa Transport Policy Programme
		Africa Infrastructure Foundation	Rural road engineering.
		LET'S GO AFRICA FOUNDATION	Rural Transport
UN-Habitat	Urban Transport		

	Fund Type	Organization Name	Program Name
<b>IT services</b>	<b>Financial</b>	The African Economic Research Consortium (AERC)	Communications
	<b>Non-financial</b>	World Bank	Africa Regional Communications Infrastructure Programme
		The African Telecommunication Union (ATU)	ICT Infrastructure
		Soul City Institute	Communication for Change
		WANGONeT	IT Services
African Information Society Initiative			

	Fund Type	Organization Name	Program Name
<b>Cell phones</b>	<b>Non-financial</b>	The Commonwealth Telecommunications Organization (CTO)	The Commonwealth African Rural Connectivity Initiative (COMARCI)
		African Telecommunications Union African Information Society Initiative	

	Fund Type	Organization Name	Program Name
<b>Electricity</b>	<b>Financial</b>	The New Partnership for Africa's Development	
	<b>Non-financial</b>	African Development Bank	Bujagali Hydroelectric Project
		World Bank	Private Power Generation
		USTDA	Jordan National Electric Power Company Reactive Compensation and Transmission Loss Reduction
		Africa Infrastructure Foundation	Electrification Project

	Fund Type	Organization Name	Program Name
<b>Greenfield expansion</b>	<b>Financial</b>	Public-Private Infrastructure Advisory Facility	
	<b>Non-financial</b>	Public-Private Infrastructure Advisory Facility	

	Fund Type	Organization Name	Program Name
<b>Energy</b>	<b>Financial</b>	Acumen Fund	
		African Rural Energy Enterprise Development	
		Global Environment Fund	Energy
	<b>Non-financial</b>	World Bank	Urgent Electricity Rehabilitation
		World Bank	Energy Access Project
		UNDP	Environment and Energy
		United Nation Environment Programme	Energy

## Environment

	Fund Type	Organization Name	Program Name
<b>Sanitation</b>	<b>Financial</b>	World Health Organization/ AFRO	Water, Sanitation and Health
		Acumen Fund	Ecotact
		African Development Bank	Water and Sanitation Department
	<b>Non-financial</b>	African Development Bank	Rural Water Supply & Sanitation Supply Initiative
		World Health Organization/ AFRO	Water, Sanitation and Health
		Water Supply & Sanitation Collative Council	

	Fund Type	Organization Name	Program Name
<b>Climate change and its effects on the poor</b>	<b>Financial</b>	Global Environment Facility	Climate Change
		Climate funds update	Providing comprehensive Climate Fund Org and information
	<b>Non-financial</b>	United Nations Environment Programme	Environment for development-Climate Change
		The International Development Research Center	Climate Change Adaption in Africa
		Science and Development Network	Climate Change in Africa

	Fund Type	Organization Name	Program Name
<b>Water Equity</b>	<b>Financial</b>	World Health Organization/ AFRO	Water, Sanitation and Health
		Acumen Fund	Environment Planning Group Limited

	Fund Type	Organization Name	Program Name
<b>General Conservation</b>	<b>Financial</b>	African Development Bank Group	Environment
		World Bank	Environment/ Sub Saharan Africa
		Global Environment Fund	
		Global Environment Facility	
		Conserve Africa	
	<b>Non-financial</b>	USAID	Sub Saharan Africa
		United Nations Environment Programme	Environment For Development
		Conserve Africa	
Taikisha		Environmental Protection Technology & equipment	

	Fund Type	Organization Name	Program Name
<b>Conservation of Ecosystem Services</b>	<b>Financial</b>	World Wild Life(WWF)	
		Critical Ecosystem Partnership Fund	
		Conserve Africa	
	<b>Non-financial</b>	Environment Africa Trust	
		Conserve Africa	

	Fund Type	Organization Name	Program Name
<b>Water Quality</b>	<b>Financial</b>	World Bank	Water/Africa
		Acumen Fund	Water Health International
		Acumen Fund	Environment Planning Group Limited
		African Development Bank	Water and Sanitation Department
		African Development Bank	Rural Water Supply and Initiative
	<b>Non-financial</b>	World Health Organization/ AFRO	Water, Sanitation and Health
		Global Water Partnership Toolkit	Water and Sanitation for all
		Acumen Fund	Environment Planning Group Limited

	Fund Type	Organization Name	Program Name
<b>Environmental justice</b>	<b>Financial</b>	The New World Foundation	The Global Environmental Health & Justice Fund
	<b>Non-financial</b>	Africa Action African Network for Environment and Economic Justice	
		SAEPEJ	The South African Exchange Program on Environmental Justice

## Health

	Fund Type	Organization Name	Program Name
<b>Hunger</b>	<b>Financial</b>	The Global Food Banking Network	Global Food Response Program
		UN World Food Programme	
		World Job and Food Bank	
	<b>Non-financial</b>	World Hunger Education Service	Africa Department
		Action Against Hunger	
		Freedom from Hunger	

	Fund Type	Organization Name	Program Name
<b>Malaria</b>	<b>Financial</b>	World Health Organization	Malaria
		Bill & Melinda Gates Foundation	Malaria
		The Global Fund	Malaria
	<b>Non-financial</b>	World Health Organization	Malaria
		Centers for Disease Control and Prevention	Malaria
		Malaria Foundation International	
		Unite for children	Malaria
		USAID	Malaria

	Fund Type	Organization Name	Program Name
<b>HIV / AIDS</b>	<b>Financial</b>	The Global Fund	HIV/AIDS
		The United States President's Emergency Plan for AIDS Relief	
		Bill & Melinda Gates Foundation	HIV/AIDS
	<b>Non-financial</b>	The Africa AIDS Fund	
		World Health Organization	HIV/AIDS
		UNAIDS	
		Global Health Council	HIV/AIDS
The Children's AIDS Fund			



	Fund Type	Organization Name	Program Name
<b>Child mortality</b>	<b>Financial</b>	World Health Organization/ AFRO	Water, Sanitation and Health
		World Health Organization	Child Health
	<b>Non-financial</b>	Unite for Children	
		African Child Care Association, INC	Reproductive Health

	Fund Type	Organization Name	Program Name
<b>Reproductive health</b>	<b>Financial</b>	United Nations Population Fund	
	<b>Non-financial</b>	World Health Organization	Reproductive Health
		Centers for Disease Control and Prevention	Division of Reproductive Health
		United Nations Population Fund	

### Stability

	Fund Type	Organization Name	Program Name
<b>Corruption</b>	<b>Financial</b>	Anti-Corruption Resources Centre	
		World Bank	
		United Nations Development Programme	Democratic Governance
	<b>Non-financial</b>	World Bank	Anticorruption
		United Nations Global Compact	
		Transparency International	

	Fund Type	Organization Name	Program Name
<b>Slum Advocacy</b>	<b>Financial</b>	Cities Alliance	
		UN-Habitat	Slum Upgrading Facility
		Millennium Project	
	<b>Non-financial</b>	World Bank	Urban Development
		UN-Habitat	
		World Bank	Urban Development
		The Advocacy Project	

Category	Fund Type	Organization Name	Program Name
<b>Food and water provision</b>	<b>Financial</b>	UN Habitat	Water and Sanitation
		World Food Programme	
		World Bank	Food Crisis
		World Bank	Water
		African Development Bank	
	<b>Non-financial</b>	United Nations Educational Scientific and Cultural organization	International Hydrological Programme

	Fund Type	Organization Name	Program Name
<b>Refugees</b>	<b>Financial</b>	UNHCR	The UN Refugee Agency
	<b>Non-financial</b>	Refugees International	
		Global Health	Refugee Health
		UNHCR	The UN Refugee Agency

	Fund Type	Organization Name	Program Name
<b>Crime</b>	<b>Financial</b>	United Nations Office on Drugs and Crime	
		UN-Habitat	Safer Cities
	<b>Non-financial</b>	United Nations Office on Drugs and Crime	
		UN-Habitat	Safer Cities

## Institutions

	Fund Type	Organization Name	Program Name
<b>Entrepreneurs</b>	<b>Financial</b>	USAID	Sub-Africa
		African Development Bank	
		World Bank	Africa Entrepreneur
		Acumen Fund	
		Trust Africa	
		AECF	Funding Innovation for Business in Africa
	<b>Non-financial</b>	Capital works	
		USAID	Sub-Africa
		Global Entrepreneurship Monitor	
		African Entrepreneur	
		Global Envision	
Unleashing Entrepreneurship			

	Fund Type	Organization Name	Program Name
<b>Microfinance</b>	<b>Financial</b>	African Development Bank	
		International Finance Corporation	
		Africap	
		Acumen Fund	
		CGAP	Advancing financial access for the world poor
		MicroLoan Foundation	
	<b>Non-financial</b>	World Bank	Community Driven Development
		World Bank	Social Fund

## Chapter 12. Doing Business in the Badlands

### FUMN's Competitive Advantage

As noted in Chapter 2, New Mobility has been identified as a Blue Ocean Strategy for Ford. A Blue Ocean Strategy, by definition, entails creating a “new market space or a blue ocean, thereby making the competition irrelevant<sup>209</sup>.” No company is currently operating within the space that FUMN seeks to serve; however, it is important that as Ford works to develop FUMN into both a viable business entity as well as a bundled set of products and services, the company keeps in mind the competition that is likely to arise as the market grows. As Mr. Berdish has already identified, FUMN's competition is not expected to emerge from within the automotive industry; rather, a competitor is more likely to be an unconventional IT company such as Google or a non-traditional business organization such as Virgin Group.

As is always a necessity when crafting a business strategy and articulating the competitive advantage that an organization will have over its competitors, it is important to state here that *FUMN's core competence as a convener of partners is the distinguishing characteristic that will provide FUMN's competitive advantage over potential competitors* such as Google or Virgin. In certain scenarios, IT will be FUMN's secondary core competence and will likely consist of applications that FUMN develops in-house as well as capabilities that are leveraged through partnerships with IT experts.

### Competition in a New Mobility Market

It is likely that the successful implementation of FUMN networks will lead to the development of a competitive New Mobility market. This market will be particularly competitive within the previously defined Profitable Business Scenario, since this is a situation that presents a great deal of opportunity and very little risk for any market entrant.

### Risk and Opportunity in the Business Scenario Spectrum

With respect to all three previously described Business Scenarios (Profitable, Participatory and Philanthropic), there are several core relationships to understand. Recall the associated risk and opportunity characteristics of these Business Scenarios, which are summarized in Figure 31 below.

Figure 31. Business Scenario Spectrum

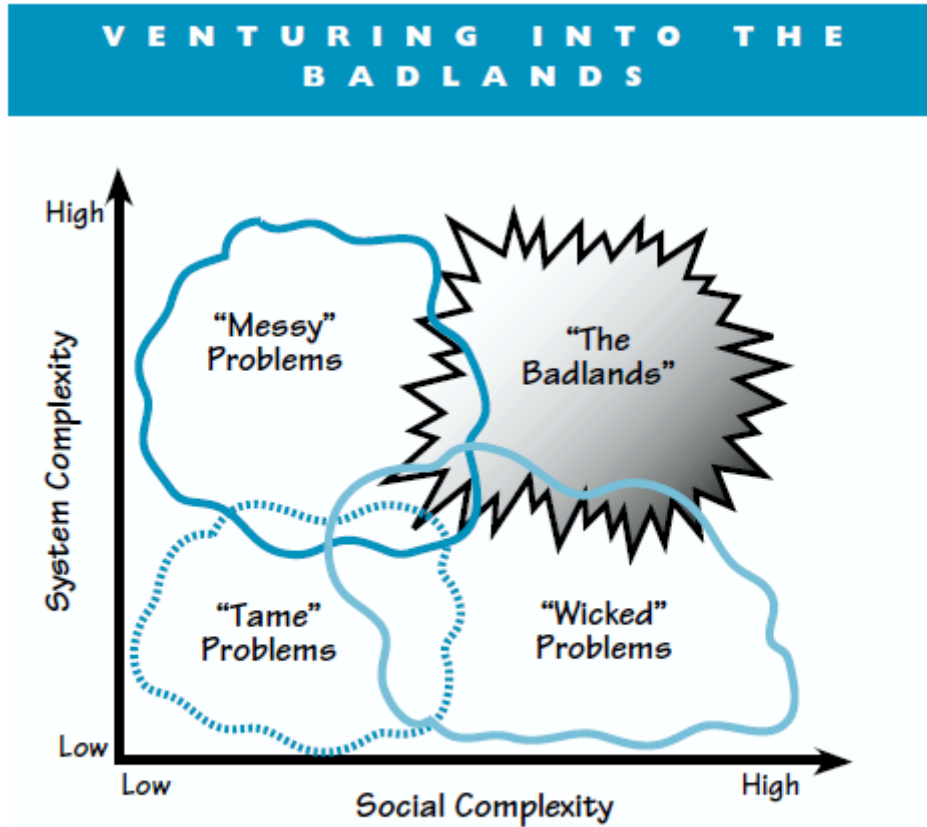


### The Badlands: Doing Business in Complex Environments

As indicated in Figure 33 below, markets that present either Participatory or Philanthropic Business Scenarios are those that attract the least amount of competition, require the highest levels of minimum competence and will be the most difficult to work within. These markets represent what we will refer to as the “Badlands.” The Badlands represent problems that consist of an extremely high level of both system and social complexity; they involve numerous interconnections among the different parts of the system<sup>210</sup>. When approaching these types of problems, “solutions take time, patience and profound empathy on the part of everyone involved<sup>211</sup>.”

Figure 32 below illustrates the types of problems that emerge with increasing levels of system and social complexity. “Tame” problems contain the lowest levels of complexity and therefore require the least amount of creativity and ingenuity to solve. “Messy” and “wicked” problems, each of which contains a high level of one type of complexity, are much more difficult to tackle. Finally, problems that fall within the realm of the Badlands are those with both high system complexity as well as high social complexity. Badlands problems present major challenges that must be approached systemically, through multidisciplinary methods.

Figure 32. Categorizing Problems by Social and System Complexity

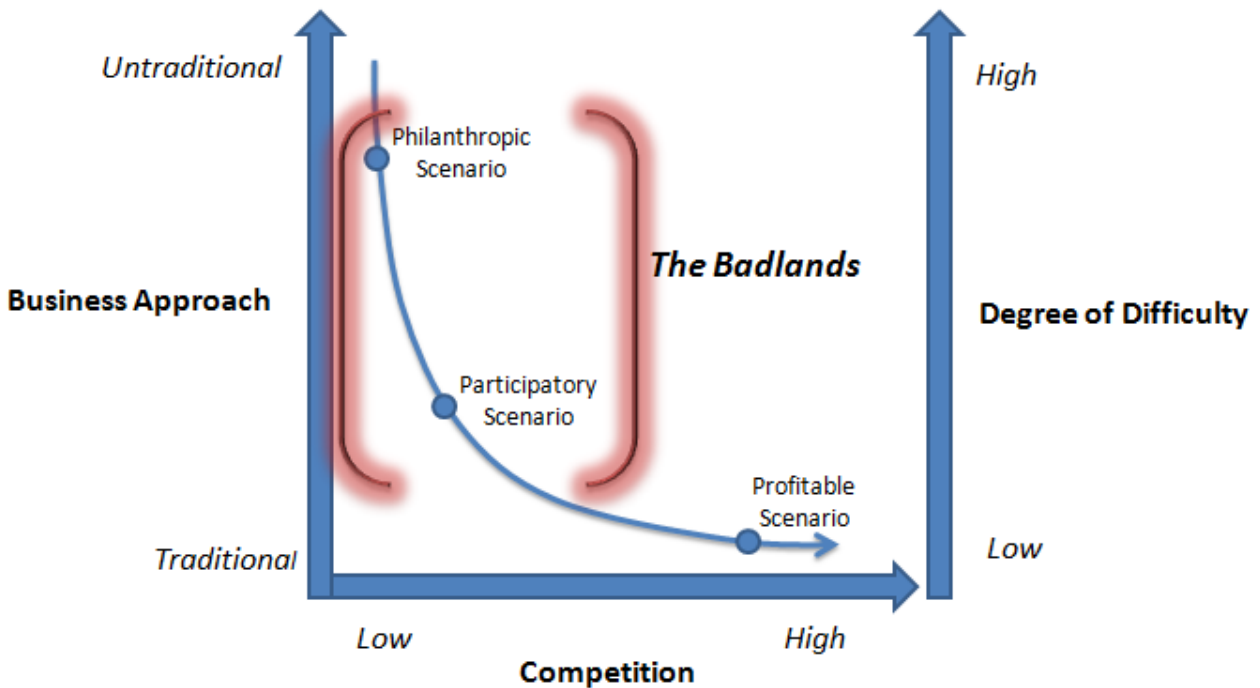


When system and social complexity are high, the organization enters the realm of "the Badlands."

Source: "Learning and Leading Through the Badlands," David Berdish

Operating as a successful enterprise within the Badlands requires new ways of thinking about and doing business. The key to developing effective FUMN systems in the Badlands is building and leveraging partnerships (as described in Chapter 11) to tackle the problems in a systemic manner and draw upon a variety of disciplines.

Figure 33. Relationship Between Business Approach, Degree of Difficulty and Competition for Business Scenarios



### *Degree of Difficulty*

One core relationship associated with the Business Scenario Spectrum is the degree of difficulty involved with developing FUMN systems within each type of market. A low risk / high opportunity market will be easiest to operate within, thereby leading to a Profitable Business Scenario. A high risk / high opportunity market presents more challenges to the development of FUMN systems and therefore requires a Participatory approach – one that incorporates effective partnerships. Finally, the most difficult market within which to develop FUMN is one that poses a low amount of risk and minimal opportunity, which equates to a Philanthropic Business Scenario. In such a market, it will require concerted efforts among many partners to effectively provide the necessary New Mobility solutions the site requires. In other words, a move to the right on the Business Scenario Spectrum equates to an increase in the degree of difficulty that will be encountered in the associated market.

### *Competition*

Again, a market that provides high opportunity and low risk will not only result in a Profitable Business Scenario, but will also attract many competitors. A market that poses high risk and high opportunity (a Participatory Scenario) will likely attract fewer competitors. Likewise, a low risk and low opportunity



market must be approached through Philanthropic measures and will summon even less competition. To summarize the relationship being described, as you move from left to right on the Business Scenario spectrum, the level of competition that can be expected within a given market increases.

### ***Business Approach***

The third core relationship to understand with respect to the three Business Scenarios is the extent to which the traditional way of doing business must change within each associated market. A Philanthropic Business Scenario will require FUMN to do business in a highly untraditional way (i.e., deep in the Badlands). The partnerships will be complex; FUMN will need to convene cross-sector partners that are triple bottom line oriented in an adaptive and flexible manner. FUMN will therefore need to build many dynamic partnerships to increase its level of competence and be an effective convener. A market that presents a Participatory Business Scenario will also require leveraging partnerships to increase FUMN's level of competence, but the business approach will be more traditional than the Philanthropic Business Scenario. A Participatory Business Scenario is akin to a hybrid business model or social enterprise, where profit is of equal standing to its social mission. Finally, due to the nature of markets that present Profitable Business Scenarios, FUMN's core competences combined with relatively few partnerships will be strong enough to provide the necessary minimum competence to successfully compete in such a market. This is a more traditional way of doing business, where FUMN will convene many partners that are (on the whole), profit oriented. In general, a move from left to right on the Business Scenario Spectrum is accompanied by a more traditional business approach.

### **Portfolio Diversification: Doing the Most Good in the Most Places**

Through the process of conducting a variety of Market Assessments, FUMN will likely identify markets that present a range of Business Scenarios. Throughout Sub Saharan Africa, FUMN is likely to encounter Badlands markets more often than markets that present Profitable Business Scenarios. In order to do the most good, it will be important for FUMN to have an ideal combination of Profitable and Participatory Scenarios in order to finance Philanthropic Scenarios.

## Appendices

### Appendix A. List of African Countries by Region\*.

Region	Country
Central and West Africa	Cameroon
	Cent. Afr. Rep.
	Chad
	Congo
	Congo, DRC
	Equat. Guinea
	Gabon
	Benin
	Burkina Faso
	Cape Verde
Côte d'Ivoire	
Gambia	
East Africa	<b>Burundi</b>
	Comoros
	Djibouti
	Eritrea
	Ethiopia
	Kenya
	Rwanda
	Seychelles
	Somalia
	Sudan
Tanzania	
Uganda	
Southern Africa	<b>Angola</b>
	Botswana
	Lesotho
	Madagascar
	Malawi
	Mauritius
	Mozambique
	Namibia
	South Africa
	Swaziland
Zambia	
Zimbabwe	

\*Our classification for countries by region follows that of the African Development Bank.

## Appendix B. The Complete Slum Evaluation Matrix

STABILITY	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Recognition by government	Actively demolishing	Refusal to recognize	Recognized but ignored	Recognized and upgrading
	Level of corruption	Endemic at all levels of society	At high levels but business can still function		Low at all levels of society
	Water and food shortages	High risk of conflict resulting from current and future shortages	No current shortages, but likely as climate change effects are seen	Shortages are predicted and considerable public/private will to create efficient food/water supply systems	Site has well-planned food and water delivery/supply systems
	Conflict	High risk of political instability	A history of conflict (within past few decades) but recent political stability		A long history of peace
	Crime within slum	High rates of violent / organized crime	Mid-levels of crime (organized and theft), low levels of violent crime		Low levels of most types of crime

Institutions	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Informal Trade Organizations	No local organizations that represent informal trade workers	Many local, highly dispersed organizations that represent informal workers	Many local, highly dispersed organizations that represent informal workers in a hostile political climate	National organizations that link many local informal trade worker organizations
	Prevalence of Entrepreneurship	No entrepreneurs	Few entrepreneurs resulting from an unfavorable legal and regulatory climate		Many entrepreneurs; enabling regulatory and legal environment
	NGO Presence	NGOs are nonexistent or disreputable and/or inexperienced	A few reputable, experienced NGOs in the area		Many reputable NGOs in the area with experienced in the issue of interest
	Slum Self-Organization	No self-organization of any kind	Few CBOs, specialized in issues of tangential interest		Diverse Assortment of Community Based Organizations
	Access to Financial Services	No MFIs	MFIs that are biased towards medium or large enterprises	Many unregulated MFIs	Many MFIs that favor micro enterprises in the informal sector

Infrastructure	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Area of Accessible Roads per person	Low area per person and no room for roads to expand; Congestion is unavoidable	Low area of accessible roads per person but room to expand	Adequate area of accessible roads per person but little to no room to expand	Adequate area of accessible roads per person and room to expand
	Existing IT Infrastructure	Low IT infiltration, low capacity to expand	High IT infiltration, low capacity to expand	Low IT infiltration, high capacity to expand	High IT infiltration, high capacity to expand
	Rate of Slum Expansion	Rate of Expansion Outpaces Infrastructure Provision	Low rates of expansion, low infrastructure provision		Rate of Expansion in pace with infrastructure provision
	Existing Energy Infrastructure	Chronic and severe energy shortages for both electricity and transport fuels	Intermittent energy shortages and no capacity to expand	Adequate energy infrastructure but little to no capacity to expand	Adequate energy infrastructure in place with capacity to expand
	Solid Waste Disposal	Lack of adequate solid waste disposal makes roads impassable	Intermittent waste disposal management; roads often impassable		Adequate solid waste disposal methods; streets passable

Economy / Economics	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity	High Risk High Opportunity	Low Risk High Opportunity
	Characteristics of the Informal Economy	Little regulation, exploitation likely		No current regulation, but FUMN can lobby for measures to prevent exploitation	Regulation makes exploitation unlikely
	Proportion of Income Spent on Transportation	Small proportion, making FUMN uncompetitive		Large proportion, making FUMN competitive	
	Levels of Unemployment	High levels of unemployment, minimal job growth/creation	Medium levels of unemployment, slow job growth	High levels of unemployment but rapid job growth	Low levels of unemployment
	Needs Met Within the Slum	Majority of Needs met within the slum		Most Needs Fulfilled Outside of Slum	
	Proportion of Population Living in Extreme Poverty	High proportion living in extreme poverty	Med-level proportion of extreme poverty		Low proportion living in extreme poverty

Environment	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity / High Risk High Opportunity	Low Risk High Opportunity
	Toilets per Person	Adequate toilets per person, diseases caused by improper sanitation not a priority; no sense of urgency	Diseases caused by improper sanitation prevalent; sense of urgency	Rampant diseases caused by improper sanitation; high sense of urgency
	Expected Influx of Climate Change Refugees	Few climate change refugees seeking refuge in slum; no sense of urgency	Moderate level of climate change refugees seeking refuge in slum; sense of urgency	Large numbers of climate change refugees seeking refuge in slum; high sense of urgency
	Greenfield Development	Minimal greenfield development occurring; no sense of urgency	Moderate levels of greenfield development occurring; sense of urgency	High level of greenfield development occurring; high sense of urgency
	Water Access	Adequate access to safe drinking water; no sense of urgency	Limited access to safe drinking water; sense of urgency	Inadequate access to safe drinking water; high sense of urgency
	Risk of Flooding as a Result of Climate Change	Low risk of flooding; no sense of urgency	Increased incidence of flooding; sense of urgency	Recurring flooding; high sense of urgency

Education	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity / High Risk High Opportunity	Low Risk High Opportunity
	Proportion of Girls in School	Proportion of girls equal to proportion of boys in school; no sense of urgency	Consistently fewer girls than boys in school; sense of urgency	Very low proportion of girls in school relative to boys; high sense of urgency
	Access to Secondary and Tertiary Education	Adequate access to secondary and tertiary education; no sense of urgency	Limited access to secondary and tertiary education; sense of urgency	No access to secondary and tertiary education; high sense of urgency
	Proportion of Population that are Students	High proportion of population are students; no sense of urgency	Moderate proportion of population are students; sense of urgency	Low proportion of population are students; high sense of urgency
	Literacy Rates	High literacy rates for both males and females; no sense of urgency	Moderate literacy rates for males and females or literacy imbalance between genders; sense of urgency	Low literacy rates for both males and females; high sense of urgency
	Proportion of Population with Primary Education	High proportion of population with primary education; no sense of urgency	Moderate proportion of population with primary education; sense of urgency	Low proportion of population with primary education; high sense of urgency

Health	INDICATOR	High Risk Low Opportunity	Low Risk Low Opportunity / High Risk High Opportunity	Low Risk High Opportunity
	Proportion of Population Chronically Undernourished	Low proportion of population chronically undernourished; no sense of urgency	Moderate proportion of population chronically undernourished; sense of urgency	High proportion of population chronically undernourished; high sense of urgency
	Malaria Rates	Low incidence of malaria; no sense of urgency	Moderate levels of malaria; sense of urgency	Rampant rates of malaria; high sense of urgency
	Access to Health Care / Medications	Adequate access to health care and medications; no sense of urgency	Inconsistent access to health care and medications; sense of urgency	Extremely limited access to health care and medications; high sense of urgency
	HIV / AIDS Rates	Low incidence of HIV / AIDS; no sense of urgency	Moderate incidence of HIV / AIDS; sense of urgency	High incidence of HIV / AIDS; high sense of urgency
	Child Mortality Rates	Low level of child mortality; no sense of urgency	Moderate level of child mortality; sense of urgency	High level of child mortality; high sense of urgency



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- <sup>8</sup> UN-HABITAT. *The Challenge of Slums: Global Report on Human Settlements 2003*. Minneapolis: Earthscan Publications Ltd., 2003.
- <sup>9</sup> UN-HABITAT. *The Challenge of Slums: Global Report on Human Settlements 2003*. Minneapolis: Earthscan Publications Ltd., 2003.
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