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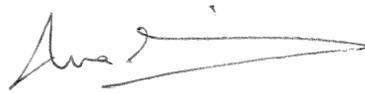
**Distribution Systems Prevalent in  
Pakistan and the US:  
An Analysis and Comparison**

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**A research paper submitted in fulfillment of the requirements  
for 3 credits,  
UNDERGRADUATE INDEPENDENT RESEARCH  
PROJECT Winter Term 1999,  
Professor Ana Muriel, Faculty Supervisor**

## Faculty Comments

Distribution strategies in the U.S. have evolved rapidly in recent years, leading to increased efficiencies and lower system-wide costs. However, developing countries such as Pakistan are not yet taking advantage of the new techniques in distribution management. This research report explores the new distribution strategies in the U.S. and the traditional systems used in Pakistan, in an effort to compare the two and understand the reasons for the existing differences.



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## **Introduction:**

Trends in distribution systems have changed drastically over the last two decades. The classical distribution system still popular in countries like Pakistan and in use to a limited extent in the United States, focuses on the accumulation of inventories at different levels in the supply chain. In this system, a manufacturer would send a bulk of products to the wholesalers who would reflect the estimated demand of the retailers in his shipment to them, while retaining the remainder of the product inventory to replenish possible stock-outs. The manufacturer, wholesalers and retailers in this distribution system own and operate numerous large capacity warehouses and thus entertain very high inventory holding costs. In addition, forecasting is less accurate due to lack of point of sale data available at the manufacturer's site, making stock-outs regular and painful for both the manufacturer and retailers.

Following the classical distribution process, developments in computers, information systems and logistics technology have made it possible for companies to lower inventory holding, increase dependence on forecasting tools and point of sale data and consequently, outsourcing these tasks to companies that are experts in their execution. While production trends have also moved towards 'Lean' production systems by adopting Just in Time (JIT) production techniques. In the distribution industry, Vendor Managed Inventories (VMI), Cross-docking and outsourcing to Third-party logistics providers (3pl) are some of the new trends that have gained popularity.

In this paper we study the current distribution systems prevalent in Pakistan, primarily based on a detailed analysis of Colgate Palmolive Pakistan Limited (CPPL).

We compare this system with current trends followed by American companies in similar industries. Our objective is to explain why the techniques proven successful in the US are not being practiced in Pakistan, and additionally, what changes need to take place (some of which are in the pipeline at large companies like CPPL), to implement the successful innovations.

## **New Trends in Distribution in the US**

### **Cross docking**

A major phenomena is reshaping logistics today: a shift from a system that pushes product to market, to one in which customer demand pulls product to market. The strategy behind replenishment logistics is to take inventory and other costs out of the pipeline, to shorten cycle time and smooth product flow, while improving customer service at the same time. Achieving these goals depends on a number of factors, one of which is the creation of flow-through distribution systems. And many of the most effective flow-through networks rely on cross-docking to accomplish productivity and service gains.

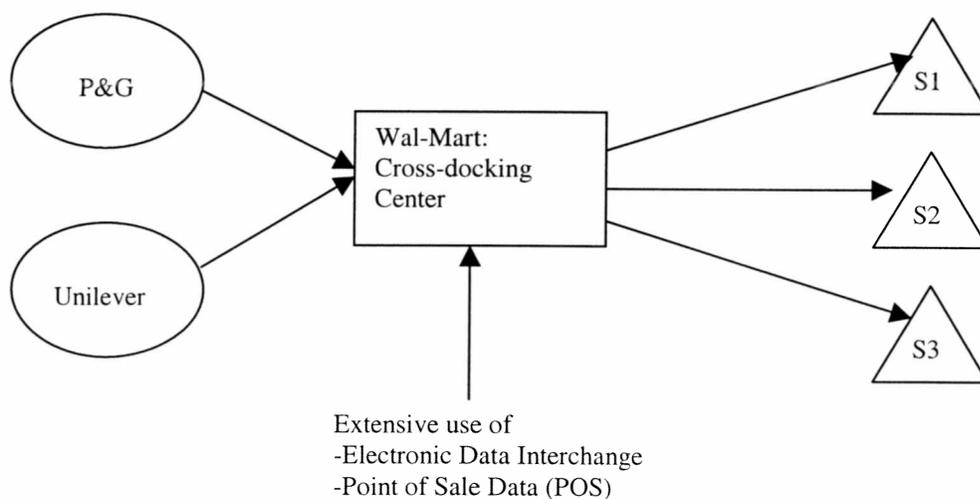
Cross docking is a technique that minimizes storage and tracking of goods. Goods are transported from the manufacturer or wholesaler to a facility owned by the retailer. The facility is generally equidistant from the various outlets managed by the particular retailer. On arrival at the receiving dock, the goods are quickly audited for quantities and variety, are palletized according to outlets and taken on conveyor belts to the trucks that are ready and waiting at the shipping dock. The goods generally spend under 24 hours in this desegregation and matching process at the dock. This process also reduces time and labor involved in storing and then retrieving the products, usually requiring manual labor, large storage space as well as forklifts. Moreover, product damage is also minimized owing to the reduced storage and retrieval of the pallets.

There are two main types of cross docking, 'Intermediate' and 'Simple'.

'Intermediate' cross docking occurs if the retail warehouse is equipped with an automatic material handling system, which can segregate the products on a store by store basis using the 'sortation system' that is already in place. 'Simple' cross docking, on the other hand, requires no predistribution, no assistance from the vendor, but only the knowledge that the product will be shipped within a day or two. In this process, goods are received and transferred immediately to a 'Hot' order-processing zone on or near the shipping dock ready for shipment. This type of cross docking leads to the reduction in product storage, replenishment moves, and orders pickers travel time as the order picker's focus on picking the high volume items from the shipping dock.

A good example of the 'Intermediate' cross docking system is P&G and Unilever and their distribution of consumer products to Wal-Mart. Adopting these innovations in distribution have attained Wal-Mart the rank of being the worlds largest and highest profit retailer- a performance translated into 32% return on equity and a market valuation more than ten times book value.

**Diagram of Cross-docking: P&G and Unilever to Wal-Mart:**



## **Key strategic and technological prerequisites for the effective implementation of Cross-Docking**

Prior to implementation, the company adopting cross docking needs to adopt and synchronize many of its processes in conjunction with their suppliers and their strategic partners. Mentioned below are some of the key features that need to be instituted.

- Shared common vision within the company among people from distribution, logistics, information systems, retail operations and merchandising
- EDI (Electronic Data Interchange), POS (Point of Sales Data)-- collecting info from barcode readers at the counters as well as the loading docks. This data would be essential to the suppliers in determining how much of the product is needed. Cross-Docking is like JIT having a very limited ability to respond to fluctuations. Thus the link between the retailer and the manufacturer has to be very solid, passing on any info about changes in sales. The induction of EDI has reduced the time it takes to unload a trailer from 1.8 days to 3hrs, and the cost of receiving a carton to 6 cents from 80 cents (Target's Swanson)—The reduction in time taken to unload a trailer is reflected in the fact that the trailer only carries exactly what is required—no more and no less.
- WMS (Warehouse Management System) --- This management software needs to be modified according to the material handling equipment of the individual firm. This software is used to schedule inbound and outbound consignments and to pre-allocate the incoming receipts to outbound demand. The WMS manages the PLC's (Programmable Logic Controllers) that direct carton flows through and from the

various loading docks. Because up-to the minute records on inventory are required, the communications between WMS and WCS must be in real time.

- ASN (Advanced Shipping Notice) is essential for any success in cross docking. ASN's alerts the dock on which products are arriving and when. This information is then used to allocate the resources in space, labor to unload, as well as the coordination of the truck that the load would be transferred to and taken to its final destination.
- Standardized store delivery formats so that inbound shipments can be scheduled to match outbound shipments.
- Carriers must be chosen and rewarded on the basis of their ability to meet the stringent requirements of Cross-docking. Wegman's Food Markets in NY established a reward system in which if their docks were unable to accommodate a carrier within an hour of its appointment, the carrier was credited with \$75. But the carriers are charged a \$50 penalty if they are later than an hour of their appointment. This encourages punctuality of the carriers at the cross-docking sites
- If multiple stops per-trailer are required, store letdown areas should be setup where orders can be held until they can be loaded in proper order to suit the delivery route.
- Control and understanding with the vendors is essential. A joint partnership with the vendors would provide considerable stability to the process and joint investment in the cross-docking technology is beneficial.

## Pros and Cons of Cross-docking

### Benefits of Cross-docking:

- Retailers are able to reduce inventory considerably. A good example is Minyard Store's, that managed to reduce as much as 15% of their inventory in their first year of adopting Cross-docking.
- The manufacturer saves on the cost of transportation of the goods to the numerous outlets that are spread out. Moreover, they get paid on the arrival of the goods at the cross-docking site as opposed to getting paid once the goods have reached their final retail outlet.
- Does not require large warehouses for storage.
- Leads to reduction in traffic congestion at the retail outlets. Only one truck that holds all the combinations of the required goods needs to be sent as compared to an individual truck from every supplier.
- Space can be optimized on the outbound truck from the cross-docking site as optimal combinations can be transported.

### Limitations of Cross-docking:

- Applicable with products that have short replenishment lead time, heavy demand and predictable volumes and flows. Also beneficial for products which entail a cost benefit to bringing in large quantities to one location, and then distributing locally in small quantities.

- Considerably risky to implement at the manufacturing level as it does not provide the necessary buffer between capacity and demand.
- Costs associated with coordination and information requirements
- As reported by Food Engineering (April'95), skeptics doubt that cross-docking can work in the food industry owing to the vast number of SKU's, continual price changes and promotions, and variable rates of sale for each product.

## **Outsourcing to Third-party logistics providers**

As the markets become more and more competitive, the need for companies to focus on their core competencies while outsourcing distribution and logistics has increased tremendously. This trend has introduced what is called 'Third-party logistics providers'. Third-party logistics companies provide an array of services, including warehousing, carrier selection, dedicated fleet operation, transportation, and inventory management. It is, however, the hiring company's choice as to how much control of their logistics operation they want to relinquish to the third-party logistic providers. Some companies only outsource their warehousing and transportation operations, while others outsource all the vital logistical components, focussing only on their core manufacturing activities.

Third-party logistics providers (3pl) are capable of managing the entire process following the manufacture of the goods. The 3pl will do makebulk/ breakbulk operations by optimizing load efficiency, implement Electronic Data Interchange (EDI) that transmits the data from the point of sale to trigger the demand and subsequently, the shipping need. Moreover, the 3pl will allocate and implement the frequency and size of the consignments from the factory to the retail outlets to quench the ongoing demand requirements. Additionally, 3pl have found a specialized niche, reverse logistics. Reverse logistics encompasses not only damaged and returned goods, it also includes products designed for remanufacture, hazardous material and reusable packaging. The Home Depot has begun to institute take-back agreements with 'Genco Distribution Services', a third-party logistics provider. As a result of just one of such agreements, Home Depot

saves approximately \$700,000 a year in collection and disposal fees. As catalog shopping has soared, so have returns and 3pl companies like 'Genco' help retailers like 'The Home Depot' alleviate such avoidable costs.

Other nontraditional services that are provided by 3pl but not described above include: Sourcing and production planning, Merge in transit network design and operation, Flow-through production support, Network simulation.

The use of Third-party logistics providers, although a new phenomena, is rapidly expanding. According to information gathered by the American Warehouse Association, in 1995 only 15% of the companies outsourced their warehousing activities. By 2000, 69 % of US and 84% of European businesses will have used the services of third-party logistics providers. Most estimates of the size of the 3pl industry stretch into the billions of dollars. Armstrong and Associates, which publishes the guide Who's Who In Logistics?, pegged the 1997 total market contract logistics services at \$34.2 billion and is estimated to reach \$55 billion by the year 2000.

### **Vendor Managed Replenishment (VMR) and Efficient Consumer Response (ECR):**

Vendor Managed Replenishment (VMR) and Efficient Consumer Response (ECR) are prominent technological advances used in the US distribution process. The key to introducing VMR is cooperation and a common understanding of processes and procedures by both the buyer and the vendor. VMR, also referred to as direct replenishment, is a growing agile logistics partnership agreement where the vendor takes on the responsibility of managing the inventory at the customer sites for the products it

supplies, i.e., monitoring, planning and directly replenishing the inventory in the customers distribution network. In other words, under a VMR arrangement, it is the vendor who determines when stocks are to be replenished and in what quantities, rather than it responding passively to orders placed by the retailer. VMR is almost invariably based on the availability of direct access to POS data and the customer's inventory positions. A good example of the VMR arrangement is of Wal-Mart with Ben & Jerry's Ice cream Co and Delta Faucets, Indianapolis in conjunction with their primary metal component supplier.

VMR also helps to make the administration of the delivery process more efficient. In a conventional buyer/vendor relationship, many planning and administrative tasks are performed both by the vendor and the buyer. The vendor performs demand requirement planning while the buyer does essentially the same but call it material requirement planning. Similarly, the buyer creates a purchase order and the vendor a sales order. With VMR it is possible to reduce administration, as it is no longer necessary for the buyer to perform administrative purchasing tasks such as material requirement planning and creating purchase orders. Additionally, it is also observed that the successful implementation of VMR reduces the demand variability factor of the vendor from 75% to 26%.

Also, VMR leads to the implementation of better routing strategies, flexibility, and in turn, lower transportation costs. These advantages are realized when vendors replenish their customers on their own convenience as opposed to when an order is received. This enables vendor to minimize their transportation cost by sending optimal

loads on specific routes, replenishing both, those retailers that have completely exhausted their inventory as well as others who only need some topping up but fall within that particular route.

A brief description of a VMR agreement that Delta Faucets, an Indianapolis based faucet manufacturer, has with its main metal component supplier is as follows. Delta Faucets agrees on a price, total quantity, and the run-size of each shipment. Additionally, the Delta agreement requires that the vendor maintain a certain stock level at its facility from which to supply the customers needs. An example would be the vendor having to supply 25,000 pieces of a particular component, deliverable in 5,000 run increments. As the total run is decreased, and the suppliers reaches his last 5,000 piece increment, the supplier is responsible for making sure that 20,000 pieces are in production, in order to make sure that the total 25,000 components are available. This agreement is an effective way for the vendor to take responsibility of the inventory. In this way, the need for double buffering against supply disruptions could be eliminated and the basis for planning supply requests from the producers can be improved.

Moreover, some of the key benefits of VMR are summarized below:

- A reduction of floor inventory
- An increase in number of inventory turns
- More planning consistency
- The opportunity to plan processes more efficiently
- Reduction in costs as a result of better information flow, bulk purchases and locking into contract pricing agreements with suppliers.

In addition, Efficient Consumer Response (ECR) systems are also gaining prominence in the distribution business. Essentially, ECR is a consumer-driven system in which manufacturers, suppliers, distributors and retailers work together to reengineer the distribution supply chain in order to maximize consumer value and minimize costs. ECR is a holistic approach that addresses the entire value chain of a manufacturer/ retailer relationship. It forces the traditional logistics, sales, and marketing functions into a new alignment for optimum efficiency and consumer value.

ECR encompasses six major activities within an organization: Integrated EDI, Continuous replenishment, Computer assisted ordering (CAO), Flow-through distribution, Activity-based costing, and Category management. All of these play crucial roles in ECR's ability to deliver significant value to supply chain partners.

- **Integrated EDI:** A large component of ECR is concerned with placing and receiving orders quickly and accurately. Therefore, it is incumbent upon ECR-minded companies to implement the technology necessary to enable electronic exchange
- **Continuous replenishment:** With the appropriate EDI transaction set in place, organizations can develop a continuous replenishment arrangement. The manufacturer supplies product to a distribution center based on on-hand inventory information, actual orders, and predefined inventory parameters. Continuous replenishment programs have been effective in producing dramatic jumps in inventory turns, significant decreases in cycle times, rises in store service and product availability, and increased profit for both manufacturers and retailers.

- Computer-assisted ordering (CAO): Computer-assisted ordering, a method of supply chain management, depends on product being re-supplied at store level based on actual point-of-sale data, either from the retailer's distribution center or directly from the manufacturer.
- Flow-through distribution: In keeping with ECR's efficiency orientation, supply chain partners must move to a flow-through distribution mentality. Manufacturers and retailers must ensure that the supply chain promotes constant movement of product from the time it leaves the manufacturing line until it rests on the store shelf, reducing cycle time and total supply chain inventories. A key enabler of flow-through distribution is cross-docking capability. In the ideal operation, the manufacturer creates custom store pallets or ships cases to the retailer with the store-level destination already in mind. At the distribution center, products are labeled, scanned, placed on a conveyor system, diverted to the appropriate ship lane, loaded onto a truck, and shipped, all within the space of a few hours or even minutes.
- Activity-based costing: Another critical component is development of an accounting method that allows manufacturers and retailers to track costs of activities performed in the supply chain as they actually occur. This approach--activity-based costing--enables ECR participants to focus on supply chain areas that are either very costly or fail to add value.
- Category management: Products are designed, introduced, promoted, stocked, and re-supplied in a way that maximizes the total profitability of each unique category.

Category management promotes collecting point- of-sale and demographic data at store level; frequently monitoring both category and item space allocation; measuring, in weekly buckets, item and category return on investment to make required adjustments, simplifying procurement and managing deal administration.

The principles supporting ECR are applicable to virtually every industry and offer guidance to all logistics organizations about the nature of future capabilities required for success. Two examples of firms that have successfully implemented ECR and have benefited a great deal are P&G, Cincinnati and Spartan Stores, Grand Rapids. Earlier, P&G, and H.E. Butt Grocery Co., Austin, Texas, engaged in electronic data synchronization, the two communicated pricing, promotions and product specifications using piles of paper and endless telephone calls. The duo have since implemented an electronic-data-interchange relationship and estimate their combined cost savings at more than \$130,000 annually.

Similarly, using ECR, Spartan Stores, a Grand Rapids food distributor and leader in the ECR movement was able to shut down a 300,000 square-foot warehouse, which cost \$1,000,000 a year to operate, when it stopped stockpiling discounted products. These products were shown to possess very limited value to customers via the ECR approach.

Overall, ECR is estimated to reduce \$30 billion a year of non-value added costs from the grocery industry's logistics pipeline and is being embraced by more and more companies to smoothen and match their product supply to consumption levels.

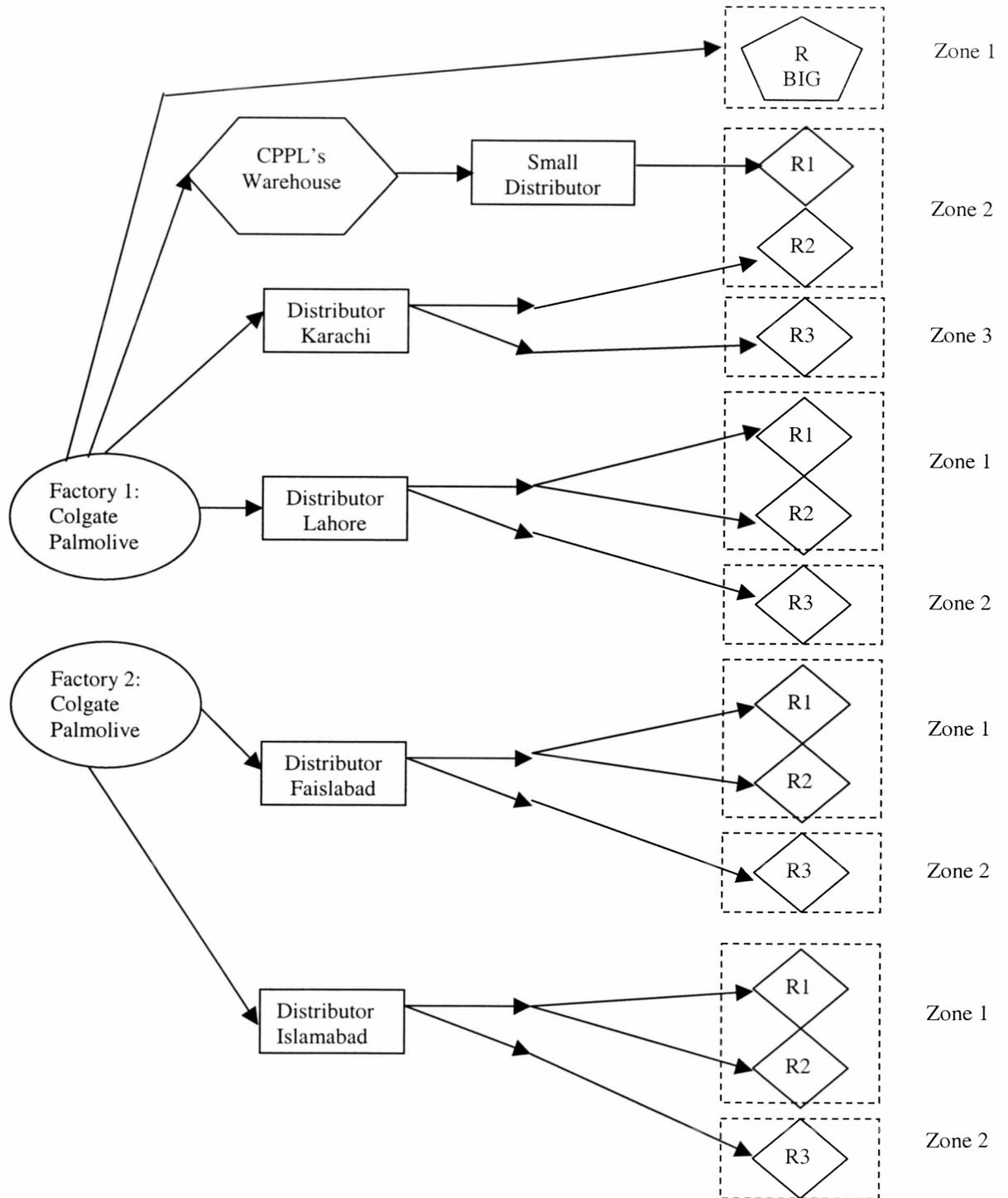
## **Distributor systems prevalent in Pakistan**

### **Distributor Managed System:**

This system is very popular in the Pakistani market and is prominent for durable goods and detergents. The system entails product flow via three channels; directly from the factory to the large retailers, from the company owned warehouses to the small distributors and from the factory directly to the large distributor owned warehouses. Described below is the product flow from the factory to the large distributors. The manufacturer sells the product to an appointed distributor who is responsible for further distributing it to the retailers in an area. Distributorships in this system are strictly based on regions, in specific, small towns. There are hundreds of distributors in Pakistan with 1 distributor being responsible for 1 town. The reason that a single distributor is not given the jurisdiction of more than 1 town is because of the prevalence of an inter-town tax also known as Octroi. Prices of products in Pakistan are dictated by the manufacturer and cannot be altered by the retailer. This practice is a law in Pakistan and relates to the retail price being subject to the imposition of the General Sales Tax. Thus, the markup to the distributor and retailer is all built into the price quoted on the product itself. This system entails the sharing of risk between the manufacturer and the distributors. In times of decreased sales at the beginning of a buying cycle, the distributors may acquire less than they had originally demanded in their forecasts, thus passing on the cost burden of the remaining goods on CPPL. However, if demand falls in the middle of a buying cycle and the distributors have already bought and paid for their perspective stocks for that particular demand cycle, they bear the cost of the unsold product. Owing to the small

order-sizes and small levels of inventory held by the retailers, they need to have a high frequency of distribution to their outlets in order to meet their demands. This consequently is reflected on the high logistics costs that are faced by the distributors.

**Process Flow Diagram of Distributor Managed System: Colgate Palmolive Pakistan:**

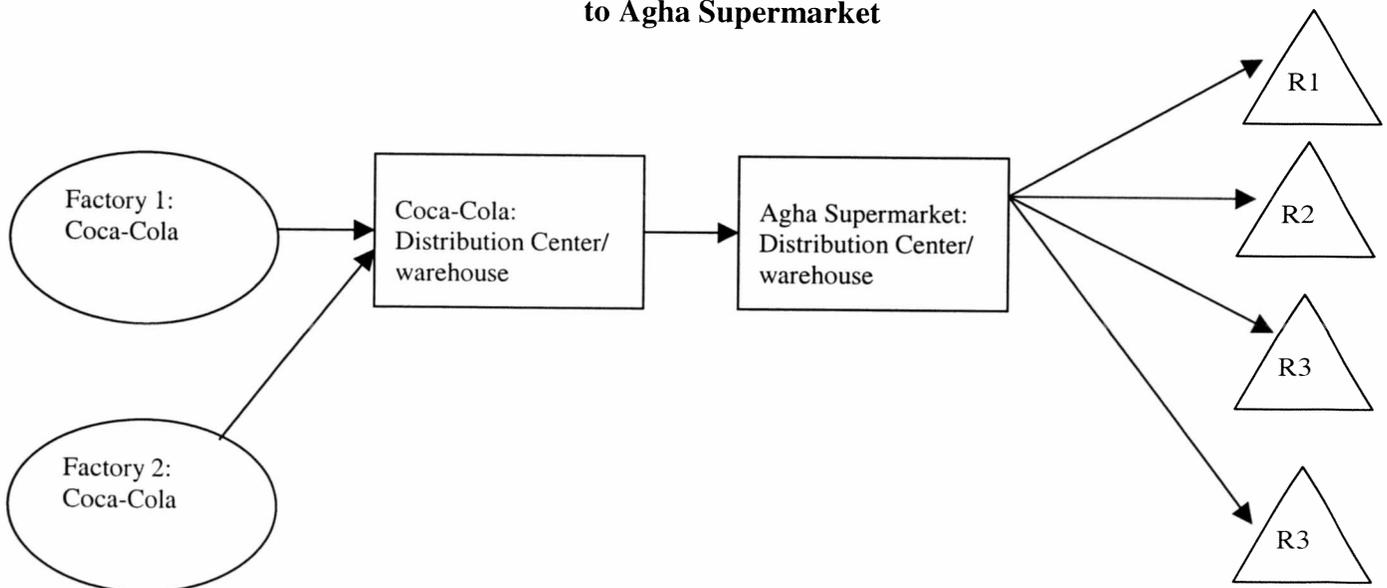


- The Zone's are respective City distributor controlled regions
- The R's are the respective retailers within the zones that the city distributors replenish
- R Big is a big retailer which is supplied directly by CPPL's manufacturing facility
- CPPL's Warehouse breaks bulk and supplies to the small distributors

### Classical distribution process:

As mentioned in the introduction, this process depends on the accumulation of inventory throughout the supply chain. The goods are transported from the production facility to the warehouse of the manufacturer. The goods then wait to be shipped to the retailer's warehouses, which are generally very large and located outside city limits to minimize costs. Once at the retailer's warehouse, they are stored until the respective retail outlets need replenishment. An appropriate example would be the distribution of Coca-Cola to Agha Supermarket, a large supermarket chain in Karachi. We have observed this system in the US as well.

### Process Flow Diagram of the classical distribution process: Coca-Cola's distribution to Agha Supermarket



## **Distributor Managed System.**

### **Distributors:**

As outlined in the earlier section, distributors are the backbone of the distribution system of Colgate Palmolive Pakistan (CPPL). A single distributor is confined to a single town owing to the intra town tax (Octroi), ethnic and language barriers, as well as the very small retailer demand that can be easily managed by a single distributor. Ethnic and language barrier concerns denote the importance of personal ties between individuals doing business together. Retailers prefer dealing with a distributor from the same region and ethnic background as opposed to someone from a different background. Moreover, the small size of the retailers prevents distributors from benefitting from economies of scale present in large distribution system. With reference to big cities like Karachi, Lahore, Faislabad, Islamabad, Peshawar etc, there may be many distributors.

### **Distributor Margins:**

The distributor's markup is approximately 3.5%-5.0%. In the case of cash payments, another 1.2%-1.5% is added. This markup is generally fixed for a particular SKU for a given fiscal quarter and tends to be homogenous across distributors.

### **Retailers:**

Most of retailers in Pakistan are small. There are a very limited number of large supermarkets, hypermarkets or retail store chains. The culture in Pakistan entails small street-corner outlets that are relationship based and cater to the need of that particular area. These stores run on a very narrow capital base and many of the goods are actually

bought on credit from the distributor of that area. Owing to their small size and financial crunch, these outlets maintain a very low level of inventory and have a very high probability of a stock out. Thus, in order to avoid a possible stock out situation, the distributors need to adopt a very frequent delivery schedule. This acts as an added logistic cost burden on the distributor.

In order to understand the distribution and inventory policies practiced by CPPL, we describe in detail the complete production/ distribution control and decision making process.

### **Forecasting:**

#### **-ZONAL FORECASTS-**

The process starts with the Zone Managers in-charge of distribution in various zones compiling a report, which reflects the requirements in the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and fourth week of a particular SKU for the previous month in their respective zone. (Refer to Exhibit #1) This data focuses on the fluctuations in demand over that particular month. In addition to this data, the Lift program, dispatches and sales figures from last year for the same period are also compared to the data collected by the zone managers. This practice helps to understand and take into account any seasonal fluctuations that the product may demonstrate. Forecasts from all the zones and the historic data from last year is then sent to the head office where it is compiled into a single database and the trends, i.e. the fluctuations in demand are noted. This is done for all the SKU's that are produced by CPL and each SKU demonstrates a different change in demand from region to region. Example: Tang, the orange fruit drink might be selling more in a particular region due to

its sponsorship of a particular sports event in that region while Bright, the detergent may be loosing volume for a totally different reason.

### **-ZONAL FORECASTS converted into a LIFT PROGRAM-**

By the 25<sup>th</sup> of every month, the data from the zonal forecast and the previous years figures for that particular period are scrutinized by the departmental heads and the various trends are discussed. The meeting is presided by the CEO and is attended by the General Managers of Production, Marketing, Procurement and Sales. The “Lift program” refers to the final agreed upon quantities that will be required by the various zones for the coming month. These quantities are based on the data that the zonal forecasts have` provided as well as the expertise of the top management. The final ‘Lift program’ is then sent to the factory so that they could plan their production for the coming month. The Lift Program, however, does offer some leverage as distributors are allowed to Lift less and even more stock than is stipulated as the quantity that is forecasted to be lifted for that particular period. (Refer to Exhibit #2). Lifting more than stipulated in the Lift program for that particular period is only possible when there is extra product in stock, this generally is the case owing to the carry forward inventories of the stock whose dispatches were less than the quantities in the lift program for the previous period. All the Lift quantities are not necessarily in the form of finished goods. The factory produces in ‘Patches’ or segments that coincide with the Lift program but are spread over four weekly periods in any given month. Similarly, dispatches of the product to the distributors are also spread out throughout the month. If the trends indicate low dispatches in any given period, especially if they are much lower than the Lift quantities, the factory has the

ability to slow down or cease production. The idea is to try and get rid of all the excess stock brought forward from the previous periods before more stock is built up.

### **Inventory Management Systems:**

#### **Stock Cover, Lead-times, safety stock requirements, inventory levels and cost calculations for distributors and retailers:**

CPL requires its large zones such as Lahore and Karachi, which are big cities of Pakistan, to maintain an average number of cartons of their products over a period of six months. This requirement is stipulated in an agreement that is signed between the company and the distributor and is revised every quarter. This requirement is monitored regularly by CPPL representatives and any drastic decreases in this average is a sign of trouble as it indicates that a particular SKU is losing large volumes in a particular market. This target average set by CPPL takes into account turnover and stock replenishment. (Refer to Exhibit #3). As a policy matter, all distributors and retailers need to keep at least a 7-10 day's equivalent of monthly sales as 'safety stock'. Moreover, as the production lead-time for most of CPPL's products is 3 days, regions that are far from the factory are advised to maintain a safety stock cover of 15 days. The entire supply chain of CPPL holds a 1-month of safety stock, 10 days at the factory, 10 days at the warehouse and 10 days at the distributor.

Distributors who get deliveries once a month need to have a buffer stock of one month to counter any unexpected variations in demand for that particular month. This means that a distributor who gets replenished every month would possess two months of inventory at the beginning of each month. Similarly, those distributors who get deliveries

fortnightly need to have a fortnightly buffer stock. However, a minimum of one full shipment case has to be ordered. Thus some of the slow moving SKU may have to be carried for more than the stipulated # of days. The total inventory turnover is kept at the stipulated level by having a lower level of stock of fast moving SKU's.

There are two main costs associated with holding inventory; the cost of borrowing the money that is tied up in the stock and the overhead expenses associated with running the warehouse facilities. Colgate Palmolive Pakistan borrows at the rate of 22% per annum that averages out to be nearly 2% a month. The sizable overhead components include warehouse rent, warehouse employee salaries, security, electricity, telephone and the insurance of the stocks. The formula CPPL uses to calculate the inventory carrying cost is as follows:

*Inventory carrying cost = Expenses of warehouse per month / Total inventory per month*

The inventory carrying cost would vary among the various SKU's owing to size and the cost associated to the product in question.

### **Warehouses:**

The system of bonded warehouses is very rare in Pakistan. CPPL has a network of 4 warehouses all over Pakistan (please refer to 'Process Flow Diagram of Distributor Managed System' on page 18). Stocks are directly dispatched from the factory to the large distributors and from the company owned warehouses, to the small distributors. All the duties and taxes are paid at the gates of the factory when the goods are being moved. However, local taxes are levied on goods that enter the city limits. Almost all the warehouses are maintained outside the city limits to avoid the problem of double

taxation. The factory is the only location in the entire distribution process where the products can be dependably tracked and audited. This is due to the lack of Inventory Tracking Systems (ITS) that the small retailers and distributors cannot afford to implement. CPPL on the other hand is able to keep a track of the inventory levels using bar-coding technology before the goods leave the factory limits. The big warehouses exist outside the larger cities like Karachi, Lahore, Islamabad and Peshawar. The shipment of goods changes ownership as soon as the goods leave the factory in the cases where they are shipped directly to the large distributor owned warehouses.

### **Transportation and Logistics:**

Both CPPL and its distributors share the cost and responsibility of transportation.

- Transportation from the factory to the large distributors or warehouses is through contract carriers or in some cases, company owned vehicles.
- From company owned warehouses to other smaller distributors and customers is through company owned vehicles or contract carriers.
- From distributors to retailers through delivery vans generally owned and operated by the distributors (small vehicles with a load capacity of up to 800 kg's).
- Contract carrier cost is normally on a per shipping basis and is a maximum of 1% of value depending upon the distance.
- The company vehicles cost a further 1%-1.5% of the product's value.
- Distributors of the large cities use the delivery vans, whereas distributors of small town's use three wheeler pushcarts to deliver the stocks. The vans operated by the distributor or the company consist of a driver, a salesman and a helper. The cost is Rs.

14,000 per month and if calculated at Rs. 60 to a \$ will be \$234. On the basis of Maximum Load Utilization, the cost of logistics will be 1.5% of sales. On an average the cost of logistics ranges from 1.7% to 1.9% and has to be borne by the distributor. Owing to the absence of a dependable forecast generation and ordering system, these vans visit all the retailers on their assigned routes, replenishing the ones that are low on inventory.

#### **Taxes:**

Taxes are levied when the goods enter the city or town limits.

#### **Octroi:**

Octroi is a town specific tax and has to be paid by CPPL on delivery of the goods to the distributor of that particular town. Octroi is charged on weight per se and is roughly 0.30%-0.50%. Once the goods have been received in a particular town and need to be transported to another town, additional Octroi needs to be paid. The cost of Octroi is borne by CPPL when it delivers the stock to the distributor. However, if the distributor sells it to towns other than his jurisdiction, he has to pay Octroi once again.

#### **Export Tax:**

Export Tax is charged on each trip of vehicle that leaves the city or town limits of the city of manufacture. This tax is fixed and is roughly 0.2% of price of the products being shipped.

#### **General Sales Tax:**

The retail price of the product is subject to this type of tax. At the beginning of each fiscal quarter, the CBR (Central Board of Revenue) and the corporate and government

relations department within CPPL have a meeting to decide on the retail prices that would be implemented to yield an estimated tax revenue to the government of Pakistan. The retail prices agreed upon in this meeting can only be changed with the input of the CBR and otherwise would remain unchanged for the fiscal quarter. This is the only tax component that is borne by the manufacturer and not the distributor

**Terms of credit:**

The credit window to the smaller retailers in the small towns is around 30-45 days of average monthly sales, while in larger towns it is 15-20 days. In metro towns (cities), this credit window is only 10-15 days of the average monthly sales. This difference relates to the liquidity of the retailers. In small towns, the retailers can only afford to pay the company once they have made some sales. However, the retailers in larger cities are able to attain a higher level of liquidity owing to their higher sales volumes.

Consequently, the above section examines the costs that the distributor has to bear in selling CPPL's product. The total cost break-up as a percentage of the price of the product is as follows: Octroi tax would average at 0.4%, export tax at 0.2%, inventory holding costs, which include warehousing, 0.3%, and the largest cost component being transportation, which is estimated at 1.8% of the product's price. Distributor margins in Pakistan are low and fall between 3%-5%. CPPL being a large multinational pays the upper spectrum of 5%. Thus, at CPPL, the average distributor makes a net operating profit of 2.3% of the price of the product.

## Comparison and Analysis

In comparing the distribution systems between the two countries, the following are the main factors that account for the existent disparities.

### **Size, volume and number of retail outlets:**

The Pakistani market constitutes a very large number of retail outlets with small average turnover. The average order size of a CPPL retailer falls between \$50 and \$200 a month. These outlets are too small buy in bulk and thus have to be replenished frequently. This frequent replenishment is a logistic cost burden on the distributors.

### **Communications, culture and infrastructure issues:**

Currently, at CPPL there is very little computerization and implementation of information systems technology. CPPL does not have the accessibility to the 'Point of Sales Data' from the stores that could synchronize the ordering process. Instead, sales staff members have to visit stores on a regular basis so that they can manually check inventory levels and replenish the depleted stock. Also, the absence of EOS (Electronic Order Processing) makes the process slow and uncertain. Sales staff members that visit the retail outlets have only an estimated indication of the need of that particular outlet. Often times, owing to sudden surges in demand, they are unable to make the desired replenishment due to a shortage in stock at hand. Moreover, the distances between the various outlets are too short and the roads are too narrow to successfully institute large distribution vehicles to cover broader areas instead of segmenting them into minor zones.

In addition, the buying culture in Pakistan entails small street-corner outlets that are relationship oriented. Most regional distributors have strong ties with the retailers in

their regions. These ties are ethnic, cultural and regional and lead to the distributor having a better understanding of the needs and constraints of his region. This relationship is one of the key reasons that undermine the possibility of one distributor owning and successfully operating numerous distributorships. These cultural and language barriers are not really of consequence in the US distribution system because of two main reasons. Firstly, the US has one homogenous language that is spoken and comprehended throughout the country. Secondly, consumers are more focused on the quality of service and relationships as opposed to what the ethnic background of the person providing the service happens to be.

**Loyal customers and limited attention to stock-out issues:**

The 26% literacy rate in Pakistan translates into considerable product loyalty. It is hard for the majority of the people to make an intelligent decision based on the features of the product that are advertised. Instead, people tend to focus on price and what they have been using for a long time. Thus, the only way one can make people switch to a new product or substitutes is by lowering prices. In addition, as stores are small and geographically close to each other, if a particular product were not available at one store, the consumer would go next door before switching to a substitute. This trend is the primary reason why companies are not extremely concerned about stock-outs and their complete elimination from the supply chain. However, in the US distribution system, the vast majority of consumers are literate and able to distinguish quality and performance features between products. These consumers are able to make an informed switch between new products or substitutes.

Moreover, this informed decision making characteristic that US consumers possess reduces their product loyalty. In case of a stock-out of their usual brand of product, US consumers would not go elsewhere to search for that particular brand but instead would pick out another substitute that would satisfy their particular need. This response is also affirmed by the lifestyle's led by US consumers. People have fast paced lives and travelling distances are large, making it infeasible to go from store to store in search of their brand preference. Moreover, both spouses tend to have full-time jobs and grocery shopping is given little time and emphasis. Consequently, these purchasing trends in the US would be detrimental for sales of the product that was going through a stock-out, if the shortages persisted. As a result, the US distribution techniques such as Vendor Managed Inventory (VMI) and Point of Sales data transmission are focused on deriving a distribution process that would minimize if not eliminate the possibility of stock-outs.

#### **Inaccurate forecasting techniques:**

Due to the lack of availability of Point of Sales data, CPPL needs to rely on manual stock taking and some historical data to attain the level of demand for the forthcoming period. This is an added reason as to why CPPL relies on the classical distribution process to produce in-excess of possible demand estimation and holds a lot of inventory at all levels of the supply chain. The US on the other hand uses very sophisticated inventory management techniques that incorporate a combination of Electronic Data Interchange (EDI), Efficient Consumer Response (ECR), Point of sales data (POS), Warehouse Management Systems (WMS), Advanced Shipping Notices

(ASN) and also some relevant historical data all combined to form a single intertwined information systems program.

### **Credit ratings and taxation issues:**

Pakistan does not have any formally organized credit rating agency. Thus, almost all credit approvals are based on personal relationships and reputation. However, in the case of small retailers, these procedures are not executable by a large multinational company like CPPL. This constraint is one of the key reasons that CPPL and other similar companies institute the 'Distributor Managed System' (DMS) and outsource the distribution. DMS enables the companies to focus their efforts on the manufacture of the product as opposed to spending extensive energies on analyzing the credit riskiness of individual retailers. This idea also ties back to the cultural issues in Pakistan that have been discussed in the segment on 'Communication, culture and infrastructure issues'. Distributors that are responsible for individual regions that are consistent with their own regional, ethnic and cultural backgrounds may already have existing personal relationships with their retailers or may use their know-how of the community to find out the reputations of the retailers that they are engaged in business with. Thus, they would be able to make an informed decision on how much credit to allocate to the respective retailers within their jurisdiction. In the US however, it is extremely easy for a company like Procter & Gamble or Unilever to employ a credit ratings agency to evaluate and rate their prospective retailers.

Octroi, Export tax and general sales tax are mandatory taxes on consumer goods in Pakistan. Octroi and export taxes need to be paid when goods are delivered to a town.

If they are transported further to another town, Octroi needs to be paid again. This regulation deters distributors from sharing inventory across towns in case of stock-outs. This is yet another reason why it is not feasible to operate large inter-town distributorships. In the US however, there are no such regulations making it possible to operate large distribution centers that stretch across state boundaries.

## **New Trends and Future Evolution of the Pakistani Distribution System**

Whereas small companies in Pakistan are locked into the classical distribution system, big multinational companies like CPPL, Proctor & Gamble and Unilever are starting to experiment with the new systems adopted in the US.

Emulating the US distribution system and adopting the state of the art information systems technology is undoubtedly the goal at Colgate Palmolive Pakistan Limited. This evolution, although a long and slow one, has already been started two years ago, in 1996. CPPL has partnered with five of its largest distributors and retailers to institute a system that would utilize bar coding to transmit Point of Sales Data, Electronic Sales Order Processing (ESOP) and Cross docking within its distribution system. The company and their partners have already completed the first phase of implementation which includes designing and instituting computer bar coding and sales order transmission technology on both ends, i.e. at the factory and distributors/large retailer's warehouses. This would enable the distributors/large retailers to order their products directly by feeding their demand into a computer, which would transmit the order in real time to the factory. This would be a prompt and cost effective method of transmitting and receiving orders. In addition, the POS system would enable CPPL to monitor products that were leaving the factory for the respective distributor/ large retailer and also what products were being shipped further by the distributor's to the smaller retailers and needed replenishment.

The pilot-run of this system is scheduled for the summer of 1999. Based on the success of this process, CPPL plans to establish a cross-docking station equidistant from the main warehouses of its three main distributors. This facility would be where the

numerous SKU's manufactured by CPPL in different locations would be combined and picked-up by the carriers belonging to the respective distributors. This would help CPPL and the distributors to lower transportation and inventory holding cost considerably. As mentioned earlier in the analysis, ethnic, cultural and language barriers play a large part in the allocation and implementation of distribution strategies. Moreover, to date none of the large multinationals operating in Pakistan have been able to completely eliminate the problem. However, Unilever Pakistan is experimenting on strategies that would greatly appease this problem.

Unilever, has introduced a program called the 'Multi-distributor Umbrella program'. The goal of this program is to confine ownership and control of distributorships to a few large players who would be able to benefit from economies of scale, reduced transportation and distribution costs, subsequently increasing their respective margins. The way this program would counter the ethnic cultural and language barriers is by hiring general managers, managers and distribution staff from the region of operation. This would make certain that the relationship-oriented disposition is not compromised. Moreover, each regional office of the distributor would have a General Manager who would be a local and would get an equity share (bonus) in the distributorship depending on the sales of his particular region. This policy would ensure the aggressive and active participation of the manager in increasing and sustaining the sales of his particular region. Currently, this program is only a pilot program and its success has not yet been realized. CPPL too has instituted a similar program in its



upgrade strategy and is waiting to see some positive results from Unilever's implementation.

The above mentioned upgrades constitute the large changes that CPPL is committed to implementing in the near future. However, Mr Fazal Akbar, General Manager Logistics of CPPL, who has also helped us greatly in completing this project, feels that a lot of changes are expected to occur in the consumer products business in Pakistan and that within five to eight years, CPPL's system will be identical to that currently prevalent in the US, "there is a lag time of about five years between the US and the Pakistani markets" says Mr. Akbar, backing his argument.

## **Conclusion:**

There are still some major differences in the US vs. the Pakistani market that call for some variations in the distribution strategies. However, as the initiatives being implemented in Pakistan show, there is room for improvement and adherence to the new technologies. Additionally, we have to realize that a lot of implementation differences are ingrained in the cultural disparities which, although, they can be appeased, they cannot be completely eradicated. One such example mentioned in the paper is the importance of personal ties that exist between the distributors and the retailers and which works against the idea of 'Mega-distributorship'. 'Mega-distributorships' are trying hard to reduce this personal relationship issue by employing local managers to head the different regions, creating a similar environment of personal ties that the retailers preferred. These upcoming Mega-distributorships are trying hard to emulate the gigantic distribution firms prevalent in the US but their recent development and implementation leaves their success rate as uncertain.

## **Exhibits:**

EXHIBIT # 1

COLGATE-PALMOLIVE (PAKISTAN) LIMITED  
SALES FORECAST

DATE :  
ZONE :  
MONTH :

NOTE : THIS DOCUMENT MUST REACH HEAD OFFICE ON 22nd OF THE CURRENT MONTH.

PRODUCT	YTD SALES	REQUIREMENT					BUFFER STOCK *	REQMT. NEXT TWO MONTHS	
		1st WEEK	2nd WEEK	3rd WEEK	4th WEEK	TOTAL		1st	2nd
CDHTB ADULT	MEDIUM								
	SOFT								
CDHTB YOUTH	MEDIUM								
	SOFT								
BSCHDD	150GM								
	300GM								
POLY BAG	750GM								
JAR	750GM								
MAX PASTE	240GM								
MAX PAB	125GM								
	250GM								
	400GM								
MOONGE	PINK								
	BLUE								
	BEIGE								
	YELLOW								
WAVE	75GMS								
BAITE 20gm	P/E								
" 400gm	"								
" 1000gm	"								
CLASSIC BRUSH									
							ZONA: MANAGER		

COLGATE-PALMOLIVE (PAKISTAN) LIMITED  
SALES FORECAST

DATE : \_\_\_\_\_  
ZONE : \_\_\_\_\_  
MONTH : \_\_\_\_\_

NOTE : THIS DOCUMENT MUST REACH HEAD OFFICE ON 22nd OF THE CURRENT MONTH.

PRODUCT	YTD SALES	REQUIREMENT					BUFFER STOCK *	REQMT. NEXT TWO MONTHS	
		1st WEEK	2nd WEEK	3rd WEEK	4th WEEK	TOTAL		1st	2nd
BRIT	40GM								
	100GM								
	200GM								
	400GM								
	1000GM								
BRIT M/M	1000GM								
JAR	750GM								
RAIN	40GM								
	100GM								
EXPRESS	40GM								
	100GM								
	200GM								
	400GM								
	1000GM								
BONNY	400GM								
Activity Super	1000GM								
TEXAPO	10KG								
MAX CAN	125 200GM								
Express Box	200 500GM								
PLASTIC	500GM								
POLY BAGS	500GM								
	1000GM								
MAX B/M	500GM								
	1000GM								
MAX D/M	340ML								
	600ML								
ALAX	240GM								
PALMOLIVE G	95GM								
PALMOLIVE P	95GM								
PALMOLIVE W	95GM								
PALMOLIVE G	140GM								
PALMOLIVE P	125 140GM								
PALMOLIVE W	140GM								
PROTEX	85GM								
	125GM								
CHOICE L-574	75GM								
SAFAR	140GM								
COLGATE B	30GM								
COLGATE H	30GM								
COLGATE P	70GM								
COLGATE H	70GM								
COLGATE	120GM								
COLGATE	160GM								
CPSC	72GM								
	110GM								
FRESHMINT	70GM								

\* TO BE FILLED AT H.C.

ZONAL MANAGER :

EXHIBIT # 2

LIFT VS DESP  
EXPRESS 40gm

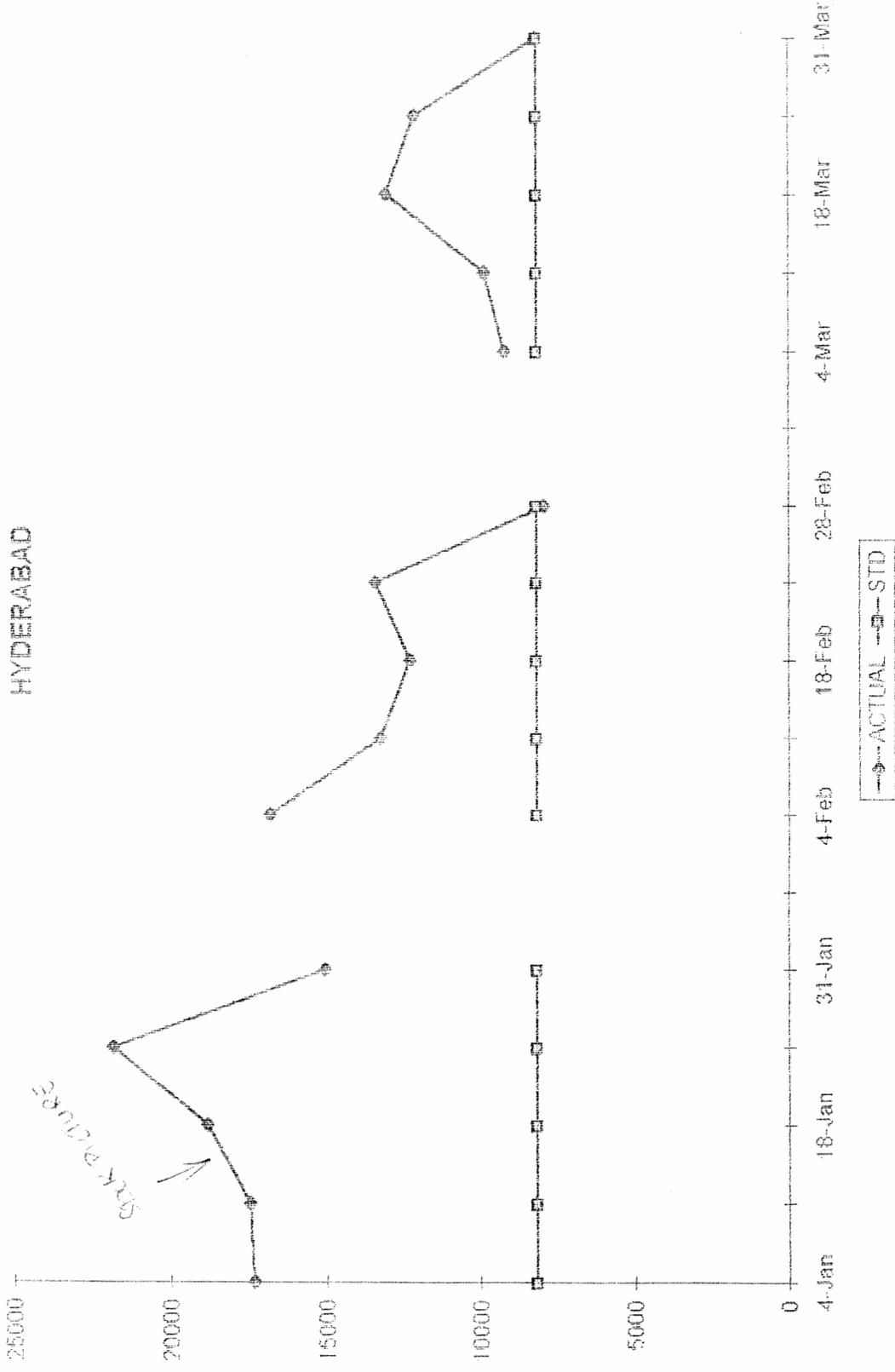
	1997 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
LIFT	2000	2600	5000	6000	5300	6000	4350	600	700	800	2600	1600	3129
SALES	2469	3172	4457	880	557	2349	1866	767	1339	2904	2145	1406	2026
DESP	2100	2830	4314	950	501	4000	3070	400	865	1820	1650	1850	2029
1998													
LIFT	800	1800	900	2000	2600								1620
SALES 98	1284	1628	992	1468	2728								1620
DESP													
JAN	175												890
FEB		1520											
MAR			975										
APR				1600									
MAY					3000								
JUN													
JUL													
AUG													
SEP													
OCT													
NOV													
DEC													

LIFT VS DESP  
EXPRESS 200gm

	1997 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
LIFT	6000	6500	6200	2200	5300	6500	5200	5500	3500	6070	7300	7000	5606
SALE 97	6668	4187	3924	1657	4470	5009	2848	4519	2701	3117	6751	4835	4224
DESP	6000	5300	5550	0	4850	4220	4500	3000	3300	4640	7100	7365	4652
1998													
LIFT	4200	4705	5600	2600	7000								4821
SALES	5431	5520	6359	3021	6495								5365
DESP													
JAN	3750												4102
FEB		2905											
MAR			5650										
APR				2875									
MAY					6750								
JUN													
JUL													
AUG													
SEP													
OCT													
NOV													
DEC													

ALL OVER THE MONTH

STOCK OVER  
 STD VS ACTUAL  
 JAN-MAR98  
 HYDERABAD



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Professor Ana Muriel, Assistant Professor Operations Management, University of Michigan Business School.

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