CHAPTER-11

CONCLUSIONS AND SUGGESTIONS

Physical distribution is one of the core areas of marketing. This function has been termed as the "Last Frontier" in the total cost reduction process. Some writers call it as "The Economy's Dark Continent" for cost saving. But, physical distribution remains as one of the neglected area of marketing. On the other hand, the cost of physical distribution of vanaspati is very high and ever increasing. Thus, it is appropriate to make an attempt to reduce and control total cost of vanaspati by finding suitable trade-off between different activity centres through the application of 'Total Cost Approach' (TCA). The present study throws light on the different aspects of physical distribution of vanaspati and suggests the best solution on the basis of minimum total cost. The study researches the vanaspati industry in general and, then undertakes a thorough analysis of three organizations from different trade sectors. These organizations are 'Amrit Banaspati Company Ltd.' (ABC) from private sector, 'Hindustan Vegetable Oils Corporation Ltd.' (HVOC) from public sector, and 'Markfed Vanaspati and Allied Industries, Khanna (a unit of Markfed) from the co-operative sector. All these companies are producing and distributing vanaspati as their major/main product. Further, these companies are distributing a bigger part of their output in the states of Punjab and Haryana.

Initially, this study makes an analysis of the production, consumption and distribution of vanaspati in general and then deals with selected companies. The study throws light on the marketing channels used for the
physical movement of vanaspati. The study also discusses different activity centres of physical distribution process viz. transportation, Warehousing, Inventory management, Packaging and material handling, and communication for all the selected companies. Lastly, the study suggests a systems approach to vanaspati producers for the reduction in the total cost of physical distribution. The study also explains, the need for a suitable organizational structure which would co-ordinate the different activity centres of physical distribution.

A. Production, Consumption and Distribution of Vanaspati

At present, India ranks as the third largest producer and consumer of vanaspati in the world. The production pattern of vanaspati showed an increasing trend up till 1988-89. As a result, there was a better use of the production capacity. But, after 1988-89, there was a fall in the production of vanaspati and the capacity utilization also fell. Among the selected units, only 'Amrit Banaspati Company Ltd.' (ABC) has been able to maintain an increasing trend in capacity utilization, while both 'HVOC' and 'Markfed' have been operating at below capacity, and capacity utilization shows a declining trend.

Though, India is the third largest consumer of vanaspati, the per capita consumption of vanaspati in India is very low as compared to other developing countries. Beside the low per capita consumption, there are wide variations in the per capita consumption among the different states, districts and regions. Therefore, there is a scope to increase the consumption of vanaspati in different states.
The vanaspati producers in India are free in the matter of physical distribution of vanaspati. There are no barriers or restrictions on the part of the government in the distribution of vanaspati. The companies selected under the present study (i.e. ABC, HVOC, MARKFED) are also free in the matter of physical distribution of their products.

B. Marketing Channels

Vanaspati producers in India are using a variety of marketing channels for the physical distribution of their products. These channels are both own, private and co-operative. The major part of vanaspati trade is done through the private channels. Only companies in the co-operative sector (like; MARKFED) are using the co-operative channels. These include Co-operative Agricultural Services Societies (CASS), Co-operative Marketing Societies (CMS) and Co-operative Work Societies (CWS). 'Hindustan Vegetables Oils Corporation Ltd.'(HVOC) and 'Amrit Banaspati Company Ltd.' (ABC) are mainly distributing their products through private channels.

The private channels are preferred because of their flexibility and suitability in channel design and freedom in the matter of administration. Co-operatives are growing at a faster rate in the country but, these are not suitable and efficient channels for a product like vanaspati.

All the companies selected for the present study are taking great care in the selection of marketing channels e.g. selection of dealers.

Usually, the selected companies, at the time of selection of dealers take into consideration factors like; service, compensation, motivation,
formal training acquired, communication facilities, extent of market, location of godowns etc.

In addition, the margin of the dealers is also fixed by the companies after giving due consideration to the demand and supply of the product, competitor's reaction, population of particular locality etc. Despite the fixed rate of margin on sale, vanaspati companies are also allowing rebates; like quantity rebate, patronage rebate etc. MARKFED and ABC are also providing interest free credit facilities to their dealers who are enhancing their sales volume. But it is found that no vanaspati company has its centre for dealers training. But all the companies are conducting dealers' conferences at different times for providing latest knowledge to dealers regarding the product and changed marketing environment. The dealers who have achieved/made record sales are also honoured by giving cash prizes and merit certificates.

Usually, these dealers are supplied products through company's own depots. In case of selected companies, it is found that company depots and the dealers network are not adequate. There is a need for expansion of the dealers' network and company depots. The expansion of the dealers network should be need-based and not on discrimination basis.

C. Transportation

Transportation is a major activity centre of physical distribution and accounts for nearly half of the total distribution cost of vanaspati. There are a number of factors; such as, wide spread rural market, time and location of demand, rail and road freights, concentration of vanaspati units at few
selected places, which make the transportation as one of the most challenging and complex activity.

From the scenario of Indian vanaspati industry, it is evident that road is the only mode of transport used by the vanaspati producers. In some companies, the private trade (i.e. Public carriers) performs this function. On the other hand, in some companies, this function is performed jointly by public and private carriers. Road transport is an advantageous and suitable mode of transport for vanaspati business due to its easy accessibility, flexibility in operation and short and medium range reliability. But, this mode also has its problems like; high capital cost of trucks, bad road conditions, high cost of fuel, spares and a high incidence of road taxes.

Presently, road transport system is holding the key place in the movement of vanaspati in India. All the selected companies are also using road transport for the movement of their products.

As transportation costs are increasing every year at a fast rate, there is a need to reduce and control these costs. In terms of the inter-modal mix, the Railways, for every distance slab, is the costlier mode as it is clear from chapter - 5. The use of inland waterways is cheapest but not at all suitable for vanaspati business because of its slower nature and interior non-availability. Therefore, road transport is the only alternative in the hands of vanaspati producers. For reducing transportation costs two alternatives are suggested. First alternative is to demarcate the marketing territory. The companies should supply up to 80% of their products to the market nearer to the factory, which may lead to substantial reduction in the total distance traveled, by the product. Secondly, "optimum distribution pattern", must be used by the
companies having more than one unit i.e. the product should be supplied to a demand centre from the nearest production point. Under the optimum distribution pattern, the demand for a particular locality, should be supplied from the nearest production unit by keeping the demand and production pattern of that unit into consideration. The present study has evolved an optimum transportation model in the case of HVOC and ABC.

D. Warehousing

Warehousing, again, is an important element of physical distribution. Using the warehousing function, producers are able to provide the vanaspati to the ultimate customers at right time, at the right place, and in the right quantity. Usually, there is a time gap between production and consumption of the product. During this gap, the product is supposed to wait for some time in a queue/line. The place where the product usually stays during this period (otherwise during the transit period) is called a warehouse or a store.

The major decisions regarding the warehousing of vanaspati are related to the type, location, size and number of warehouses to be used. All the selected companies are using their own godowns at the factory level. At the field level, these companies are using company-hired-other-agency-operated and company-hired and operated type of godowns. No company selected for the present study has its own godown at the field level.

The selection of a warehouse/depot location is the key area in the warehousing decisions. At the time of depot selection (location), due consideration must be given to factors like; demand pattern; availability of
transportation facilities, facilities of material handling, lead time alongwith the associated costs.

A 'Heuristic model' has been found to be the best suited for the selection of a warehouse/depot location. This model has been applied to the selected demand centres supplied from the Ambala depot of ABC.

The warehousing costs and service level are directly associated with the number of warehouses to be used. In other words, more the number, higher will be the cost. But, at the same time, increase in number of warehouse leads to the better customer service.

In the present study, the above mentioned model has been applied on Ambala depot of 'ABC'. On applying this model to the selection of depot locations among different demand centres presently served from Ambala depot of 'ABC' (including Ambala itself), it is found that the first preference should be given to 'Shahabad'. But the company (ABC) has not adopted the scientific approach as it has already opened its depot at Ambala. According to this model, Ambala should be preferred at the third place. Hence, it may be said that the company has not made an intelligent decision.

The adoption of a scientific approach, for location, size and number of depots/warehouses is also lacking in case of other two companies. The number of warehouses selected must be optimum. For arriving at the optimal number of warehouses/godowns, the optimum capacity of a warehouse/depot must be worked out and additional godown must be used whenever the optimum is crossed. Again, the number of warehouses has also impact on level of customer service. More the number of warehouses, better would be the customer service. The company must make cost-benefit analysis while .
making decisions regarding the number of warehouses in a particular locality.

The internal layout and design of a warehouse/godown is again an important decision in the warehousing function. The vanaspati godown must have a high plinth, concrete floor traced with anti-corrosive material, proper ventilation and cooling facilities for the thickening-up of vanaspati. The design of a storage structure should be such that vanaspati must retains its nutrient content and keeps the physical and chemical character intact.

E. Inventory Management

Inventory management is also a core decision in the physical distribution task. It is through an effective inventory management that the producer is able to regulate the smooth supply of the product in the market. Inventory level affects both customer's satisfaction and the cost. Higher level of inventory leads to more customer satisfaction but at the same time to higher inventory costs. Therefore, a trade-off between inventory costs and level of customer service must be sorted out. Vanaspati has a continuous demand throughout the whole year. In order to avoid higher inventory costs due to over-stocking and to avoid out of stock situations, which may cause loss of sale, an efficient and effective management of inventory is needed. A smooth supply of product must be ensured by managing inventory in a proper way so that, out of stock situations are avoided and the inventory costs are kept at the lowest. Inventory costs in the vanaspati business form the third largest element in the total physical distribution costs.
The selected companies do not follow a scientific approach to the inventory management. All the selected companies do have adequate data (in the form of state-wise, product-wise, depot-wise month-wise statements) for possible inventory management. But none of the company is using this data to achieve an effective inventory management. A detailed analysis revealed that there is a need for the application of sound and scientific inventory management techniques.

"Demand Forecasting" is the starting point, from where the task of inventory management may be initiated and 'Exponential Smoothing technique' of the 'time series analysis' may be used. This technique is found best suited for the calculation of demand, while forecasting. 'Exponential smoothing' technique does not require large past data, identifies seasonal variation and is computed in the minimum possible-time.

The second step in the inventory management process is 'controlling inventory levels.' Inventory level depends upon the level of customer service offered. Higher the level of customer service, greater will be the level of inventory and higher inventory cost and vice-versa. Further higher service level leads to increase in the sales volume also. Therefore, the producers must seek the trade-off between inventory cost and increased sales. In other words, the producer must seek trade-off between cost and benefits at a particular inventory level. There are a number of factors which contribute to a particular level of customer service, such as; service consistency, minimum order size, inventory reliability, order delivery cycle time, delivery frequency etc.
In the present study, for determining optimum level of customer service, a conceptual model has been used. This model establishes the relative importance of each of the service elements for vanaspati industry. According to this model, once the level of customer service is fixed the corresponding inventory level may be calculated.

An analysis of the Ambala depot of ABC was undertaken for detailed study. It was revealed that this depot is operating at 97% service level, which requires very high inventory levels. No attempt has been made at this depot to establish an optimum service level, by trading-off inventory carrying costs and stock-out costs. Similarly, other two organizations (HVOC and MARKFED) also not were having used a scientific method of establishing optimum inventory level.

F. Packaging and Material Handling

Being a consumer product of direct use in the preparation of food and dishes, vanaspati packing needs special care so that its nutrient, chemical and physical character may be kept intact. The present study makes comparative analysis of different packing materials used for packing of vanaspati. The comparison has been made on the basis of different factors like; strength, corrosive reaction with vanaspati, after use benefit, cost, printing and marketing, handling and stacking etc. In India, HDPE films, HDPE containers, tin containers, and corrugated boxes are commonly used materials for vanaspati packing. The companies can use only ISI marked containers for vanaspati packaging. Usually, tin containers are found to be more suitable for bulk packing. For small packing HDPE containers and HDPE films are found more suitable. There are no government restrictions in
the matter of selection of packaging material between tin, HDPE film pouches. But, no company can use packing without ISI mark. The companies selected under the present study were also free to select the packaging material. The packing containers of any type (except HDPE film pouches) used by vanaspati producers have their resale value. The retailers for packing the household consumer items usually use the corrugated boxes. Sometimes, corrugated boxes are also sold at a nominal price.

The specification of packaging is controlled by the packing order of the government. The companies selected are using packing sizes of 15 litres, 10 litres, 5 litres, 1 litre, 1/2 litre and 200 millilitres. For packaging sizes of 2 litre to 15 litres, the companies are using either HDPE containers or tin container. For small packing ranging from 200 ml. to one litre, the use of HDPE container and film pouches is more prevalent. The HDPE container is better than any other packing material because of its strength, easy handling, non-corrosive nature, ease of printing and marking and the possibility of reuse by the consumers. The shape, size and capacity of vanaspati container are designed in such a way that, proper strength and facility in handling may be ensured. It has been seen that vanaspati companies are spending a huge amount on packaging of their product every year. So the introduction of more suitable and economical packaging material is needed under the present conditions. The size, capacity and design of the container must be modified according to the specific conditions.

Material handling system is another important element of physical distribution system. This activity of the total system has its close association with the packaging function. The effective material handling system may
cause reduction in the total cost by making efficient and full use of storage facility and speeding-up of the operations. There are a number of materials handling equipments, which are usually used in the warehouses. But in India due to cheap availability of manpower, vanaspati is mostly handled, manually. In the selected companies the use of manual carts (ABC), conveyor (rolling chain system) (HVOC) are prevalent.

The study revealed that, no attention has been paid for the reduction of material handling costs. There is an ample potential to evolve suitable measures for reducing these costs and to standardize them. The use of work study technique is suggested in this regard.

G. Communication

Communication is an essential activity, which helps in the coordination of all the activities. It is not only, the element of physical distribution system, but also nothing in the business and even in the social life is possible without proper communication. To make the physical distribution system more effective and efficient the rapid, quick and accurate flow of information regarding different activity centres is really essential. Inadequate and inaccurate information may cause inefficiency in the total system. It generally leads to deficiency in inventory and lowering down of the speed of operation, which ultimately results in an increase in total distribution cost and lowering down the customer service. Adequate and accurate information are also necessary to monitor and control different activity centres. In connection with physical distribution function, communication includes order transmittal, order processing, control and internal co-ordination.
There are different methods of communication with varying degree of speed, accuracy and dependability. Generally selection of communication method/modes is done on the basis of these parameters. The costs also have a direct link with these parameters. For example, more rapid the mode of communication, higher will be the cost. But in the case of rapid mode of communication, lower inventory level is required which will decrease the inventory costs and consequently increases communication cost.

In case of all the companies under the present study, the order transmittal is usually done through telephone and personally and rarely by mail. So communication facilities are very quick in all the selected companies.

Further, the order processing activity must be rapid as any delay in order processing may lead to cancellation or modification in the order by the customers resulting in higher inventory costs. The company must ensure the regular supply of the product because, the demand of the product is regular throughout the year. So companies should keep the stock ready for delivery due to continuous demand.

For the co-ordination and control purposes, feedback of information from various departments and activity centres is required. Again, the continuous feedback of information is required for relating customer service to the cost and to the system performance. Communication is also useful in identification of trends in the working of various activity centres. The companies selected under the present study are getting such feedback through regular review of inventory and sales. These reviews are done, every month in case of HVOC and daily or after 2-3 days in case of ABC and
Markfed. However, it is suggested that companies should prepare reports like trend and special reports such as; diagnostic, position and policy report regularly, so that better feed-back of information may be ensured, which may contribute and help in the continuous improvement in the performance of physical distribution system. HVOC should also prepare reports more frequently. This will help in better control of inventory.

Documentation is one of the important elements of a communication system. For all communication activities, it is necessary. It is particularly required for the purpose of dispatch, transport and warehousing. The companies under the present study are preparing similar documents for order transmittal, dispatches and transportation etc.

H. The Total Cost Approach (TCA)

Total cost approach (TCA) has been suggested for the reduction of total cost of physical distribution. Under this approach different activity centres of physical distribution are co-ordinates to bring the reduction in the physical distribution cost at a particular level of customer service; say 95%. It is possible only if, the whole system is operated at optimum level. By applying the total cost approach, there may be an increase in the cost of an individual activity centre, but the total cost of distribution will be reduced. Thus, if the total system is to operate at its optimal effectiveness, the individual activity may operate at sub-optimal level. The overall effect of TCA is to reduce total cost and to produce higher net profits.

The study has examined different activity centres and identified areas under these activity centres where the reduction in the cost may be possible. These areas are concerned with decisions at the operational level, like
controlling costs of inventory, material handling, transportation, establishment of service level, monitoring and controlling of warehousing activities etc. But, for major policy decisions, which involve high investment and have a long-term implication, the TCA is imperative.

This approach has been explained with the help of specific examples. The first example is concerned with the mode of transportation for the vanaspati business. It is found that road transport is the only mode which is suitable and cheaper also. For all destinations whether short or long, road transportation is the cheapest mode. In the second example, an increase in the warehousing and material handling costs as a result of an increase in the number of warehouses has been considered. It has been seen that as a trade-off against a reduction in the transport cost to the extent that the cost effectiveness of the total system is improved. Further, the increase in number of warehouses will raise the level of customer service, which ultimately will result in higher revenue to the unit concerned. Thus, the producers should make cost-benefit analysis while taking decision.

To make TCA successful, a proper co-ordination among different activity centre is necessary. To gain the proper co-ordination, organizational structure of a concern plays an important role. The organization structure should be so amended that effective co-ordination between different centres is ensured. The evaluation of the organizational structure of companies selected for the present study reveals that no company has a separate department of physical distribution. Generally, in all the concerns, the marketing department or the commercial department performs this function as the case may be. Packaging function in all the companies is a part of the production function. Again, there is no indication of an informal committee
to bring about co-ordination. Thus, it is suggested that, proper co-ordination between different activity centres should be brought about, both at operational as well as at planning and policymaking level. The vanaspati producers should use TCA for decision making in vanaspati distribution. Organizational structure should be suitably amended, so that proper co-ordination between different activity centres may be brought about.

The study clearly reveals that there is a considerable scope for the improvement in the physical distribution system of vanaspati. The vanaspati industry should make an attempt to implement all scientific and analytical methods both for lowering distribution costs and improving level of customer service.

Although, all the trade sector (private, public and co-operative) need to adopt a scientific approach to physical distribution, it is seen that the private sector's performance in terms of physical distribution costs and customer service is better than the other two sectors.

India is a highly populated country and ranks second in the world population scenario after China. Its per capita consumption of vanaspati is very low as compared with other developing and developed countries. Therefore, there is a considerable scope of increase in consumption of vanaspati. It will push up the production to a considerable extent. Ultimately, increased production of vanaspati will be distributed among masses. It may attract large amount of physical distribution costs, which may cause heavy loss of profit to vanaspati producers and to the country as well. Thus, vanaspati producers should make efforts to reduce total physical distribution cost by applying TCA.