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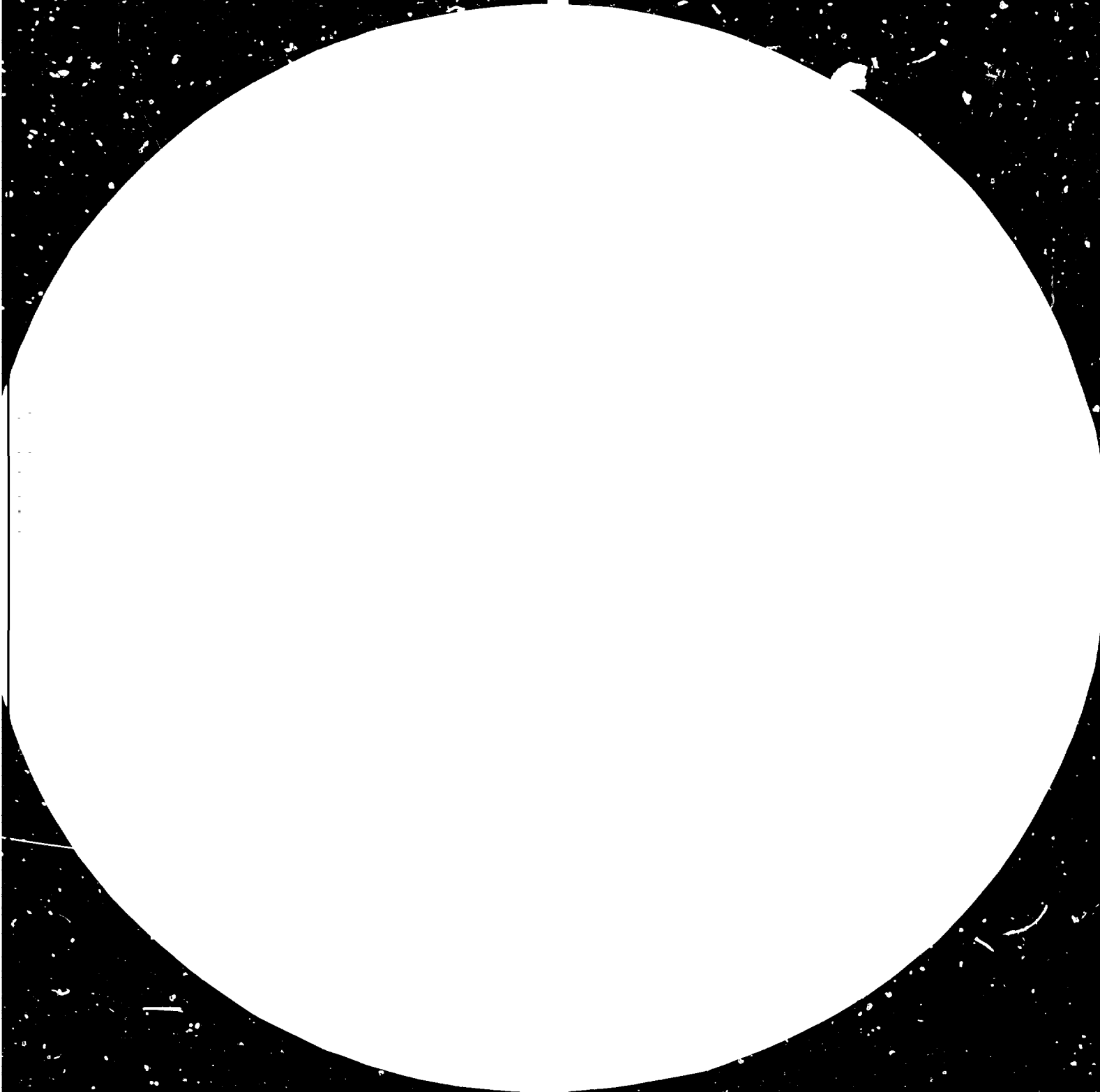
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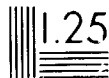




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INDUSTRIAL DISTRIBUTION SYSTEMS MANAGEMENT ^{1/}

A Key Issue of Industrial Development

by

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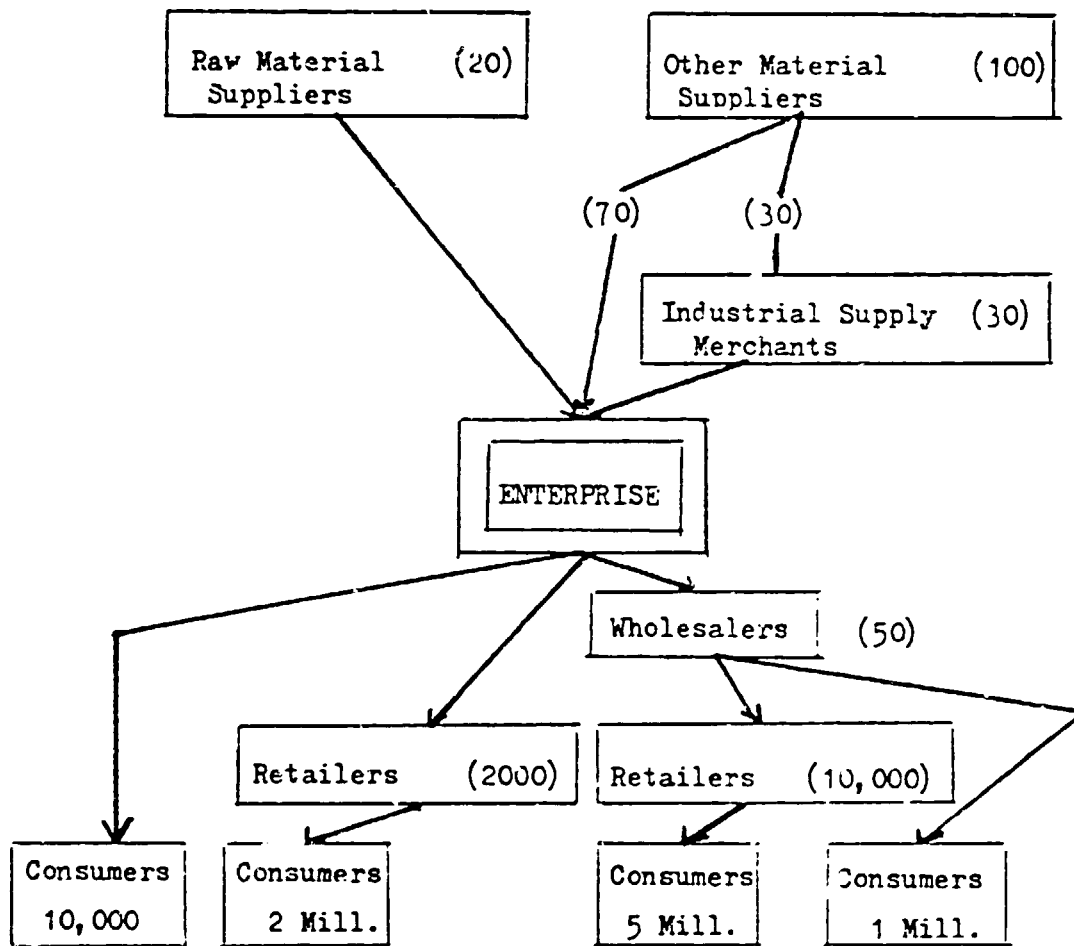
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In the process of industrialisation, knowing how to operate efficiently industrial manufacturing plants is only one, albeit a key step, to arrive at a truly industrial economy. But, it is just as important that materials reach the plants in time, their products the customers and that the various operations and steps moving these goods are carried out in an efficient and economic manner. These operations are generally referred to cumulatively as "industrial distribution systems" and involve a multiple, interlocking set of individual operations, such as transportation itself, changing from one to another mode of transportation, warehousing, inventory control, dispatching operations, etc. Such distribution systems are essentially the lifelines between the manufacturers on the one hand and the markets and customers on the other. Table I (on page 2) is a greatly simplified visualisation of an enterprise within the flow of products processed by it. In the example given, the enterprise has direct contact with 120 sources of supply and 2050 intermediary distributors which would not be atypical for a food processing company in a country with 10 million inhabitants. Distribution system costs are usually high, frequently higher than direct manufacturing costs, and require a specialised and highly sophisticated management system for optimum economy.

The cost attributable to the distribution of consumer goods varies from product to product, from place to place and from country to country. Thus, it was found in a study of 57 products that the mark-ups charged by retailers in Caracas for different industrial food products, varied from a low 4% for 1 litre bottles of vegetable oil sold by supermarkets to a high 125% for figs. In this study, markedly lower prices were found in supermarkets than in normal stores. A study carried out in Bolivia by the

TABLE I



Michigan State University resulted in the following cost breakdown of the price paid by the consumer for milled rice when sold on the farm to the assembler/miller:

Farmer obtains	41%
Miller/assembler	37%
- for assembling	<u>15%</u> (distribution cost)
- for milling and re-distribution	22%
- of which for re-distributio.. (estimate see Table II)	<u>6%</u> (distribution cost)
Wholesaler	5% (distribution cost)
Retailer	17% (distribution cost)

The total amount paid by the consumer for distribution of an agro-industrial product with such few steps of conversion therefore amounts to, at least, 43% without counting hidden costs of the farmer and miller.

The following Table illustrates the physical distribution cost incurred by different industries in the UK which varies from a relatively low 9.8% of the machinery industry to 29.6% for food and food products. The figures for all of the distribution effort are substantively higher where advertising, sales promotion, selling and servicing activities must also be carried out.

TABLE II

Physical distribution costs by industry*

<u>Industry</u>	<u>Physical Distribution Cost as Percent of Sales Price</u>
Machinery	9.8
Wood Products	16.1
Paper and Allied Products	16.7
Chemicals, Petroleum and Rubber	23.1
Primary and Fabricated Metal	26.5
Food and Food Products	29.6

If one assumes, that the cost of distribution which is paid by the consumer of a highly developed country for industrial food products for instance amounts to 30% of the purchasing price - the total share paid by the consumer for distribution would result in 53.6%^{**}.

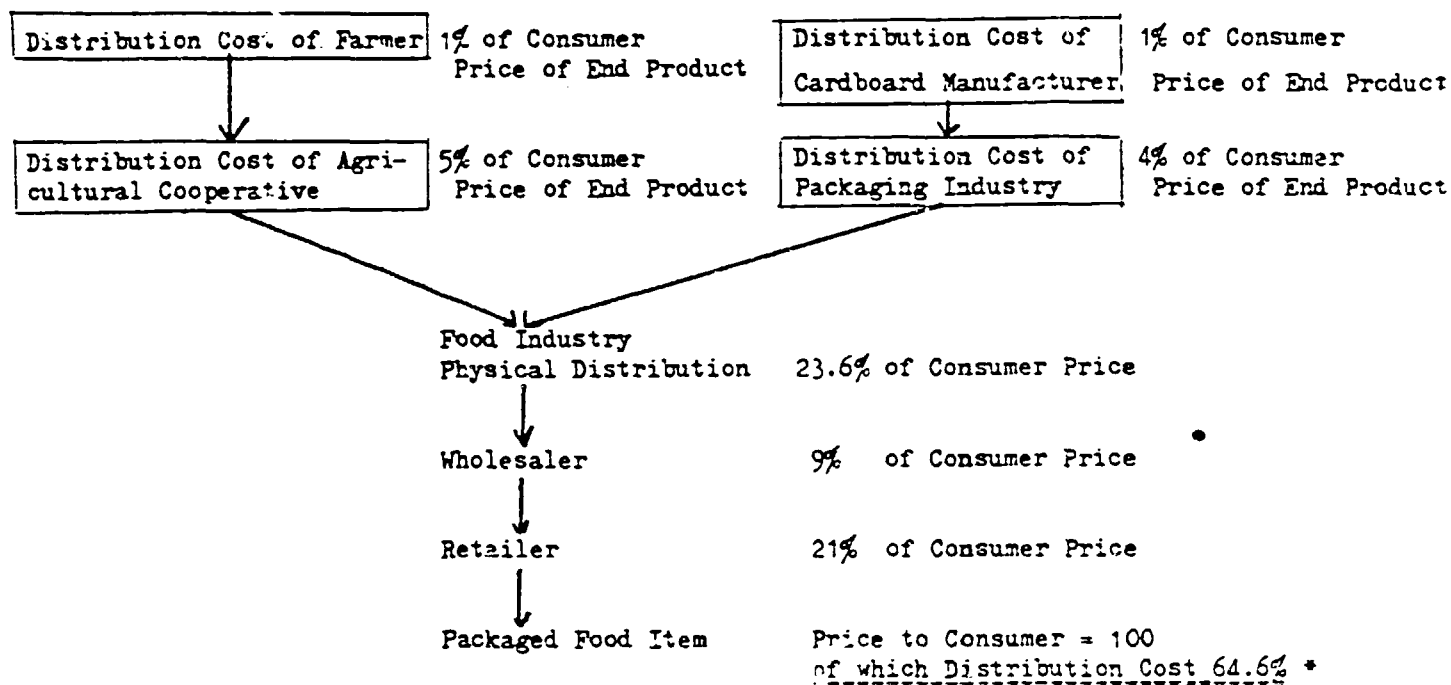
Since this figure only relates to the cost of distribution on the finished product as it is sold to the consumer, the true figure is substantially higher which can be illustrated as follows:

* Richard Ball: "Physical Distribution: a Suitable Case for Treatment" in Long Range Planning, Vol. 13, February 1980.

** attributable to wholesalers and retailers

TABLE III

Analysis of Distribution Costs paid by the Consumer
Packaged Flour - Estimates for an Industrialised Country



A comparative study made by a multi-national company of average distribution costs for their product lines within the trade resulted in significant differences between the least organised distribution systems of Venezuela and the better organised systems of Trinidad, England and the US as follows:

* Even this estimate may be considered conservative as it does not take into account the accompanying cost of communication (advertising, sales promotion, service, etc.) on the manufacturing level.

TABLE IV

Mark-ups on producer list prices*

	Venezuela 1971	Trinidad 1969	UK 1969	USA **
<u>Toilet Soap</u>				
Supermarket Chains	37%	22%		
Other Wholesale/Retail Distribution	47%	22%	22%	17%
<u>Toothpaste</u>				
Supermarket Chains	47%	33%		
Other	59%	33%		
<u>Dehydrated Soaps</u>				
Supermarket Chains	42%		22%	20%
Other	42%		22%	

* the real mark-ups are substantially higher because of various forms of discounts

** estimates

The responsible professionals for the aforementioned study of the Market Processes in La Paz come to the conclusion, that consumer prices for food products could easily be reduced at least by 5-10% with the introduction of improved distribution management systems. This would mean enormous savings if one looks at the economy as a whole and the high share of food expenditure in total living expenditure which could be up to 50% and more particularly among the poor inhabitants of developing countries.

In the industrialised countries, the distribution of products from the plant to the industrial user, to the retailer or even to the consumer is often carried out by the manufacturers themselves. This is justified when the volume of a single product line warrants the upkeep of special warehouses and retail operations or when the pricing, sales information and service policy of a company can be implemented more efficiently by controlling the distribution system. The steel, petro-chemicals and oil refining industries frequently supply industrial users directly. Appliance and automobile tyre manufacturers and producers of non-durable consumer goods normally rely on industry-independent systems such as the modern and efficient consumer-orientated operations in the form of various types of cooperatives, supermarkets and department store chains, cash and carry markets, etc. Regardless, however, under which "umbrella" such distribution systems are organised and managed, they all carry out the same basic function, namely the moving of industrial goods and products from the manufacturers to the customer (industry or consumer alike) and as such, the distribution of goods is an element of the enterprises marketing and sales operations.

In the developing countries, the situation is usually different in that most manufactured goods, even from small manufacturers and non-durable consumer goods, are either directly distributed by the manufacturers or through often numerous, small-size, inefficient intermediary operations at relatively high costs to the customer. Thus, it was observed in one country, that a manufacturer of dairy products used 300 salesmen to visit the 60,000 retailers to ensure the distribution of its \$75 million annual sales (in 1975). Another manufacturer of sweets and snacks justified the continuous direct distribution of its products through a system of 9 large warehouses, its own fleet of trucks and 400 motorised salesmen, each one travelling in a small station wagon. This company's sales amounted to only \$25 million or approximately \$60,000 per salesman. A third company of similar proportions maintained three completely separate sales forces for the sale of its product lines, bread, dairy and others. The existence of such direct distribution is mainly due to the absence of efficient distribution (systems), a major problem for the developing countries' economies, further enhanced by weak transportation infrastructure and long distances, climatic conditions requiring special

warehousing (storage) and caused principally by the lack of coordination of the use of available resources (warehouses, trucks, skilled workers). In many developing countries, the importance and effect of industrial distribution systems' management is just beginning to be recognised, usually after its weakness becomes very bothersome, resulting in distribution delays, product deterioration, unavailability of products, high cost of goods etc. Such problems are equally noticeable in cities and rural areas. While in cities the problem manifests itself by the high cost of industrial (and other) consumer products, in particular food products, it is also particularly noticeable in rural areas where the "backward flow" of industrial products and consumer goods from the relatively well-supplied metropolitan areas is very limited and frequently non-existent, in effect greatly impeding rural industrialisation.

Existing methodologies concerned with the choice of industrial locations would list among the main criteria applicable for selecting a site for an industrial plant, the supply facilities which will be available in the vicinity. The supply and distribution problems which are typical for plants distant from (industrial) agglomerations, have lead some industrialists and planners to look for a rationalisation effect in regard to both aspects. Thus, certain specialised handicraft and medium-scale industry have demonstrated a tendency to concentrate in certain areas. Industrial planners in the ASEAN region have recently been approached with the suggestion to initiate industrial agglomerations along the lines of "technological families" there, which would - in addition to improving the distribution of goods - have the effect of reducing the cost of communication and of exchanging information on technical subjects.

Industrialisation of rural areas is a subject of great concern to many developing countries, because if successful, it slows down undesirable migration from rural areas to the cities. The virtual absence of adequate systems for the distribution of industrial supplies and industrially produced consumer goods, however, makes rural industrial development often impossible. The reasons for this are manifold, such as: small and medium-scale enterprises find it difficult to obtain the variety of supplies they need for carrying out efficiently their manufacturing activities; the non-availability of

small items and spare parts (e.g. tools, electric motors, nuts and bolts, fittings, sheet metal, containers, painters, packaging materials etc.), can mean extended stoppage of operations; improvised repair solutions cause an initially small damage to lead to more serious problems, accidents or even disaster. Also, the absence of an adequate assortment and quality of consumer goods at accessible prices contributes to difficulties to retain qualified industrial manpower in rural areas.

A well-maintained assortment of industrial supply and consumer products must be comprehensively planned and carefully implemented to insure industrial development within the less densely populated areas of a country. It should be recognised, however, the establishment of such rural "distribution outposts" with well-planned and well-controlled assortments is rarely profitable at the start (although a social cost-benefit effect is usually soon noticeable), but it has to be accomplished and recognised as an important step in creating proper infrastructure for industrial development. Such distribution services are a natural complement to infrastructural development (i.e. roads, tele-communication, etc.), all of which are needed for the improved exchange of essential goods and other resources. Larger cities in the developing countries usually have their increasingly sophisticated and integrated distribution networks for that purpose, whilst rural communities rarely do. Thus, for instance, in one developing country, only one third of the population lived in the four largest cities where at the same time approximately 90% of the points of sale of integrated retail chains could be found in 1975.

Setting up and operating such industrial distribution systems requires sophisticated management expertise. Achieving efficient operations at the lowest possible cost is very difficult in that overall distribution costs are made up of numerous components and indirect factors, forming a very complex network of cost feed-back effects that are frequently hard to measure or define. For instance, the location and number of warehouses will have a direct effect on total inventory (i.e. capital costs), transportation, equipment and maintenance, just to name a few. In any case, it is a most complicated environment from the managerial point of view, where factors such as distances between and sizes of warehouses, their numbers, geographic locations, climate, product

storage and shipment requirements etc. on the one hand, and transportation and display facilities on the other hand, all need to be taken into account.

In today's economic environment, specialists in distribution management are scarce even in those countries, which possess highly sophisticated distribution systems, such as Sweden, the Netherlands, Switzerland, the US and Canada. This is due to several factors, one of which is the absence of practice-oriented high-level educational facilities in this field. While marketing in general has now grown to an almost classical element of management sciences, distribution management - which deals with the problems of wholesaling and retailing-is seen by many as only a sub-category of industrial marketing. One may safely estimate that there are only 2 academically trained distribution specialists for every 100 such marketing specialists.

In summary, the industrial distribution systems of the developing countries require urgent and close attention on a broad scale. The overall aim of UNIDO's effort in this regard is to provide assistance to eliminate cost and efficiency bottle-necks particularly hampering industrial development. To achieve this objective, the first and most important task is to introduce and/or strengthen the industrial distribution systems management capabilities of the developing countries.



