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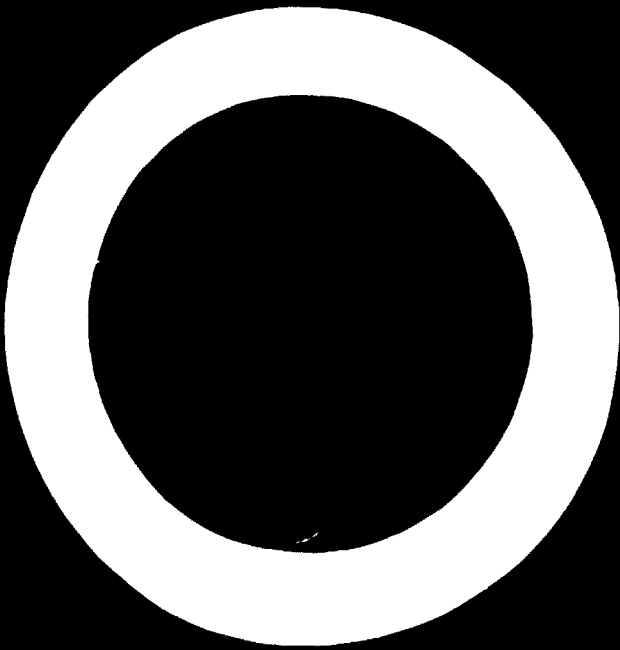
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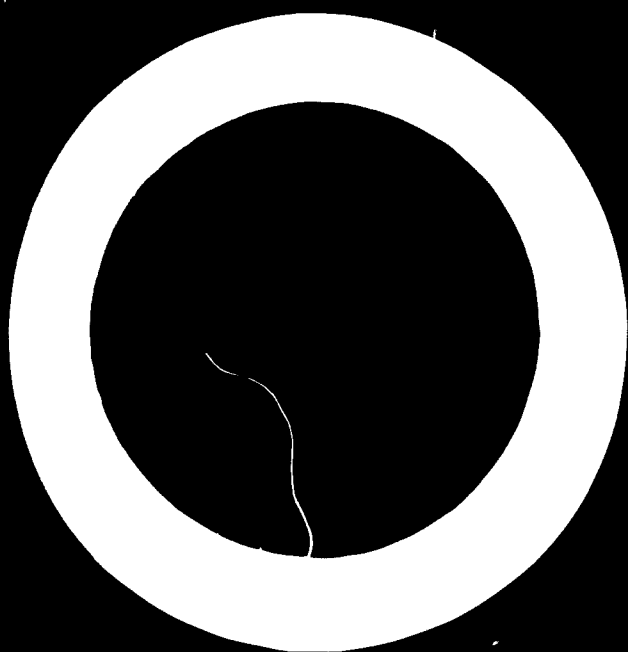
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in  
Developing  
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Problems  
and Prospects*



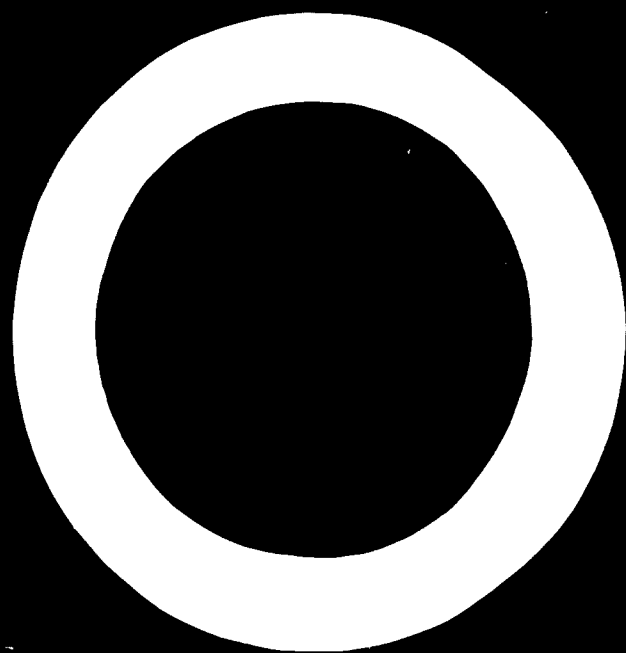
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**THE GROWTH OF THE  
LEATHER INDUSTRY  
IN DEVELOPING COUNTRIES:  
PROBLEMS AND PROSPECTS**



**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
VIENNA**

**THE GROWTH OF THE  
LEATHER INDUSTRY  
IN DEVELOPING COUNTRIES:  
PROBLEMS AND PROSPECTS**



**UNITED NATIONS  
New York, 1972**

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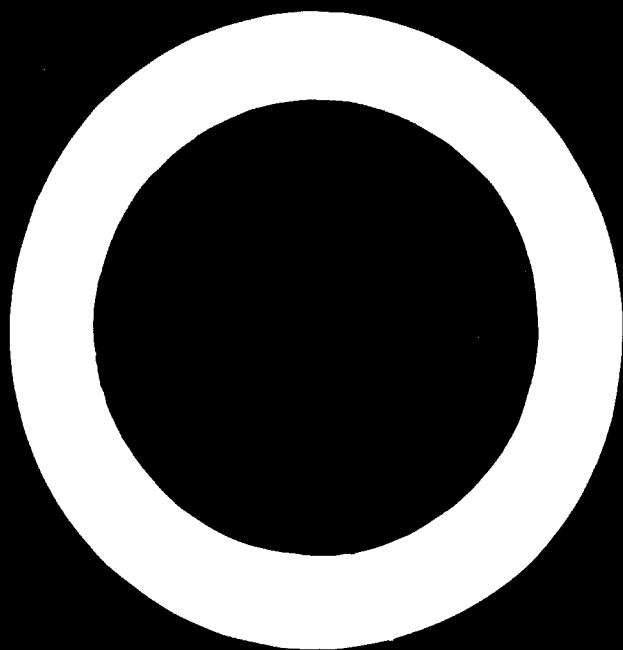
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## **PREFACE**

**This paper was prepared by Y. Nayudamma, as consultant for UNIDO, for the Seminar on the Development of the Leather and Leather Products Industries in Developing Countries, Regional Project for Africa, held in Vienna from 22 February to 5 March 1971. Mr. Nayudamma, former Director of the Central Leather Research Institute, Madras, is Director-General of the Council of Scientific and Industrial Research, New Delhi, India.**

**The views and opinions expressed in this publication are those of the consultant and do not necessarily reflect the views of the secretariat of UNIDO.**



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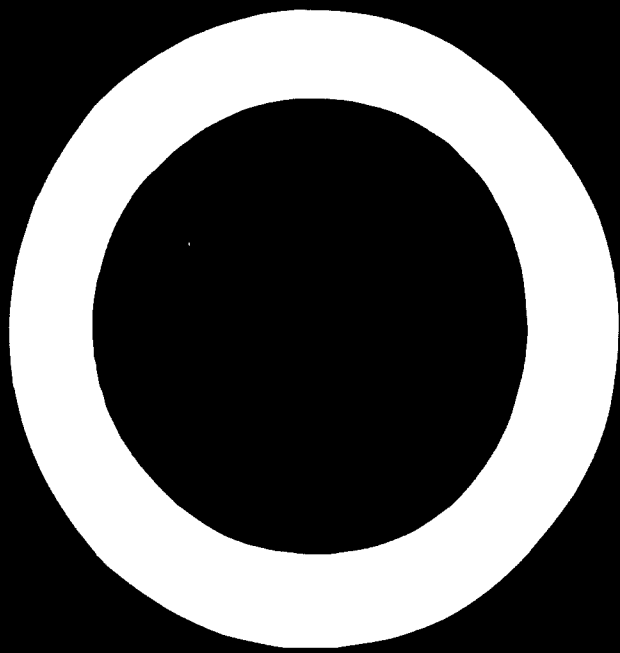
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## *Introduction*

Most developing countries have an abundance of raw materials, cheap labour, traditional skills and, above all, an ambition and need to exploit these assets in order to meet the demands of their rapidly growing populations. To expand and develop the traditional craft industries of these countries, careful planning and competent execution are needed, in addition to the application of the most modern scientific technological and managerial concepts. Developing countries can accelerate their industrialization by using the "leap-frog" technique—studying and applying the lessons learned by other countries while developing their own industries.

This study examines various aspects of the development of the leather industry under the following headings: social problems; planning and policy; structure and organization; production and management; marketing; technology; training; and capital. It describes international aid programmes to promote the industry, bilateral aid, and forms of collaboration between enterprises in developed and developing countries.



## SOCIAL PROBLEMS

Leatherworking in many developing countries is essentially a cottage industry, a craft that has been plied for generations by the same families in widely scattered villages. Living and working conditions for the workers are poor, and the level of education is very low. Moreover, for many of them there is not sufficient work in the industry to provide full-time employment, and they work part-time as agricultural labourers to augment their income. Most of these craftsmen live a hand-to-mouth existence and are deeply in debt to middlemen and money lenders.

Another aspect of the social problem is the stigma that is attached to leatherworking in certain countries. For example, the small tanneries are usually ill-equipped; they lack proper outlets for effluents and pollute the air with a foul smell. For this reason the tanners, who often live and work on the same premises, are sometimes kept segregated from the rest of the community.

Not only do barriers exist between the tanners and the rest of the community, there are also social barriers within the trade. The shoemaker, for instance, considers himself superior to the tanner, who in turn considers himself above the flayer. These prejudices are deep-rooted and cannot be changed easily by law. It is scarcely surprising, then, that at times the flayers simply refuse to continue with this kind of work and abandon valuable hides that have been left with them for treatment. Overcoming these long-standing prejudices and making the work more attractive is a major problem.

It is inevitable that the old cottage industries will someday give way to large, modern factories. They will survive only as long as the older generation survives; as the younger people become educated they naturally look for more pleasant work in clean surroundings. However, the problem remains of finding ways to assist the cottage industries while they last, ways to make better use of the skills of the tanners and other workers in the industry, and ways to introduce modern technology at this level so that the hides and skins will be better utilized, all of which will improve the economic position of both the tanner and the community.

The first solution that suggests itself is to close down the cottage units. But this would raise the even greater problem of finding alternative employment for the traditional tannery worker who has no other skills or training. The situation is particularly acute for the older man who is unable even to switch over to manual work.

The answer to the problem probably lies in choosing technology that a cottage tanner can grasp easily and apply readily and in giving him practical demonstrations of it. This age-old industry with its deep-grained prejudices, traditions and even superstitions tends to resist change, and the general low level of education makes it difficult to transfer technology. However, no tanner, no matter how ignorant, will refuse to earn extra money if he is shown how he can do so.

The cottage units might be organized as co-operatives. This would present difficulties, however, as the industry and its workers are scattered far and wide. The establishment in each tanning community of a common facility centre with modern machinery and instruction in its use would be more feasible. This would go a long way towards converting the currently low-yielding tanneries into profitable feeder units producing standardized semi-finished products.

The major difficulty attached to making use of the special artistry and skill of the cottage craftsmen, developed through ages of experience, is that while handwork is ideal and indeed necessary for the production of fine or artistic items, it does not lend itself to uniformity and quality in mass production. These skills could be exploited to some extent, however, by farming out assembly work to the cottage workers; already-cut components, designs and patterns could be fed to the cottage craftsmen and the subsequently stitched, pasted or assembled product collected for final finishing and quality control by the larger factories. Similarly, the cottage units could be used as feeders to larger units.

Developing countries that have traditional leather industries must take these human and social factors into consideration when re-organizing, re-orienting or modernizing their industry.



## **PLANNING AND POLICY**

Few developing countries have either a plan defining the goals and objectives for the development of a leather industry or a positive policy to back it up. Many countries export a good deal of their raw material. In many countries small tanning units predominate, but in a few cases an organized, mechanized tanning industry exists side by side with the small and cottage units. Statistical data, when they are available, are unreliable, and systematic surveys of resources are seldom made.

A well-thought-out plan for development is badly needed in these countries. But planning must be realistic: it must be viewed and tackled in its totality and in the context of the over-all demands of the national economy. Many developing countries draw up overly ambitious plans, aimed at reproducing in their countries the conditions of the affluent economies. The result is frustration. Some practical measures that might be taken are described below.

### **Survey of resources**

As a first step, a systematic, techno-economic survey should be made of a country's resources and the extent of their utilization in the domestic and foreign markets. Preliminary surveys have been carried out for some countries in Africa by the United Nations Food and Agriculture Organization (FAO) and by other specialized agencies of the United Nations. However, these studies should be made in greater depth. A balance sheet should be drawn up for each country indicating the resources of raw hides and skins, the tannins, auxiliaries and skilled personnel available, and the current and potential capacity for production, market supply and demand.

### **Market research**

Many countries are ignorant of the domestic and overseas market possibilities that exist for their products. Such countries should set up agencies to study market trends, the competitive position of the country in relation to the world market, where and how their products are being sold or used, and avenues through which they can find their own special niche in the world market.

### **Blueprint for development**

Based on the survey of resources and market research, a blueprint or master plan should be drawn up indicating the available resources; the number and type of tanning, footwear, and leather goods units to be set up; their location and layout;

investment and foreign exchange possibilities; personnel requirements; and measures the Government might take to support the industry. A development council could be established to draw up and implement such a blueprint.

### **Imports and exports**

The policy with respect to imports and exports and incentives to be given for development should next be determined and applied. In the beginning it may be necessary to import machinery, chemicals and technology, but at least this will make it possible to export semi-finished goods rather than simply raw materials. Export promotion particularly for finished goods additional incentives and an aggressive approach will be needed to compete in the international markets.

To utilize its abundant and cheap labour and to give additional employment, a country may decide on a policy of importing raw material and processing it for re-export.

### **State participation**

Where entrepreneurship is lacking in the private sector, a Government may set up model units, alone or in collaboration with a private enterprise, and later hand them over to private enterprise as a profit-making, going concern.

### **International co-operation**

A contractual arrangement with a developed country should be considered. Such co-operation can mean additional training facilities; opportunities for specialization; up-to-date market research; and eventual participation in joint ventures.

## STRUCTURE AND ORGANIZATION

Once the master plan for development is complete it should be implemented. However, ignorance of the practical mechanics of getting such a plan under way is one of the major problems in developing countries. Low levels of organization and management and the scattered nature of the industry aggravate the problem. For the leather industry to be effective, organization should start on the grazing grounds and continue through the footwear factory. This section discusses the areas that need immediate attention.

### Animal husbandry

In India the cow is considered a sacred animal: in other countries, the sheep is considered sacred. To herdsmen in Africa the animal is a symbol of social standing and prestige: in other countries, animals are sacrificed in the worship of God. Yet, in spite of the privileged position of certain animals in these countries, the animals are maltreated, underfed, neglected, and exposed to the elements. In the developed countries, animal husbandry is now producing a heavier stock of cattle in a shorter period, increasing milk and meat yields, increasing the rate of slaughter and bringing quicker and higher returns on investment. There is need for proper herd management in the developing countries, for setting up "holding grounds", for providing proper food and care for the live animal and for a policy regarding slaughter (age at which animals are to be slaughtered, proportion of livestock to be slaughtered etc.).

### Animal product development

In the ECAFE region<sup>1</sup> the total returns from animal products are roughly one fourth those of Japan, one twelfth those of the United States, and one eighth those of the United Kingdom for meat, milk and hides alone. Slaughter is as low as 4 to 10 per cent as contrasted with 40 to 50 per cent in industrial countries. Organized slaughter is rare in the developing countries, and this results in poor utilization of by-products. It is estimated that India loses over US \$70 million a year in this way. Though the developing countries have 60 per cent of the world cattle population, they account for only 40 per cent of the total hide output because of the lower rate of slaughter, unrecovered hides etc. The most urgent need, therefore, is to set up well-managed slaughterhouses and make fuller and better use of all by-products.

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<sup>1</sup>Economic Commission for Asia and the Far East (ECAFE) (1957) Working Paper E/CN.11/II + NR/CIWP.5/L.3 p.6.

including hides. To this end, a number of developing countries have set up livestock development organizations to promote animal husbandry, training, and the setting up of slaughterhouses. Flaying, the preservation of hides and skins, quality control and grading should be the responsibility of the slaughterhouses.

Some Arabian countries import animals on the hoof, mainly for sacrifice. The economics of this practice has to be worked out.

Smuggling of both live animals and raw hides and skins is another problem facing developing countries. The only real solution is to make such smuggling uneconomic.

Keeping a census of livestock and hide and skin production is difficult; however, a periodic survey of livestock population is essential. Production of hides and skins may be estimated in various ways. One way is to calculate hide production at 10 to 12 per cent of the cattle and buffalo population and skin production at 25 to 30 per cent of the sheep and goat population.

### **Collection and marketing of hides and skins**

In the absence of organized slaughterhouses, it is difficult to collect, preserve, store and transport raw hides and skins when only a few animals are slaughtered in remote villages. Since the primary producer does not get an adequate price, he has no incentive either to flay or to preserve the hide properly. Marketing channels vary, and the raw hide passes through several hands before it reaches the tanner. It is reported that in a number of developing countries 5 to 10 per cent of the raw hides and skins are either not collected at all or are lost. Improper flaying, delayed or faulty curing, inadequate transportation and long storage in hot climates cause the hide to deteriorate rapidly, resulting in enormous losses that the countries concerned can ill afford. This problem can be solved only by setting up small and medium-sized slaughterhouses to collect, treat and grade the hides and skins and by providing incentives to manufacture products of better quality.

### **Enterprises based on animal by-products**

Two recent developments in the developed countries should be of interest to the developing countries:

- (a) Separate enterprises are being set up to collect and utilize fully carcass by-products such as blood, bones, hooves, tails, ears, horns and hides.
- (b) Pickling plants are being set up near slaughterhouses. The fresh hides from the slaughterhouses are collected, de-manured, fleshed, limed, bated, pickled, graded and supplied to the tanner in that form instead of the usual salt-cured hide. This system has several advantages. All wet work, effluent treatment and disposal are centralized; quality control is stricter; freight charges are reduced; selection is improved; trimmings, flesh, hair and other by-products are better utilized; and the tanner starts with clean material. Defects caused by delayed curing, long storage and transport are avoided. It

also eliminates salt stains and salt disposal, minimizes neck wrinkles, belly draw, grain pits and veins with 40 to 50 per cent full grain with better strength properties.<sup>2</sup>

### **Regional tanning units nearer to slaughterhouses**

The system described above could be taken a step further by tanning the pickled pelt with chrome salts and supplying the resultant wet blue-chrome leather to an organized, larger tanner/finisher or exporter. Countries that are planning to set up slaughterhouses might well consider locating blue-chrome tanning units nearby. This would help overcome problems of preservation, storage and transportation.

In the meantime, until large slaughterhouses and tanning units are available, hides from several villages could be collected at a central point and processed into vegetable-tanned or chrome-tanned wet blue or crust leathers. Several such small, optimal units might be set up in different regions of the country to feed large, mechanized finishing or exporting units that have the facilities to mix, grade and export.

### **Small versus large units**

One of the major problems facing a developing country is how to organize the cottage, small- and large-scale sectors.

The cottage or village unit is a unit using traditional skills and employing the immediate members of the family.

The definition of "small-scale" varies from country to country. The criteria may be based on the number of workers, size of investment, type of machinery, or production capacity. But the essential characteristic of small-scale industry is that management is in direct contact with the workers.

Small-scale industry plays a strategic role in the economy of any country, and this is recognized by most Governments. Even in developed countries, small units undertake a large volume of subcontracting work for large industries. Small units thrive where they can produce a quality product at a low cost or a specialized item. If they could obtain the necessary raw materials, know-how, and assistance in modernizing their plant and equipment, if they were instructed in methods of management, including quality control, small units could play a vital role in the development of the leather and allied industries.

The general trend in industry in most countries towards mergers and concentration is resulting in the disappearance of small, uneconomic units. Tanning remains essentially labour intensive, as the raw material requires individual attention and does not lend itself to automatic processes. However, though automation is still distant, there is a growing tendency to treat tanning as a chemical unit process. But with automation, the employment potential is reduced.

In any plan for the development of the leather industry the following questions are bound to arise:

How can the existing industry be reorganized?

Should new units be established in the large- or small-scale sector?

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<sup>2</sup> A. Fleisch (1964) *Journal of the American Leather Chemists Association* LIX, p.34.

What is the ratio of large to small units and what relationship exists between them?

Do the small units need protection?

Large units, using the most modern machinery, technology, marketing techniques, methods of management and quality control, are characterized by high productivity. However, small-scale industry is labour intensive rather than capital intensive, and this is an advantage for a developing country. Another advantage of the small unit is its flexibility, which allows it to produce a wide range of specialized items to meet current fashion.

It is true that many of these units are too small and uneconomic to survive for long. In the East Indian tanning industry, cottage and small-scale tanners are already facing a major crisis. The sheep tanner is unable to obtain the raw material he requires, and even the goat, cow and buffalo tanners are merging to fight the competition from the large exporters of wet blue-chrome leathers. One single tannery today supplies almost half of the 16 to 20 million pieces exported to the Union of Soviet Socialist Republics. Unless the small units can survive as contract tanners or low-volume, special-product tanners, their existence is threatened. However, there is such a thing as a "minimum survival size", which need not be very large in the leather and allied industries. In this connexion it is interesting to note that, according to a study of the industry in the United Kingdom undertaken in 1963, "economies of scale" are not of major importance, and those that do occur result from long production runs rather than from the size of the enterprise.<sup>3</sup> Therefore, while it is generally true that small, uneconomic holdings do not survive or have to merge into bigger economic units, organized units do thrive in the small-scale sector also. Indeed, while in most developed countries the number of tanneries has considerably diminished, in Italy and Japan, where small-scale industry plays a major role, the number has actually increased. This would indicate that given the proper conditions, organized units can exist and even thrive in the small-scale sector—a fact that is of great importance to countries such as India where over 80 per cent of the leather and footwear production is concentrated in the village and small-scale sectors.

The leather industry has many kinds of work that can be contracted or "farmed out". A tanner may undertake the processing and tanning of the raw hides and skins owned by other manufacturers. Another specialist may do the finishing. The footwear and leather goods manufacturers may distribute the components, cut to a given design and size, to the small units or subcontract them to cottage workers to stitch or glue. The material is then collected, finished, checked for quality control, graded, labelled and packed by the manufacturer. Thus, the footwear and leather goods industry could be well organized as an "assembly" industry.

Industry in many advanced countries has found that farming out leatherwork to other countries is cheaper than making the whole product itself. The industry in Spain, Italy and Yugoslavia flourishes by accepting such job works from other countries.

Some special areas and items may be reserved for production solely in the small-scale sector in preference to the large-scale sector. Thus, it can be seen that there are no hard and fast rules for determining which tannery units belong in the large-scale sector and which in the small-scale sector.

<sup>3</sup>Pratten *et al.* (1966) "The economics of large-scale production in British industry", *Footwear Journal*, May, p.12.

While the small-scale and cottage tanners complain about the competition from large factories, these, in turn, complain about the underselling of leather and indiscriminate use of good hides by the cottage sector. This antagonism cannot be eliminated by the suppression of one sector or the other, but by mutual co-operation, which can be achieved by using the small units as feeder units to the larger manufacturers, by sending "mobile groups" of tanning experts to the smaller units to help them to improve the quality of products, by setting standards for such products and by classifying the tanneries by quality. In this way "today's wasteful and low-income rural tanneries could be turned into the world's largest beam houses and tan yard units consisting of thousands of small tanneries in the ECAFE region and producing standardized semi-finished products to be delivered to the industrial sector for finalizing in standard products for domestic use as well as for export".<sup>4</sup>

The setting up of several small units in different parts of the country has certain advantages over setting up a single, large plant. It offers flexibility, specialization and efficiency; it has fewer labour problems; it satisfies the rising aspirations of each region, tribe or party; the capital required is not great; and it provides employment for a large number of workers.

The inherent disadvantages in operating cottage and small units are poor management, lack of capital, inadequate machinery and inappropriate technology. These disadvantages could be overcome if the Government were to adopt a policy of assisting small units by establishing some of the institutions described below.

*Common service facilities.* Common service facilities would be equipped with the latest machinery and staffed by technical and management teams. They would provide facilities for the tanner to bring his own material and process it, paying service charges, or they might accept job orders for individual entrepreneurs.

*Small industries service institutes.* The experts of these institutes would offer advice and training in the latest methods of organization, management, production and quality control.

*Industrial estates for the leather industry.* The industry by itself or with the assistance of the Government would set up an industrial estate. Units of optimal size would be defined for both the small and medium sectors; a layout and design would be established for each unit and the buildings constructed accordingly; general amenities such as water and electricity would be provided, and experts would help in selecting the appropriate types and number of machines, their layout and set-up. An integrated estate would consist of tannery, footwear and leather goods units, the tannery producing to meet the demands of the others. The finished products or the by-products of one unit would be the raw material for another. It is possible to obtain assistance from Governments and from the United Nations agencies to set up such estates. An industrial estate set up by the Government of India for the leather industry is functioning well in Madras. A similar estate is envisaged for Istanbul, Turkey.

*An umbrella organization.* Small-scale units would form a joint enterprise with an umbrella organization to look after the supply of raw materials, e.g. through establishing material banks, markets, exports, specifications, design, style, quality

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<sup>4</sup> ECAFE working paper (1957), see footnote 1.

control etc. Bulk orders booked by the umbrella organization could be distributed to its constituents or the components farmed out to various units for final assembly and quality check at the centre. Obtaining credit and marketing are two major functions that such an umbrella organization could perform easily.

### **An integrated approach**

It has been said that the production of leather and leather products starts on the grazing grounds and ends on the wearer's feet. This shows the need for an integrated approach to the development of the leather industry from start to finish. The resources survey and market studies should indicate how an integrated industry could meet both domestic and export requirements. Developing countries must export to obtain much-needed foreign exchange, but they can sell only what the customer demands: good-quality raw hides and skins. However, they must also think of their own growing needs. The advantages of an integrated approach are claimed to be:

- (a)* Complete synchronization of leather production with the footwear production programme, with respect to quantity, quality requirements and assortment;
- (b)* Flexibility in the supply of raw materials to enable the footwear factory to follow fashion trends;
- (c)* Better utilization of local raw hides and skins;
- (d)* Better utilization of tannery and leatherware factory wastes;
- (e)* Reduction in tied-up capital and increased turnover.



# PRODUCTION AND MANAGEMENT

Production problems include choosing the appropriate technology, machinery and management methods; establishing effective quality control, pricing, cost accounting and packaging departments. Knowledge and experience in business and production practices are very limited in developing countries, and this lack is felt acutely in the leather and related industries. The problem is especially difficult in a traditional industry that resists change.

## Quality control

If leather is to meet international standards, a guarantee of quality is essential. Even for supplying national markets quality has to be maintained. Quality must be built into the product at every stage of production, and quality control should start with the raw materials. Standard specifications should be set for each product, and quality inspection and quality stamping on the product should be made compulsory.

## Pricing

Poor accounting and bookkeeping methods should give way to proper cost accounting, and selling prices should be determined in relation to actual cost.

## Productivity

A developing country should take full advantage of modern methods of management and productivity. Management seeks to ensure the best utilization of manpower, materials, machines and money to increase productivity. It is essentially a war on waste and therefore becomes particularly necessary for developing countries, many of which have very low productivity.

Productivity could be raised by:

- (a) Laying out the machines to provide a continuous flow of work;
- (b) Utilizing fully the capacity of machinery and men;
- (c) Maintaining the machinery and keeping a stock of spare parts on hand;
- (d) Proper planning and scheduling of the processes;
- (e) Adequate supervision and inspection;

- (f) Taking up work in optimum-sized lots;
- (g) Reducing the variety of items in the product mix;<sup>5</sup>
- (h) Accepting contract work that will fully utilize the machinery;
- (i) Scrapping old machines in order to avoid frequent breakdowns;
- (j) Choosing the right number and type of machine;
- (k) Clearly defining the functions and responsibilities of workers and management;
- (l) Proper inventory control and less stockpiling;
- (m) Work-study, time-and-motion studies, job evaluation;
- (n) Good labour-management relations.

There is a general misconception that productivity techniques can be applied only in large firms, but, in fact, they can be applied equally well in small enterprises.

The leather industry exists today in both the small-scale and large-scale sectors. In the small-scale sector the industry lacks adequate facilities and machinery, with consequent low yields, poor quality and uneconomic production, whereas in the larger sector capacity is underutilized.

### Management

Tanning is to a large extent a family industry. However, it is gradually being recognized that family management has to give way to professional management for more efficient production.

Some developing countries are now setting up national productivity councils, schools of scientific and business management, standards institutions, export inspection councils, and design and packaging institutes. Training is also being provided in cost accounting, industrial engineering, industrial relations, productivity, and small- and large-scale industry management. It is expected that these efforts will go far towards solving the problems of production in these countries.

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<sup>5</sup> S. P. Singaram (1966) *Leather Science* Vol.13, p.163.

# MARKETING

## Production, consumption and markets

Raw hides, skins and processed leathers are important commodities in domestic and international trade. Changes in the pattern of world trade in the past decade have created opportunities for greater trade in processed leathers than for trade in raw hides and skins. This trend is also visible in the domestic trade of the developing countries.

The likelihood of increased demand for leather and leather products, especially in developing countries, is very great, since, according to recent estimates, the present world demand for footwear will double by 1980-1985<sup>6</sup> and the demand for leather garments and fancy leather goods is also increasing, in spite of growing competition from substitutes.<sup>7</sup>

## Collection and distribution: trade channels

### *Raw hides and skins*

In some developing countries there are no trade channels; in others, marketing is in the hands of a few foreign firms which have their own agents or branches all over the country to collect and cure raw hides and then transport them to a major port of the country or of a neighbouring country. Sometimes, the same foreign exporter has tanneries of his own in the country or in a neighbouring country. In yet other countries trading in hides and skins is controlled by legislation, and permits and licences are required.

Argentina, India and Pakistan have established trade channels for domestic and foreign trade. Collection and distribution are well organized. The primary producer of raw hides and skins sells to a village merchant, who, in turn, sells them to a town dealer who passes them on to the commission agents.

*Grading.* Raw materials are sorted by region; cure; quality, size and weight; and the prices are fixed accordingly.

*Transport.* Transport plays a major role in marketing. In many developing countries such inadequate means of transport as camels, mules, bullock carts and country boats cause a great deal of damage, particularly to raw hides and skins.

<sup>6</sup> Leder und Austauschstoffe in der Schuhindustrie—International Symposium in Gottwaldov, Czechoslovakia, *Schuhtechnik* (1968) No. 10, p. 1337.

<sup>7</sup> UNCTAD/GATT International Trade Centre (1968), *Hides, Skins and Leather*, Geneva, p. 5 and FAO (1968), *Commodity Review*.

*Prices.* Factors that affect prices of raw material are: quality; yields and grades obtainable when the raw material is converted into leather; and supply and demand. As mentioned earlier, in most developing countries there is no market information service, the primary producer does not receive an adequate price, and thus there is no incentive for him to prepare a properly flayed and cured hide or skin.

It is therefore necessary to provide the primary producer with information on standards and world market prices. At the moment he is ill-informed, ill-equipped and ill-paid. It is necessary to teach him to appreciate the intrinsic value of the raw hide. Films, radio and other audio-visual aids should be used to educate, enlighten, and keep him interested in producing hides of good quality.

### *Leather*

Some developing countries have well-established trading channels both for internal marketing and for export of leather. In the villages, the tanner may be a leather manufacturer, too, or a supplier of leather to the local shoemakers. The middlemen from the towns advance money to the tanner to buy his hides and skins and take the leather in repayment the tanner thus getting practically a subsistence allowance for his labour. The footwear and leather goods manufacturers buy from these middlemen or commission agents, although some factories also buy directly from organized tanneries. At the village level, no grading or sorting is done to any extent; the commission agent collects, grades and sells.

### **The problems of the small units**

The small units lack funds and holding capacity. They do not have enough capital to buy when the raw materials are cheap and the capacity to hold till selling prices are favourable. They are often in debt to the middlemen and money lenders. Institutional and organizational facilities are necessary to eliminate these financial risks and to improve conditions in this sector.

### **Market fluctuations**

The market for hides, skins and leather fluctuates sharply, according to the demand, the season and changes in fashion. This is particularly true for hides and skins. How to counter these fluctuations is a major international problem to which no solution has yet been found.<sup>8</sup>

Developing countries must import much of their machinery and equipment. Since it is often difficult to get spare parts, there is a tendency to stockpile these essential items. This stockpiling influences price structures and the market. Good inventory control is therefore essential.

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<sup>8</sup> UNCTAD/GATT International Trade Centre, op. cit., p.20.

### External marketing: trade channels

Marketing should be backed up by market research and advertising. Production, market research, advertising and sales teams should work in co-ordination with proper feedback from one to the other.

A number of countries, including Argentina, Brazil, India, Kenya, Nigeria, Pakistan, the United Republic of Tanzania and Uruguay, have established export channels for vegetable- and chrome-tanned leather. For wet-blue leather, the major markets are in Eastern Europe: Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania and the USSR. In Western Europe, Italy provides a market for chrome-tanned cow and buffalo hides, France for goatskins and sheepskins. The Federal Republic of Germany, France, Italy, the United Kingdom and the United States all import vegetable-tanned and blue-chrome leathers.

Trade between developing countries and the countries of Eastern Europe is on a State-to-State basis. The Ministry of Industry and Commerce, Ministry of Trade, or a subordinate agency such as a State Trading Corporation will offer trade agreements on a yearly or longer-term basis for the supply of a given quantity of processed leather. Price, process and product specifications are clearly set and the contract forms drawn up. Inspection of the material is carried out at the source of production by a specially appointed representative of the importing country, and a further inspection is made at the receiving port. If the material passes the first check, at the source, it would be unreasonable to reject it at the receiving end. A number of countries in Eastern Europe select the raw material themselves, and thus the tanner does essentially contract work on a piece basis.

Exporting to Western Europe is well discussed in *Hides, Skins and Leather*.<sup>9</sup> Direct relations between the producer/tanner/exporter in the developing country, and the tanner/importer/finisher in the developed country are recommended.

Personal contacts, periodic visits to the importing countries to keep abreast of recent trends, participation in international leather fairs etc. are necessary. Chambers of commerce, trade organizations and embassies in developed countries can provide information regarding reliable agents, shippers, importers and tanner/finishers. Then it is a matter of choosing potentially interested tanners and sending sample lots directly to them or to their agents with clear and concise information regarding quality, quantity, delivery periods, prices, grades, bank references etc. The sample lot may be approved and an order placed immediately, or the finisher may suggest modifications and the product so modified may again be sent as a sample lot. Once confidence has been established, the volume of business will grow. However, these arrangements always begin on a small scale, and it usually takes from 6 to 12 months before regular business is in full swing.

Shipping on a consignment basis involves risks and is positively not in the interests of the exporter from a developing country. According to this arrangement, the shipper sends a parcel of leather to an agent in the importing country; the agent gets in touch with several buyers one of whom will open up the parcel for inspection and bargain over the price. The agent negotiates the price and collects his commission together with warehouse and administrative fees. The balance is paid to the exporter.

<sup>9</sup>*Ibid.*, p.46.

However, agents do serve a purpose in the promotion of exports. A tanner/exporter may sell his leather to a recognized agent who, in turn, may sell directly to the user, taking his commission. The agent, who represents the shipper in case of dispute, knows the buyers and sells when the market is favourable.

### Trade barriers

To protect their own leather industries, many developed countries impose restrictions or duties on leather imports. Raw materials generally escape such levies, but for processed leather the duty may vary from 7 to 20 per cent *ad valorem* and may even be higher for finished leathers and leather goods. However, as a result of the "Kennedy Round" negotiations in 1967, considerable reduction in these import duties has been agreed upon. When the reduction has been fully implemented, by 1972, the tariff rates will be as follows (rate in per cent *ad valorem*):

<i>Product</i>	<i>European Economic Community</i>	<i>United Kingdom</i>
Raw hides and skins	Exempt	Exempt
Undressed bovine cattle and equine leather	0-8	-
Sheep and lamb, undressed		
Indian vegetable-tanned	Exempt	Exempt
Others	3	
Goat and kid leather, undressed		
Indian vegetable-tanned	Free	Free
Others	3.5	Free
Others, undressed		
Reptile	Free	8
Others	4	8

The highest tariff in force for undressed leathers will be 8 per cent *ad valorem*, which gives undressed leathers such as vegetable- or chrome-tanned crust a decided advantage over finished leather. In future, even this duty may be reduced or relaxed, as many countries would prefer to import tanned leather rather than the raw material.

### Export promotion

All countries, developing and developed alike, are eager to export. To compete effectively, each developing country needs an aggressive export-promotion plan and programme based on an understanding of international trade. The export plan should specify the products for export, set targets, indicate gaps in technology and spell out government policies, support measures and incentives.

Market surveys are of prime importance. A clear and continuing record should be kept of the relative position of the country in the leather world; the market needs and product specifications; and the competitive position of the country with respect to prices, quality and ability to provide a steady supply of goods.

A country cannot simply sell what it produces: it must concentrate on producing what is in demand. The concepts of fashion, colour and design vary, and exports must be dovetailed to the specific products in demand—products that may vary from country to country.

The choice of products for export depends upon many factors, apart from the availability of a market. It first depends upon the ability of the country to develop, produce and ship the product in a short time. In developing countries the criteria for selecting suitable products may also include high labour content, the possibility of training labour quickly, utilization of existing idle capacity, low capital investment, and utilization of native raw materials.<sup>10</sup>

Where labour is abundant and cheap and where a project offers the possibility of employing a large labour force, a country should consider importing the raw material and exporting a finished product. The concept that low-priced articles of inferior quality represent the best export possibility for developing countries has been largely abandoned.<sup>11</sup> Cheap items are often machine-produced in developed countries to reduce labour content. This is the case with handicraft goods for the tourist trade, which are being displaced by machine-made curios.

#### *Government policies*

A stable Government, pursuing consistent policies, creates a favourable environment for export promotion.

Measures to promote exports include:

- (a) Setting up a leather-export-promotion council;
- (b) Establishing an agency to provide market research;
- (c) Offering assistance in organizing quality control and inspection of exports;
- (d) Providing experts and technical know-how;
- (e) Facilitating liberal imports of machinery and materials;
- (f) Advising on packaging and design;
- (g) Establishing arbitration procedures;
- (h) Providing export insurance;
- (i) Providing training programmes in productivity, management and technology;
- (j) Facilitating participation in international exhibitions;
- (k) Sending out sales-promotion teams;
- (l) Expediting official procedures;
- (m) Setting up a state trading corporation;

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<sup>10</sup> A. Most (1969) *Expanding Exports*, United States Agency for International Development, Washington, D.C., p.50.

<sup>11</sup> *Ibid.*

- (n) Providing material banks;
- (o) Arranging bilateral trade agreements;
- (p) Promoting joint ventures;
- (q) Setting up sales and trade-promotion centres abroad;
- (r) Setting up finishing units in importing countries;
- (s) Capitalizing on the goodwill of other countries;
- (t) Undertaking research on sales promotion;
- (u) Setting up free-trade zones;
- (v) Promoting the quality of the product;
- (w) Helping with shipping and air freight arrangements;
- (x) Setting up export houses;
- (y) Government participation in enterprises, if required;
- (z) Inviting important buyers to the country;
- (zz) Setting up a research institute.

#### *Incentives*

Incentives are essentially a form of subsidy and should be offered to the exporter for risks he takes in introducing a new product or breaking into a new market. Incentives should be varied and flexible and should include:

- (a) Credit incentives such as long-range, low-interest loans, and loans of machinery at reduced rates;
- (b) Tax incentives like reduced income tax, tax deductions for travel, entertainment, research, sales promotion and advertising, reduced sales taxes, and accelerated depreciation allowances on machinery;
- (c) Other incentives such as drawback on imports and reduction in export duties;
- (d) Direct subsidies for a given time where necessary.<sup>12</sup>

Such are the many measures that a country can consider for boosting its exports. What is most important of all is to have a plan with vision, the funds, policies, and organization to back it, and the determination to implement it.

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<sup>12</sup> *Ibid.*, p.23.



# TECHNOLOGY

The developing countries have begun to realize that the one catalyst that can bring in a faster rate of economic growth is the application of modern science and technology.

The view has been expressed that developing countries should proceed slowly and steadily from one step to the next and that, because the developed countries have required centuries to reach their present advanced state, the developing countries should not expect miracles overnight. All this would seem to suggest a lower level of technology for the developing countries. An opposing view is that even the most advanced and sophisticated technology available will not be sufficient to help the developing countries to catch up with the developed countries.

However, the developing countries need not go through the same failures and experiences and take the same amount of time to reach a high level of industrialization. They can hasten their development by using the "leap-frog" technique learning from the experiences of others and by applying the appropriate technology. Even the developed countries are not remaining static. They are still evolving, and the gap between them and the developing countries is ever-widening. The only way for the developing countries to catch up is to learn from the past experience of the developed countries and to take the best technology that is available, adapting it to their own conditions and trying to improve upon it. Technology can be borrowed or bought as any other international commodity.

It is not enough, however, to obtain the know-how; it is also necessary to demonstrate the know-how under the conditions existing at different levels of the industry so that it can be assimilated easily and applied further.

But a country cannot live for ever on borrowed technology and borrowed brains. It should develop its own technology; conduct its own fundamental and applied research, design and development; and disseminate knowledge. Even for buying or borrowing technology, the country should have trained men with the ability to pick and choose the right type of technology and buy it at the best price. On many occasions developing countries have been sold outmoded machinery and outdated technology, with the result that they continue to lag behind.

Some newly independent developing countries tend to be overzealous and attempt to build everything on their own. No doubt they learn more this way, but it takes a long time to make progress. No country, however advanced, can ever hope to be self-reliant in every field. As there are opportunities to buy the latest technology,

it would be wise to start from there and even improve on it. Japan has set a good example in this regard buying the latest technology, improving it and reselling the improved version to other countries, if not to the country in which it originated. However, this can be done only when a country has trained, skilled workers and teams of technologists and scientists equipped with adequate tools and facilities for research, development and design. These commodities are not readily found in many developing countries.

## TRAINING

The best investment a country can make—and this applies especially to developing countries—is in human resources and talents. Several developed countries offer aid in the form of capital, technology, experts and training facilities. This aid is welcome if it acts as a catalyst to mobilize human resources and talents and to put them to work on growth opportunities. It is not welcome if it inhibits local talent, ambition and energy.

What developing countries need most today is to attract, train and mobilize every ounce of human energy and make it productive.<sup>13</sup> Training is required for workers at all levels for skilled workers, machine operators, maintenance men, foremen, supervisors, tannery chemists, technologists, and managerial staff. Some countries do not have even one trained leather technologist.

The tanning industry has to attract bright, trained personnel at all levels, and workers and management currently employed in the sector should be given supplementary training tailored to their needs. In-plant training and practical experience are most important. Although each country should have its own training programme, the establishment of a formal leather institute may not always be justified. Several old-established institutes in foreign countries offer training possibilities, and foreign Governments offer fellowships for training abroad through their technical assistance programmes. However, it is pointless to train personnel to use sophisticated gadgets that are out of place in a developing country.

One of the difficulties experienced by individuals trained in developed countries is the lack of opportunity to put their newly acquired knowledge to use at home. The push-button techniques learned abroad cannot be applied, and this results in disillusionment and disheartenment for these young, trained people many of whom finally emigrate. Such a brain drain is a great loss to a developing country.

Yet another important consideration is the need for a competent cadre of technicians, in addition to technologists and scientists.

A few suggestions for setting up training programmes for developing countries may be made:

- (a) Practical training should be included, since practical experience is necessary for operating a tannery.
- (b) Workers should be trained to work both with hand tools and modern machinery to enable them to fit into the cottage, small- or large-scale sector.
- (c) The trained person should be able to assimilate new ideas and develop the know-how appropriate to his level of operation.

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<sup>13</sup>P. F. Drucker (1970) *The American Review*, Vol. 14, p.26.

- (d) It should be clearly demonstrated that modern methods of science and technology mean additional money.
- (e) Emphasis should be laid on engineering, management and productivity methods.

What is important is that the worker be trained to fit into his present environment and act as a catalyst towards change and greater productivity through the use of science and technology. As contrasted to his counterpart in a developed country, an educated man in a developing country has a higher responsibility to society.

Once a country adopts a development plan, it should specify the manpower requirements at different levels for a given period of from five to ten years, and training programmes should be geared to meet these requirements. In their anxiety to develop the leather industry, some countries imported the machinery and experts and set up large leather units. This venture met with mixed success; where the country could offer educated and intelligent trainees, or where skills already existed, the unit proved successful; in the absence of such personnel, however, the tannery failed, owing to lack of managerial skill, as soon as the foreign experts left.

Of the many countries that received foreign aid following the Second World War, only the Federal Republic of Germany and Japan made remarkable progress. This progress was due in particular to the discipline and devotion shown by the large, skilled labour forces of the two countries. The lesson that the developing countries should learn from this, and on which due emphasis should be laid in their training programmes, is that the ability to absorb and utilize foreign aid will depend upon the will, skill, devotion, determination and effort of a trained corps of men who have initiative and the ability to think for themselves. There is, therefore, an imperative need for management training programmes. One way to qualify for a managerial post is by finishing formal training towards a certificate, diploma or degree course followed by years of practical experience in a tannery; learning while earning—taking sandwich or evening courses and working towards a certificate or diploma—is another.

Developing countries that lack formal training facilities may send individuals abroad for training. Although it is easy to obtain academic training, opportunities for practical training are difficult to find. One way to overcome this problem would be to set up well-equipped "teaching factories" in which processes and operations could be taught and workers and technicians trained under industrial conditions. This would provide a constant source of technical staff, skilled workers and managers, and output from the factories would make them self-supporting.

It has been stated that "in most developing countries, given favourable conditions, one experienced and highly qualified tannery expert can establish and train a modest-sized tannery production force within two years. Managerial and technical personnel are a more difficult problem".<sup>14</sup>

Setting up, maintaining and repairing machines are important aspects of training for the industry. Most of the machines are imported at great cost, and no country can afford to keep them idle for lack of proper skills in maintenance and repair work.

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<sup>14</sup>International Labour Organisation (1969) "Effects of technological development on the occupational structure and level of employment in the leather and footwear industry", *Report II*, pp.15-23.

Many developing countries have skilled and unskilled mechanics who, given a 3 to 6 months' orientation course, could be shaped into a maintenance force for the industry.

The importance of training cannot be overemphasized: it is needed at all levels and should be geared to get the best out of the human resources available. Training programmes in developing countries should aim at turning out potential industrialists. In colonial times, education was geared to produce loyal administrative assistants, trained not to think but to do faithfully what they were told. As a result, entrepreneurship and the spirit of adventure are lacking. Training programmes should attempt to inculcate this spirit in the students.

## CAPITAL

A country's development plan should indicate the number and kind of new production units that are to be set up, the extent to which existing units are to be expanded, what investments are required for such a programme and the amount of foreign exchange involved. In addition, it should also make provision for indirect and direct subsidies, tax rebates, easy loans and other incentives for boosting exports. The picture will then be clear as to the total capital outlay and foreign exchange component required for the development of the leather industry for a period of from 5 to 10 years.

The need for financing and credit is acute in the industry. Capital is often tied up for long periods because tanning is a lengthy process. The necessary funds may come from such sources as the government budget, private savings, capital growth and foreign aid. Foreign aid and barter agreements with other countries help to overcome the problem of getting the required foreign exchange to import machinery and materials.

Once the funds are available, financial assistance to the industry has to be carefully administered. While large investments would help to buy the latest machinery and technology, the country should weigh carefully whether the leather industry should be set up on a capital-intensive or labour-intensive basis. It would be misleading to suggest that progress always requires heavy capital investment. Leather production may well be developed as a labour-intensive industry. Modernization does not necessarily mean automation. In the leather industry, capital investments should be made to improve the quality of goods produced in the existing small-scale industry. In Japan and India, banks offer easy loans to small units, and in Japan, special banks have been set up expressly to aid small industries.

## INTERNATIONAL CO-OPERATION

Aid programmes may provide capital and technical assistance from other countries or from regional or international organizations. In the ever-increasing complex of international interdependence, no country can afford to rely exclusively on its own resources. Nothing can substitute for international co-operation in bridging the gap between national resources and national aspirations.

If the developing countries wish to accelerate the manufacture of wet blue-chrome, crust and finished leathers, foreign collaboration may be necessary. Even where organized industry exists, co-operation may make it easier to import the latest machinery and raw materials and to find markets.

Some countries have taken advantage of such aid, but others are not even aware of the existence of the organizations that can assist them. The principal organizations are described below.

### **Aid programmes of international agencies**

#### *Food and Agriculture Organization of the United Nations (FAO)*

According to its constitution, FAO is responsible for raising levels of nutrition and standards of living, securing improvement in production, and distribution of all food and agricultural products. To this end it seeks to promote national and international action to improve the processing, marketing and distribution of agricultural products.

Hides and skins constitute one such agricultural product, and, with its years of experience and expertise, the FAO is well equipped to assist developing countries in this area.

The quality of raw hide and skin depends upon the age, sex, breed of the live animal, on its feed, on the care that it has received as well as on climatic conditions. It also depends upon proper flaying, curing, storing and transport of the hide to the tanner's godown. Most developing countries are agriculture-oriented. FAO, which is concerned with animal husbandry, herd management, development of meat and meat products and better utilization of by-products like raw hides and skins, has been playing a useful role in the developing countries by:

- (a) Surveying resources and market conditions;
- (b) Setting up plants for the utilization of slaughterhouse by-products;
- (c) Setting up training-cum-production units for tanning, footwear and leather goods,
- (d) Offering expert services for herd management, grading and marketing of hides and skins.

Over the years FAO has gained considerable experience, competence and valuable information about the leather industry in a number of countries, particularly in Africa and the Middle East. It is setting up training-cum-production institutes in Iran, Rwanda, Somalia, the Sudan and Turkey. In addition, surveys have been made for Aden, Botswana, Chad, Egypt, Ethiopia, India, Kuwait, Libya, Malawi, Nepal, Philippines, Yemen and Zambia.

*United Nations Industrial Development Organization (UNIDO)*

UNIDO was established in 1967 to promote and accelerate the industrialization of the developing countries with particular emphasis on the manufacturing sector, by undertaking activities such as industrial planning, programming and research, application and adaptation of technology, training, management, technical and economic feasibility studies and assistance in obtaining finance for industrial projects.

Certain areas of technical assistance are of joint interest to UNIDO and FAO. In other areas, the interests of the two organizations are complementary. In 1969, an agreement was reached outlining the respective responsibilities of FAO and UNIDO.

According to this agreement, FAO is responsible for the development of areas such as flaying, curing, grading, salting, drying, pickling, tanning, storing, packing and by-product processing. FAO operations in regard to raw material may include pilot projects for training and the demonstration of modern processing techniques, technologies, raw-materials handling, marketing and distribution of processed products.

UNIDO is responsible for feasibility studies on large-scale manufacturing and the production of leather, glue, gelatine, leather goods and footwear. UNIDO's activities range from research to plant management and envisage an integrated approach from the raw material stage through finished product. These activities involve establishment and operation of research institutes; organizing, reorganizing and managing leather, footwear and leather goods industries; drawing up standards, government rules, and regulations. Feasibility studies may be undertaken jointly by FAO and UNIDO.

This agreement has still to be fully tested, and any necessary adjustments will be made in the interests of the developing countries.

*International Labour Organisation (ILO)*

The programme of the International Labour Organisation covers a vast and complex field that embraces the following activities: evaluation, forecasting of manpower needs and resources; human resources planning; expansion of employment; organization of manpower resources, including vocational guidance and placement services; vocational training; development of small-scale industry; and management development.

With respect to leather, ILO has set up a tanning unit in Afghanistan and surveyed the problems of developing small-scale leather industries (craftwork, shoemaking, leather goods etc.) in Algeria, Botswana, Cameroon, Haiti, Lesotho, Libya, Morocco, Nigeria, Panama, Togo, Uganda and Yemen. These activities cover technical assistance and training facilities for the craft-based leather and related industries.



*Special Fund component of United Nations Development Programme (UNDP/SF)*

Projects sponsored by FAO, UNIDO and ILO are funded by UNDP/SF after careful scrutiny.

*Asian Productivity Organization (APO)*

The main function of the Asian Productivity Organization is to increase productivity and consequently accelerate economic development in the Asian region. It organizes training courses, symposia, study missions and surveys and arranges for technical expert services, fellowships etc. The Asian Productivity Year (APY) was observed in 1970 with "prosperity through productivity" as its motto and "quality-reliability" as its theme.

*Economic Commission for Asia and the Far East (ECAFE)*

Like APO, ECAFE is concerned with the economic development of the Asian region and offers facilities for training courses, symposia, surveys etc. It also collects and analyses statistical data.

**Collaboration between developing and developed countries**

Some of the avenues that are open to the developing countries to set up a leather industry with foreign collaboration are discussed below.

*Bilateral aid programmes*

A developed country may set up a tannery in a developing country on favourable terms or as outright aid, thereby providing a turn-key project. Under such an arrangement, personnel training and the supply of expert services for a given period are offered. Other developed countries offer machinery and equipment on a deferred-payment basis over a long period and in turn buy the leathers produced.

*Joint ventures*

A number of foreign tanners in need of raw material are setting up plants in developing countries and using the locally produced leathers for all or part of their requirements for semi-processed or finished goods. Such ventures, undertaken in association with a local private or state enterprise entail foreign investment, importation of machinery, materials and technology, royalties, commissions etc. In some countries, joint ventures are permitted only if the local partner has a majority of the shares.

Sometimes foreign firms stationed in developing countries that export only raw material set up their own tanneries, entirely with foreign capital, to process and export leather to their parent companies abroad. In this case, there is a continuous outflow of profits from the developing countries.

### *Machinery firms*

A number of machinery manufacturers are ready to design, lay out and set up tanneries in developing countries. However, these arrangements must usually be guaranteed by the Governments of the manufacturers' own countries or by the United Nations.

Sometimes a machinery manufacturer and a leather firm will combine to offer a turn-key plant with guaranteed exports of part or all of the leather produced until such time as the investment is paid off—usually within a period of from 5 to 10 years. Other machinery firms prepare schemes for tanners and sell machines on credit over a period of 2 to 5 years. They also sell technical help in starting the tannery and assist in the marketing of the leather produced. British, Bulgarian, French, Federal Republic of Germany and Yugoslav firms are offering such full or partial assistance to developing countries.

The developing country stands to gain from most of these ventures: it obtains much-needed capital, foreign exchange, know-how, training of personnel and assured markets for its exports. However, care should be exercised to avoid certain pitfalls. It is best to recognise that everyone is in business for profit and not for philanthropy. Profit is an indicator of efficiency, and an efficient partnership can exist only between equals. The developing countries, in most cases, are not equipped to deal on equal terms. They should, therefore, examine carefully questions of overselling, consultancy fees, royalties, number of experts and machines required, payments for experts, fixing of prices, sales commissions and transfer of funds etc.

### *Setting up units in other countries*

Countries that have successful leather tanneries may consider setting up finishing units in developed countries. Supplying crust leather such as wet blue to its own finishing unit in the advanced country helps the parent firm to overcome trade barriers, high import duties etc. The finishing unit uses modern tools and techniques to convert the crust into the finished leather demanded by changing needs and fashions.

Needles to say, such ventures require substantial business skill and capital.

## CONCLUSIONS

In most developing countries the leather industry is craft-based, dispersed, traditional and imbedded with prejudices and stigma. Production levels are low, and there is the constant possibility of liquidation. The poor living and working conditions of the workers must be improved through education and by bringing science and technology to their doorsteps. This can best be done by setting up common facility centres with modern machines, technology and supervision. The economic plight of the small units can be alleviated by their undertaking contract work and working as feeder units to large-scale industry.

Every country should have a blueprint or a plan for the development of the industry and a positive policy and programme to implement it.

The organization of the industry should start on the grazing grounds. Proper herd management and better utilization of animal products are necessary.

There need be no antagonism between cottage, small- and large-scale units: they could well co-operate and adopt an integrated approach with one feeding the other.

The industry should be made conscious of the need for training in science and technology, productivity, quality control, packaging, design, cost accounting and pricing, and the appropriate institutions and training centres should be set up.

Methods of collecting, distributing and marketing for both domestic and foreign markets are inadequate. Effective trade channels and marketing organizations should be established. Every country should have an aggressive export programme backed by financing, stable policy, support measures, incentives and a favourable environment.

Each country should choose technology appropriate to its level of development, and this technology should be treated as any other international commodity: the best should be bought wherever it is available and adapted and improved upon.

Investment in human resources is the best investment possible. Training has to be offered at all levels in order to increase industrial efficiency and individual satisfaction. Training facilities should be geared to the estimated manpower requirements at the different levels.

Capital may be obtained from various sources, but financial assistance to the industry has to be distributed wisely. However, it would be misleading to suggest that there cannot be progress without heavy capital investment.

Foreign aid, in the form of capital or technical assistance, is available from many national, regional and international agencies. Developing countries should take full advantage of this aid, but should recognize its limitations.



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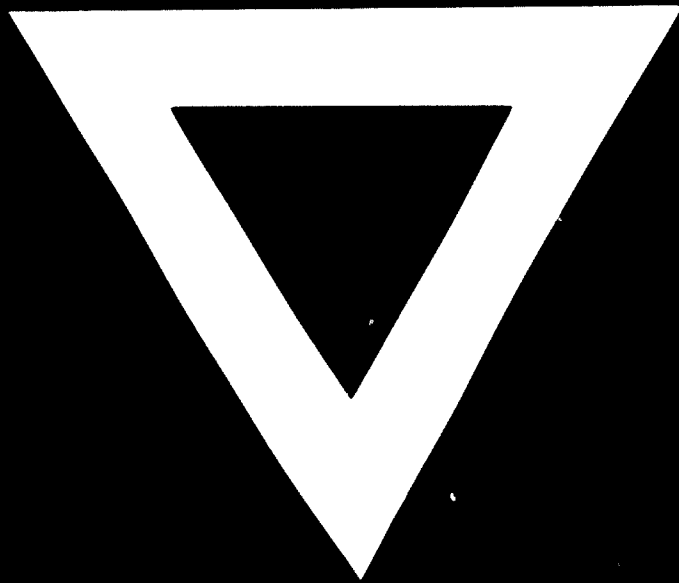
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