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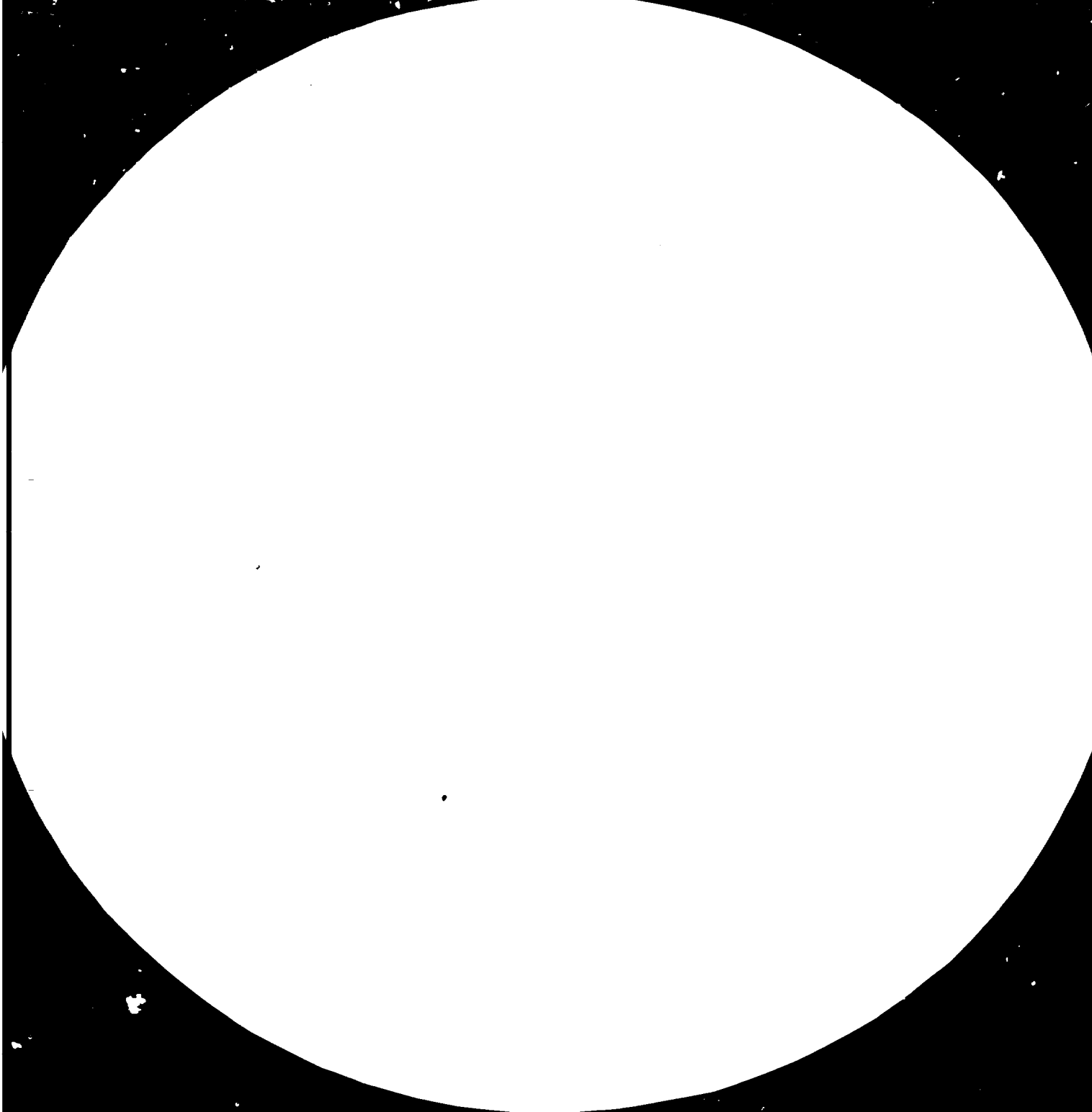
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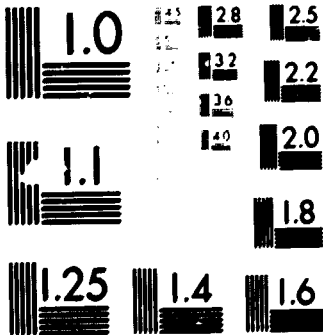
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Leather and Leather Products Industry.  
Second Consultation  
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**CAMPAIGN FOR INCREASED RECOVERY  
AND IMPROVEMENT IN THE QUALITY OF HIDES AND SKINS SUPPLY \***

Prepared jointly

by

the secretariats of UNIDO and FAO

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## PROJECT JUSTIFICATION

1. The livestock industry constitutes one of the main planks of economic development in the Third World with hides, skins and related animal byproducts forming an important segment of agricultural production and export. Leather and leather products form one of the very few manufactured products from the developing countries which are being increasingly imported by the developed market economy countries and, with the rising demand, these offer very considerable potentiality to the Third World for earning the much needed foreign exchange. Hides and skins, the basic raw material, are often the only primary animal byproducts available for export and these in some form or other contribute significantly to the economy of more than 65 developing countries in Africa, Latin America and Asia and the Far East. For these countries primary processing of hides, skins and allied byproducts represents a major labour intensive manufacturing sub-sector of the livestock industry based on utilization of indigenously available raw materials providing considerable scope for export promotion and diversification as well as import substitution. However, the developing countries in spite of their livestock holding two-and-a-half times as large as that of the developed market economy countries and almost six times as large as the centrally planned countries in USSR and Eastern Europe, produce fewer cattle hides and calf skins than the former and less than twice the number grown in the latter. This summarizes the problems as well as the possibilities in the concerned sectors of the developing countries.

2. Since hides and skins account for approximately 60 per cent of the total cost of leather, its dominating importance in any scheme of things concerned with the development of leather industry is obvious enough. There is a chronic scarcity of hides and skins in the world market and their prices have registered unprecedented increase in recent years (up to 300 per cent in hide price). This situation poses a serious challenge to natural leather and leather products and also exposes them to increased inroads from artificial substitutes much to the concern of the developing countries. As is evident from the above, the hides and skins resources of most of the developing countries remain grossly underutilized resulting in recurring wastage that can be largely avoided through careful planning. A significant

proportion of available hides and skins is not recovered and does not reach the commercial market; yet given the optimum of integrated resource mobilization, the developing world has the potentiality to at least double its current availability of hides. Even hides and skins of considerable natural substance and value fail to derive the optimum economic return in being frequently damaged and downgraded in quality - often to the extent of as much as 50 per cent just for not being properly flayed or recovered promptly enough or cured adequately. Improvement in quality of these raw stocks and their processing will substantially increase their 'value added' component in export markets.

3. As competition from synthetics grows, the natural quality of leather becomes increasingly a major factor in marketing and thereby emphasizing that the quality of leather will be the determining factor in the utilization of leather in the coming years. Although basic resources for improving hides and skins production in the Third World are generally abundant, a certain combination of poor circumstances limits the exploitation of these resources to its maximum economic potential. The single main constraint to a systematic development of the hides and skins resources in the developing countries is the lack of data and other relevant information regarding commercial exploitation and exports possibilities in processed and semi-processed hides and skins. Major factors impeding such a progress are the shortage of requisite technical knowhow and management expertise, scarcity of adequately trained manpower and the absence of minimum supporting infrastructure for hides and skins collection, preparation, selection, grading and marketing. The basic problems at the farm level mainly relate to the lack of sustained supplies, poor and substandard quality and the uneconomic cost of collection of available hides and skins. Thus, a rational approach to the recovery of the principal allied byproducts of the meat industry would go a long way towards providing significant cost reduction in the hides and skins production.

4. The problems of hides, skins and related animal byproducts (because of their essential linkage with meat production) generally stem from the problems of the meat industry and therefore have to be critically considered in the context of the meat economy of the world. Such problems usually prove

intractable when attempts are made to solve them outside of this context. Besides, the question of improving the inherent quality of hides and skins has to be largely viewed in the perspective of general ante-mortem measures for livestock improvement at the farm level through better animal husbandry practices and disease control programme together with the requisite supporting infrastructure. In addition improvement in quality through upgrading of slaughtering facilities ensuring better methods of scientific ripping, flaying, curing, grading and such other post-mortem preparative practices including transport and storage merit due consideration. Although some preliminary work within the broad framework of livestock development programme has been initiated in most of these countries, much still remains to be done in the scientific husbanding and recovery of hides, skins and allied animal byproducts resources in the Third World. A sustained programme of integrated step-by-step development of the hides and skins resources is urgently needed for preventing recurring wastage and ensuring increased recovery, improving quality standard. Such an integrated development would generate additional employment opportunities and further processing within the country, and above all, promote a sound techno-economically viable raw material base for a self-reliant leather industry which would augment foreign exchange earnings.

5. It is against this background that the potential development of the hides and skins resources of the developing world need to be objectively appraised vis-à-vis its present scale of utilization both at the international and domestic levels.



## BACKGROUND

1. In recent years the world-wide production of quality leather has markedly lagged behind the actual demand for it. The principal contributing factor being the lack of adequate supply of suitable hides and skins for processing. This supply trend is likely to get more pronounced in the next two decades thereby further aggravating the already precarious raw material situation. The possibility of additional supply of raw stock being uncertain and at best limited, it is incumbent therefore to ensure maximum recovery of the available hides and skins.

2. A number of factors are responsible for the shortfall in the supply of hides and skins from the developing countries. The most important among them being:

- (a) The lack of integrated livestock development programme on a sustained basis resulting in progressively deteriorating national herd with uneconomically low productivity;
- (b) Subsistent economy with low purchasing power and consequently low per capita consumption of meat resulting in poor domestic demand for meat and low commercial offtake;
- (c) Absence of a thriving export oriented meat and animal by-products based industry which again contributes to low offtake rate;
- (d) Want of requisite technical knowhow and management expertise and the relevant infrastructural facilities and adequate market opportunities for production of meat and processing of its resultant byproducts including hides and skins;
- (e) Non-existence of adequate infrastructure for an economic recovery, collection, flaying, curing, preservation and storage of indigenous hides and skins as well as their selection, grading and marketing;

3. Thus, a world-wide campaign for increased recovery and improvement in quality of hides and skins need to be considered from the point of view of:

Quantitative increase

- (a) Through increase in meat consumption and production;
- (b) Through increased recovery -
  - (i) greater salvaging
  - (ii) prevention of wastage
  - (iii) reduction in local uneconomic usage;

Qualitative improvement

- (a) Through ante-mortem measures at farm level - better nutrition, upkeep and disease control;
- (b) Through post-mortem measures at abattoir level - better flaying, curing and preservation;
- (c) Through supporting measures at market level - centralized collection, recuring and grading;
- (d) Through research and development measures - training, demonstration and extension.

Cost reduction

Through recovery and optimum utilization of the related abattoir/animal byproducts.

4. Obviously a campaign covering all these relevant aspects will have to be launched simultaneously at several fronts covering the farm, the abattoir and the marketplace. A consistent and integrated framework of development including a systematic programme of training, demonstration and extension has to be evolved. The long run nature of the basic inter-related problems outstanding in the field needs sustained efforts with relevant measures put almost on war-footing. The parameters of hides and skins improvement must start with the basic livestock development at the grass root level through disease control and animal health measures to improve breeding and feeding and cover the entire spectrum of scientific flaying, curing and processing including proper grading and marketing. All relevant problems have to be considered in their totality; attacking one or two of them on an ad hoc basis, out of context of the whole effort, would be counterproductive in the end.

5. Although the magnitude of the global task involved in a campaign of the type discussed above is no doubt stupendous both in terms of scope and coverage, a modest beginning in selected promising areas with subsequent concentration of efforts and duplication of the same elsewhere in the light of experience gained may perhaps be one of the practical ways of initiating development activities in this field. It is envisaged that an integrated programme should cover such activities at the following levels:

- (a) At the farm level around an Experimental farm/Rural Extension Centre.
- (b) At the pilot level around an abattoir (Hides and Skins Improvement Service).
- (c) At the field level around a Central Collection depot and Common Facility Centre.

6. As a first step in any development exercise in this sector, however, a preparatory mission is considered necessary to gather the baseline data and to select the suitable promising areas to initiate the above activities.

7. The details of the proposed campaign - its aims and objectives and mechanics of implementation at various levels - are discussed in the following pages in the context of some of the outstanding problems in the field together with the constraints and impediments that retard development. In order that the relevant facets of the problems are considered in the perspective of the special conditions prevailing in the developing countries, these are discussed at considerable length under appropriate headings.

PHASE I

Preparatory Mission for Hides and Skins Improvement  
and Related Byproducts Utilization

Introduction

1. In most of the primary producing countries in the Third World, the full potentialities for the development of hides, skins and the related byproducts resources are yet to be realistically worked out, the sub-sector often remaining the most neglected and technically the least efficient. This has resulted in a paradoxical situation inasmuch as the very countries in dire need of the derived proteins and minerals both for human and animal nutrition as well as for soil enrichment and a host of other small scale industrial applications for generating additional employment opportunities, are also the ones which make the least use of them from their readily available potential sources. Thus, it is not uncommon to find a least developed country wasting valuable slaughterhouse blood down the drain at one end and importing blood meal and its high protein derivatives at the other, much to the cost of its scarce foreign exchange balance; exporting crude bones at nominal price while importing the derived collagen, phosphorus and calcium based products; discarding inedible slaughterhouse offals and at the same time continuing to import processed protein additives and other nitrogenous concentrates for poultry and stockfeeds or selling all available hides and skins in the raw and repurchasing the same from abroad as finished leather and leather products. Waste of this sort is a costly luxury which a developing country can ill afford and moreover a lack of utilization of these potentially valuable animal byproducts constitutes a veritable 'drain' on the national wealth in most parts of the developing world.

Objectives

2. Basic information with regard to the current state of hides, skins and the related animal byproducts resources in most of the developing countries and their techno-economic utilization to guide a meaningful programme of work are generally lacking. Therefore, as a first step in any development exercise in this sector, a preparatory mission is considered essential with a view to assess:

- (a) the state of present methods of collection, handling, preservation, processing and storage and the existing trade and commerce relating to these together with an estimate of their potential market value in terms of prevailing international price.
- (b) the actual and potential raw material resources (hides, skins and related byproducts) with an estimate of current losses incurred due to little or non-utilization.
- (c) the scope for cost reduction in production through recovery and optimum utilization of other related byproducts.
- (d) the feasibility of an integrated plan of action for increased recovery, improvement in quality and economic utilization both for domestic and export markets in order to ensure optimum economic returns through appropriate remedial measures.
- (e) Alternative strategies on future development including investment in infrastructure, technical manpower and training.
- (f) Identification of suitable areas for initiating the above activities.

#### Methodology

- (a) Desk study - collection, collation and correlation of existing information and data.
- (b) Supplementary resource survey - filling up gaps and updating the base line data and quantitative estimate.
- (c) Compilation of an action oriented report incorporating the results, conclusions and recommendations.
- (d) Discussion with relevant departments of Government leading to policy decision for phased development of the byproducts sector.
- (e) Project formulation and implementation at country level.

#### Inputs

- 3. Six-man-months (6m/m) of specialist consultancy services relating to the relevant disciplines of hides and skins development.

#### Approximate Cost Estimate

- 1. All inclusive cost per country covering consultancy services, travel and per diem = US\$ 50,000.

PHASE II

Farm Level - Experimental Farm/Rural Extension Centre

Introduction

5. Since livestock follow the pattern of human habitation in the developing world, almost 80 percent of the animals are located in rural areas. The livestock development in a country, therefore, has to be necessarily considered in the context of its overall framework of integrated rural development. Primary processing, curing, preservation and storage of hides, skins and related byproducts is essentially labour-intensive in nature offering gainful employment opportunities, particularly in rural areas and is capable of providing reserves of skilled labour, management and capital for the subsequent development of small and cottage scale rural industries.

6. The traditional herd in a developing country generally comprises large numbers of unproductive animals. The annual offtake from the herds (usually 2-3 percent a year) does not keep pace with the increase in numbers. In many developing countries, cattle numbers have significantly increased but with no corresponding increase in offtake. The offtake is low because productivity is low and productivity is low because of disease, poor nutrition and sub-standard management. This is a vicious circle - and invariably results in deterioration in quality, lowered production and increased pressure on pasture.

7. One of the foremost constraints that stands in the way of livestock development programme in the Third World today is the serious lack of adequate feeds and concentrates with the required amino acid profile at an economic scale and price to supplement the inadequate and poor quality of indigenous ration. The severe scarcity of food and fodder in the many countries have created serious problems in the field of animal nutrition leading to chronic malnutrition. As a result, these animals are puny and undersized, slow maturing, breeding irregularly and bearing dead and weak offsprings, which result in less milk and meat production (besides their adverse effects on hides and skins) and increased susceptibility to infectious diseases and parasitic infestations. This continued malnutrition has other undesirable genetic implications on the quality of the herd. The

cows have less feed and they calve each second year rather than annually. Herd productivity is depressed by low calving rate (typically 25-30 percent only) and high calf mortality (as many as 50 percent of cattle die before being 3 years old). At present, some 50-75 percent of the potential productivity of national herd in most of the developing countries is lost through disease and other wastage.

8. The problem of over grazing is acute and stock is often held far in excess of the carrying capacity of land. Many of the arid and semi-arid areas of the Developing World where most of its livestock is born and bred have soil and pasture which to a large extent is chronically deficient in phosphorus and calcium and because of the lack of these minerals, animals sustained on these pastures are unable to make full use of the food available. This phosphatic and calcium deficiency in livestock, however, can be easily remedied by feeding these minerals in the form of sterilized bone meal made from bones locally available. Ironically enough, countries which suffer from such chronic deficiency frequently waste or export vast quantities of bones instead of using them locally to improve their soil, pasture and livestock. As a source of nitrogen concentrated organics made up of hoof and horn meal, tankage (meat and bone), dried blood etc., and containing up to 14 percent nitrogen can be used locally for agricultural and horticultural development in place of imported petro-chemical based fertilizer. Moreover, utilization of inedible slaughterhouse offals and wastes with their total protein content of up to 85 percent as the protein supplement in feed formulations to ensure the required amino acid balance offers attractive economic possibilities. The livestock industry at the village level can thus be improved and sustained by the use, reuse and recycling of its own byproducts and wastes. Livestock raised on the derived nutrients and nourishments will afford the most favourable protein conversion ratio and will, therefore, provide comparatively less cost but more animal protein for human consumption and thus generate the natural protein cycle of its optimum level to the benefit of the stock, stock owners and consumers.

9. There is considerable scope for livestock development in most parts of the developing world embracing such a diverse programme as selection and breed improvement, upgrading of the nutritional level and control and eradication of diseases. These require many years of patient and dedicated work involving many generations of animals and substantial investment of

funds. Concerted action supported by a sustained programme of directed propaganda, education, training, demonstration and extension services is needed to achieve tangible results. Much of this work will come under the general purview of the Veterinary and Animal Husbandry Departments and can be advantageously channelled through their existing network of activities. The main benefits will accrue in terms of increased yields of meat and milk, as well as improvement in the quality and quantity of hides and skins.

10. The activities pertaining to better economic utilization of hides, skins and the related animal byproducts can, therefore, be logically integrated with a self-contained overall livestock development programme at the village level, affording considerable opportunities for additional employment and further scope for occupational training. Also inherent in such a comprehensive multi-disciplinary development programme is the promise to motivate the primary producer in the village, the pastoralist at the very grass root level through increased yield, i.e., additional cash return on his animals which will set the whole chain of improvement into action.

#### Objectives

11. In order to initiate development activities along the lines discussed above, a modest beginning can be made by setting up a small nucleus covering a limited area where available resources, talents and techniques can be put together to tackle the various problems involved. The nucleus should essentially consist of a team of rural extension services staff trained in appropriate disciplines of animal husbandry and veterinary science and may be conveniently attached to an existing experimental farm or a rural extension centre. In countries where such units do not exist, it may be necessary to set up pilot experimental farms self-contained with its own pasture land where animals can be scientifically bred and reared free of diseases and where the allied problems of animal husbandry and nutrition may be successfully tackled using as much of local resources as possible. More specifically, the basic objectives shall be.

- (a) to upgrade local stock through selection and cross breeding where appropriate, based on recorded heritable characteristics of national herd and to raise such quality livestock in numbers commensurate with feed supplies and environmental potentialities and capable of utilizing such available resources.



- (b) to promote range and pasture development through ecologically oriented optimum land use and to utilize crop marginal uplands and fallow lands for pasture and rain fed or irrigated fodder production.
- (c) to encourage progressive phasing out of export of agricultural and agro-industrial byproducts and feed ingredients to increase its use in indigenous feed formulations and grain sparing animal rations.
- (d) to improve animal nutrition through supplementary feeds and concentrates and to ensure adequate reserve of balanced feedstuffs preferably based on local available resources.
- (e) to control major infectious and epizootic and tick-borne diseases through a sustained programme of vaccination and dipping - to set up immunized belts and disease-free zones and to initiate effective zoo sanitary regulations governing animal slaughter.
- (f) to take such other measures as may be required to ensure the general health and well being of animals and to educate and train the stock owners accordingly through appropriate demonstration and extension services.

11. The main emphasis should be on educational propaganda supported by an adequate programme of training, demonstration and extension. In the light of experience obtained, the area of coverage may be gradually widened and the Farm/Extension Unit repeated as may be necessary.

#### Inputs

12. The services of local experts and facilities at existing farms/extension centres would be utilized. Initially, a certain amount of reorganization and planning may be necessary and for which limited expatriate specialist services may have to be provided. Some of the available facilities may also have to be strengthened and reinforced particularly in respect of disease control programme and mobile extension services requiring vehicles and equipment.

#### Approximate Cost

13. A minimum of US\$ 1 000 000 per country per year is envisaged. International assistance for 5 years, followed up by Government thereafter.

#### Duration

14. Continuing exercise.

PHASE II

Pilot Level - Abattoir

Introduction

15. The magnitude of post-harvest losses in crop farming caused by faulty handling, lack of storage facilities, insect damage, fungi, bacteria and rodents has often been justifiably highlighted. Receiving much less publicity and attention but of equal magnitude and importance, however, are the wastage and losses involved in livestock farming due to substandard animal husbandry practices and particularly in handling and processing of meat and meat byproducts from the time the animal is slaughtered until the relevant products reach the end-users. Such wastes have far-reaching implications that lead to further losses. Cumulative effect tend to keep the cost of the concerned primary product, namely, meat, relatively high and to that extent restricts its competitive capacity particularly in the international market much to the detriment of the country's economy. In the domestic market too, failure to optimally utilize the byproducts adds to the cost of meat production thus pricing it out of the purchasing power of the majority of the country's most needy consumers.

16. The basic problem facing developing countries in this field is the general lack of adequate infrastructural facilities for the production of wholesome meat and the centralized collection, recovery and effective conservation of hides, skins and the related byproducts over widely scattered areas in terms of general considerations of economy, health, hygiene and sanitation. This is further aggravated in the majority of cases by the general preoccupation with maximisation of meat output resulting in the limited physical facilities and scarce management resources being overwhelmingly deployed in its favour much to the neglect of the associated byproducts which typically takes a very secondary place in the scale of production priorities. As a general rule the less developed the economy, the greater this disparity in emphasis appears to be. This is most unfortunate because rational utilization of the resultant byproducts (the so-called fifth quarter) which constitute approximately 44

percent of the live weight of cattle and 53 percent of sheep often proves to be a major determining factor in the overall profitability of the meat industry. Moreover, it is precisely in a developing economy that the need for effective economic utilization of the byproducts leading to increased net return per animal remains paramount. This ensures the vital incentive to the primary producer, i.e. the stock owner for further improvement of his stock, since the level and distribution of this additional cash income remains a dominant factor in all aspects of livestock development. Whereas wasteful disposal of these valuable resources constitute a downright loss at considerable recurring cost of labour, transport and conversion plant services, their optimum use, reuse and recycling as raw materials for a number of labour-intensive primary processing industries will convert them into a positive source of profit revenue. This in turn would make it economically possible to improve the quality of hides, skins and the related byproducts and in the aggregate effect significant reduction in their cost of production.

17. Since hides and skins are mainly incidental to meat production, their supply is essentially inelastic and independent of the pressure of demand. The growth in their output will, therefore, follow the growth of the meat industry. Throughout the world a growing population with increasing standard of living is actually raising the demand for meat, and the world meat economy is characterized by actual and projected shortfall in supply. Although the demand for meat has registered rapid increase in developed countries, its expansion in developing countries is being affected by the high cost of meat which is beyond the purchasing power of most of the people. The per caput intake of animal protein in developing countries is well below 10 gms per day as against up to over 70 gms in developed countries; the prescribed standard being 37 gms. Besides, the proportion of animal protein in the total per capita intake in developed countries is on the average about 300 percent greater than that in developing countries. Marketing of meat mainly in the form of live animals in large parts of the developing world is a basic cause of this high cost, the expenses of feeding and keeping the animals in condition being a major factor. In fact, the difference between meat and other food

prices is generally higher in developing countries than in developed countries.

18. This reduced demand for meat in the developing countries is responsible for the disparity in its production in proportion to livestock holdings resulting in appreciably lower offtake. In North America, North West Europe, Oceania, West and Eastern Europe with the highest captive demand for meat, the offtake rates range from 35-40 percent, whereas in the countries of Southern Europe and South Africa, the offtake is around 20 percent on the average; it varies between 10-15 percent in most of the regions in Latin America (excepting Argentina and Uruguay), Central America, Near and the Far East. In contrast, the countries in Africa and India have a much lower percentage of slaughter in relation to their livestock population, the average figure being considerably less than 10 - which is almost natural to a casualty rate! It is indeed remarkable to note that the developed countries with less than half as many cattle as the developing countries produce approximately twice the quantity of meat. A growing population with increasing standard of living in the developing world will no doubt create a higher captive demand for meat which, together with export opportunities will lead to higher domestic meat production and consumption. Therefore the scope for increasing meat production and consumption in developing countries from existing stock remains potentially underutilized. In fact, if the developing countries were to have the same ratio of meat production to cattle stock as is found in developed countries, their meat output would need to increase nearly five times (concomitant increase in the number of hides and skins) and the total world supply of meat would be nearly doubled. It should, however, be noted that under present conditions beef production per head of cattle in developing countries is very low. For example, whereas in Europe it takes only 10-12 cows to produce a ton of meat per year, it takes at present as many as 100 cows in Africa.

19. The problem of hides and skins supply stem from the problems of the meat industry. These problems prove intractable whenever attempts are made to solve them outside of the context of the meat industry.

The developing countries generally lack the infrastructure to produce quality meat at an economic price and to effectively recover and use the resultant byproducts. It is an obvious and indisputable fact that most of the organized abattoirs in the developing countries operate far below their economic capacity, except perhaps during odd seasonal peaks. Slaughter and processing facilities operate on an average at 25-50 percent capacity, making processing cost high. The important reason for this under-utilization of capacity is that abattoirs besides being of the wrong size and at a wrong site, are often prevented by authorities from paying (producer) prices that are high enough to attract adequate supply. In many cases, a considerable proportion of the available supply is unofficially diverted to other countries across the border. Besides, there is hardly any formal organization for domestic cattle marketing as a result of antiquated cattle ownership pattern in which a large percentage of owners are left with herds that are too small for sustained marketing. These small producers are forced to sell for low prices to speculators and traders. The practice of selling animal on 'per head' basis instead of 'by weight' disregards reward for quality. The entire marketing system has to be modernized with a rational pricing policy and a price structure for both live animals and their carcass products.

20. Moreover, the present system of working in most of the abattoirs is not at all conducive to the implementation of better methods of flaying, handling, curing and preservation of hides and skins. A large proportion of slaughtering in the developing countries actually takes place outside organized abattoirs (at least 50 percent). Individual butchers purchase animals from dealers who either carry out the slaughtering themselves using their own people or get the animals slaughtered at the abattoirs against payment of fees. Under a different system, butchers do not purchase live animals, but buy meat from middle men on the basis of carcass weight excluding hides, skins and the related byproducts which are kept by sellers. The cattle are slaughtered on the ground and the carcass is axed and quartered there with the hide being used as a carpet much to its quality deterioration. In many countries flayers lack even the elementary knowledge to avoid knife damage and certainly do not

realise how detrimental bad flaying may be in terms of monetary value. However, once they are taught the correct method, supplied with proper knives and given better working conditions with the incentive of additional income for better work, they are no doubt quick to learn.

21. Since the slaughterer's reward in most cases consist of the head and feet of each animal killed, no matter how well or badly he flays the animal, he still gets the head and feet. When so many people are involved in slaughtering and allied operation, there is a lack of appreciation of the implication of a wasteful practice at the individual farm level, although collectively the resultant effect may be quite disturbing. Hides and skins transactions often involve advance payment, thus binding the merchant to accept goods irrespective of the standard of flaying. Hides and skins are often purchased on a mixed quality basis. Since there is no price differential based on grading, there is no incentive for the butcher to upgrade the raw stock. The practice of buying hides on weight alone puts to disadvantage anyone who takes the trouble of cleaning and trimming his hides and thus encourages adulteration. The hides and skins generally remain under-cured and often suffer putrefactive damage. There is hardly any system of training, licensing and registration of butchers, hides and skins buyers or dealers. Any person may trade on hides and skins irrespective of the knowledge or facilities he commands.

#### Objectives

22. Once a 'prima facie' case for a viable hides, skins and the related animal byproducts based industry in a country is established by a preparatory mission, the logical follow-up would be to initiate the requisite development activities through an abattoir based 'pilot' production and a demonstration centre. The most outstanding key problem in the field is the quality improvement of the raw stock through better methods of scientific ripping, flaying, trimming, curing, handling, grading and standardization with a view to strengthening the raw material base of the industry. What is most needed today is the practical application of the relevant scientific techniques to the operating levels of production. Matching of appropriate technical 'know-how' with the corresponding 'show-how' through demonstration, training and extension is

therefore of vital importance. The Pilot Centre is expected to achieve precisely this purpose.

23. The Pilot Centre should be based in an approved abattoir with modern facilities for hygienic production, handling and storage of meat and meat byproducts including hides and skins. A drying and curing yard and a unit for primary processing of byproducts should be attached to the Centre. The demonstration and extension wing of the Centre should be equipped with a mobile unit and other audio-visual aids and manned by two international experts, one in hides and skins improvement and the other in animal byproducts utilization, besides a travelling team of local extension workers. More specifically, the objectives of the Pilot Centre will be:

- (a) to evolve and demonstrate an appropriate and economically viable system of work for optimum production and marketing of meat and meat byproducts, under sanitary and hygienic conditions and modernization of marketing system and rationalization of price structure for live animals and meat at a remunerative level.
- (b) to standardize simple, practical and quality oriented methods for scientific ripping, flaying, trimming, curing, handling, grading and quality control of hides and skins and primary processing of related byproducts and establish the respective feasibility for commercial production.
- (c) to train through production and demonstration the concerned operatives in the relevant methods and techniques developed as above.
- (d) to disseminate the appropriate know-how and expertise to outlying areas through the mobile extension unit and the travelling demonstration party.
- (e) to work out an adequate 'incentive based' system for marketing of hides, skins and the related byproducts involving the primary producer, dealer and the ultimate consumer (i.e. tanner or exporter).
- (f) to organize and hold 'in plant' group training courses for butchers, flayers, hides and skins dealers and byproducts technicians and establish a mutually accepted and recognized system of licensing and registration.
- (g) to stock and sell, at cost price, simple tools and accessories as well as curing salt and treatment agents for standard flaying, curing and drying of hides and skins and preparative treatment of byproducts.

- (h) to initiate a pilot hides and skins improvement service as a forerunner of a national service and prepare appropriate regulatory legislation for the same.
- (i) to promote economic recovery and rational utilization of all abattoir byproducts both for local use and export.
- (j) to provide necessary guidelines for subsequent repeat of the Pilot Centre elsewhere in the country in the light of experience obtained.

Inputs

24. A small modern abattoir with a curing yard and byproducts processing facilities. Services of hides and skins improvement and animal byproducts specialists. Mobile Extension Unit and equipment.

Approximate Cost

Abattoir	US\$ 300 000
Specialist services	US\$ 300 000
Mobile Unit and equipment	US\$ 150 000
Total	US\$ 750 000

Duration

25. Three years.



PHASE III

Field Level - Central Depot/Common Facility Centre

Introduction

26. The proportion of world production of hides and skins entering the international market in the raw state varies considerably with the origin and type of hides and skins and the policy of the producing countries with regard to their techno-economic development and current status of utilization. The variation is highest in the case of goat and sheep skins which are largely produced in areas outside their region of utilization, followed by calf skins requiring expensive sophisticated methods of processing and, least, in the case of cattle hides which generally find a ready market mostly within the country of origin.

27. Primary processing of hides and skins for curing, preservation and storage up to the pre-finishing stage is essentially labour intensive and offers maximum employment opportunity per dollar invested. Besides favourable wage rates in developing countries, the problem of effluent disposal has not acquired the same complexity as in the West and is certainly amenable to simpler and less costly solutions. As a result there is a growing trend towards processing up to pre-finishing (mainly wet processed) in the primary producing countries. This is also in accord with the aspirations of the developing countries on further processing of hides and skins in order to maximise the 'value added' to the raw material prior to export.

28. However, with regard to exports of finished leathers and leather products, it is important to recognize that the quality and delivery time are the prime considerations in a highly fashion-conscious market, and that there is competition with leather products from the industrialized and newly industrialized countries. These are factors which seriously restrict the competitiveness of developing countries in the international market, especially during the initial stages of development. Moreover, considerable investment in the infrastructure of the country will be necessary to enable the industry to compete with existing producers. The production also has to be mechanized and undertaken in a large enough volume to avail of the economies of scale and size to sustain

this international competition. Because of this highly competitive nature of the leather products involved, there are few opportunities for substituting labour for capital. The cost advantage of developing countries in hides and skins processing lies in the lower labour cost of semi-finished leather but this no longer holds good in the case of finished leather and leather products which are capital intensive.

29. A developing country's gross foreign exchange earnings from the export of hides and skins increases with every stage of processing, but net foreign exchange earnings depend on the import content of the processed products exported. A developing country's choice of the most suitable stage and the method of processing depends on economic and technical considerations, i.e. size and skill of labour force and access to markets. Although semi-processed hides and skins and rough tanned leathers from the developing countries find easy access to markets in high income countries, finished leathers and leather products do not fare the same way. For example, tariff structures and import restrictions, differences in the level of technology and the quality required in matching production in developing countries with changing demands for fashion in the industrialized consuming countries are some of the reasons that aggravate the export potentiality of semi-finished and finished leather and leather products originating from developing countries. It is in further processing that a realistic techno-economic division of labour between the developed and developing countries based on comparative advantage in production and trade should guide the balanced development of the industry world-wide.

30. Hides and skins, in a typical developing country, are often left untrimmed and unwashed without any sort of preparation prior to drying hours later on the ground by the side of the road or at any convenient place with all the traffic passing over them during this period of drying. The resources of hides and skins in Africa, for example, constitute one of the richest reserves of the world leather industry, and over 90 per cent

of these are exported in the raw. And yet, in one of the principal producing countries in Africa 95-98 per cent of the hides and 40-45 per cent of goat and sheep skins are ground dried in this way causing substantial deterioration in quality. Since shipping, transport, handling and storage charges in export of hides and skins are based on weight and/or volume, a higher percentage cost is incurred for inferior hides with a corresponding lower return to the primary producer. This is clearly evident, for example, from the fact that the primary producer of hides in this particular country receives only 28.1 per cent of the export price in contrast to 57.8 per cent obtained by his counterpart in a neighbouring country where hides are frame-dried; although the hides from the former country are inherently better and more substantial than those from the latter. Likewise, export of goat and sheep skins from a major producing country in Asia realizes only 40-45 per cent of their actual value.

31. The loss due to down-grading in quality of hides and skins because of man-made defects is on an average about 15 per cent of the export value of these commodities. World-wide economic loss due to poor branding alone is conservatively estimated at \$30 million per year. Carefully controlled branding would increase the effective area of garment leather by almost 5 per cent. Defective flaying and substandard curing are the other major factors depreciating hides and skins quality in almost every developing country. Over 80 per cent of hides in a major producing country in Latin America, for example, are heavily damaged by defective flaying.

32. The exporter, on the other hand, has relatively little interest in the end-use of the hides and skins and offers any price he deems fit on the basis of his established pattern without consideration of the quality and characteristics of the raw stock. No set price for the hides and skins are offered by the buyer either, and in the majority of cases such prices bear no relation to the actual market value of the commodities. There is usually a number of intermediaries between the primary producer of hides and skins and the ultimate exporter, often as many as 6 to 8 middlemen are involved. The primary producer has no means of knowing the relative prices obtainable elsewhere for his hides and skins. Under the circumstances, a pack of hides and skins is often found to be nondescript and may include a mixed lot of goods ranging from firsts to double and complete rejections

in every possible weight range all put together and, of course, without any assurance that subsequent lots will be of the same composition as that of the first. In some cases, goat and sheep skins are often sold mixed together without stipulation of composition, the buyer taking his chance. Obviously, without such a guarantee of quality and composition of a consignment, a buyer would not pay a reasonable price. In fact, to insure themselves against probable losses, the overseas importers often make an arbitrary reduction in prices which for some consignments could be as low as half the price that may be paid for standard lots from neighbouring countries.

32. In addition, a large number of hides and skins produced in rural areas just disappear and never reach the commercial channel. A significant proportion of the raw stock is not recovered and salvaged at all and are allowed to waste. Another sizable quantity is sub-optimally utilized in the area of their production for non-leather purposes. Again, a vast quantity of potentially substantial hides and skins remains poorly utilized through local conversion into inferior leathers by rural/artisan tanners. In a particular country in Asia with substantial livestock holding, some 3.5 million sheep skins and over a million goat skins, in addition to 60 per cent of cattle hides and calf skins, are lost or wasted in this way and the country has to import raw hides. In yet another country, also in Asia, 35-40 per cent of available hides remain unrecovered. All these will add up to a formidable quantity of inherently substantial hides and skins capable of producing quality leather. A concerted drive throughout the developing countries to recover these hides and skins would substantially augment the international market of available supply. National efforts to build up the exports of raw hides and skins have often largely resulted in the offtake of the best of the lots of raw stock available in the market rather than in any improvement of quality.

34. In recent years, it has been evident that quality leather production has markedly lagged behind the actual demand for the same both within a country and abroad; one of the contributing factors being the serious shortage of sufficient hides and skins of the required quality for processing. It is this sector of post-mortem hides and skins improvement where spectacular results could be achieved without much investment in infrastructure.

A minimum of 100 per cent increase on unit return of hides and skins through simple methods of improved drying alone can be normally ensured within a year. It is, therefore, necessary to make a start with this improvement of hides and skins based on a realistic standard of classification, so that the further processing industry may be assured of a standard quality of raw material supply.

### Objectives

35. In countries where pilot abattoir production, demonstration and extension services for hides and skins improvement and animal byproducts utilization have achieved adequate success resulting in the organization of a National Hides and Skins Improvement and Animal Byproducts Utilization Service, the Pilot Centre may be upgraded into a central collection depot and common facility centre, with a supporting network of satellite sub-depots in rural areas. The purpose of the Central Depot/Facility Centre which will be equipped with semi-commercial facilities for primary processing of hides, skins and animal byproducts will be to render technical service and carry out applied research and development work for quality improvement of indigenous raw materials. It would also be responsible for adapting and standardizing methods and techniques of curing and preservation under local conditions supported by adequate quality control; promotion and development of an appropriate technology geared to the needs of the small scale rural sector; and the training of an indigenous cadre of technically qualified personnel.

36. Hides, skins and related byproducts from outlying areas throughout the country will be collected through the satellite sub-depots covering a group of villages where the primary producers may sell their goods for cash at predetermined prices based on quality grading. After primary curing, the goods will be stored pending their eventual transfer to the Central Depot. At the Central Depot the goods will be properly recured and treated with insecticides, graded and priced for sale in organized markets. The Central Depot would also be responsible for considerable amount of educative propaganda and hold periodical courses for training in flaying, curing, preservation, selection and grading. Peripatetic demonstration parties

from the Depot equipped with mobile units should be regularly sent out for field work in villages to demonstrate newer and better methods of flaying, curing, etc. Such work should be followed up and sustained for sufficient length of time till a nucleus of trained men are developed in the area concerned. Through these demonstrations, attention of the primary producer will be drawn to the fact that better flayed and cured hides and skins do fetch higher prices which in turn would provide him the necessary incentive to improve his own raw materials.

37. The Central Depot through its satellite sub-depots, should have arrangements for supply of standard flaying knives, curing salts, etc., to the primary producer at cost price and make institutional credit available in terms of better equipment, better material and better working conditions. Much of these activities could be organized on co-operative lines.

38. The above arrangements would largely prevent the recurrent wasteful practice of converting available hides and skins into some sort of leather on a local basis in the absence of a more remunerative option. The village artisan tanner, however, will still be able to draw his supply of hides and skins of the required grade from the nearest sub-depot.

39. In this way, the existing gap between the available technical knowledge and its application to the needy branches of the industry may be effectively reduced; thus improving quality, preventing waste, reducing cost and promoting new and economic end-uses. Through these and other activities, as discussed above, the Depot/Centre is expected to play a significant role in guiding the techno-economic developments of the sector into appropriate economic directions.

40. More specifically, the objectives of the Centre would be:

- (a) To promote self-reliance for the country's hides, skins and allied animal byproducts-based industries and to increase its technical capability and competence through appropriate developments in the context of the country's special needs and conditions;
- (b) To improve the technical quality of the raw materials through proper handling, preservation and storage leading to their eventual classification, grading and standardization for organized marketing;

- (c) To develop suitable methods of flaying, curing and preservation of hides and skins under local conditions and to standardize and demonstrate methods for higher productivity and efficiency;
- (d) To establish the mechanics for Centralized Collection and proper recovery of hides, skins and related byproducts in technically well worthwhile condition and to provide the necessary conditions for its implementation;
- (e) To hold regular production-oriented training courses in appropriate technology tailored to the needs in the field and continue development of technical manpower at various operating levels through 'on-the-job' training.

Inputs

- 41. Central Depot/Common Facility Centre with the necessary primary processing equipment and mobile demonstration/extension unit and including satellite sub-depots.
- 42. A team of 5 international specialists in hides and skins improvement, animal byproducts utilization, quality control, extension services and marketing.

Approximate Cost

- 43. US\$1,000,000 all inclusive for each country.

Duration

- 44. 5 years.

The Prospects for Future Development

45. A growing world population with increasing standards of living has resulted in a rising demand for meat. There is little doubt that this trend will continue with projected shortfall in supply during the closing decades of the present century. There are three main ways of expanding meat output through increase in (1) the number of animals in national herd and flock; (2) the percentage offtake especially in areas of high stock density; and (3) the live weight of animals at slaughter. The lag in meat production in developing countries can be remedied through a number of measures all tailored to achieve increased offtake.

46. In this connection it is to be noted that extensive land areas suitable for pastoral purposes in the developing countries remain unutilized with comparable acreage still waiting for more intensive exploitation. The vast central lowlands of South America, most of Central and East Africa, large areas of arid and semi-arid land in the Near and the Middle East and the highland regions of the South East Asian countries offer possibilities for livestock production. The vast grass-land areas of the Matto-Grasso and Sudam between Brasilia and Belem also offer very considerable potential for livestock development. The River Plate countries of Argentina, Paraguay and Uruguay also have substantial possibilities in this regard along with Mexico. Among the Andean countries, Colombia with her excellent grazing land seems to offer the maximum scope. In Africa, Kenya has the potential range resource base for significant expansion of beef output. Ethiopia with its vast grazing area endowed with adequate roughage grasses and abundant rainfall distribution offers tremendous potentiality. Besides, the potential productive capacity of the rangeland in the lower and upper Juba region in Somalia is 2 to 3 times as high as at present. The extensive Savana areas of Sudan provide first class livestock raising land and remains to be intensively exploited. In addition, a number of other countries including Nigeria, Mali, Botswana, Lesotho, Swaziland and Malagasy have similar potential resources awaiting commercial exploitation. Moreover, eradication of tsetse-fly would open up vast areas of grazing land in Africa now rendered unsuitable for the purpose. In Asia and the Far East, Indonesia, Thailand and the Philippines offer