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## **Raw Hide, Trade and Preservation\***

Environmental Considerations - Eco-labelling

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## 1. INTRODUCTION

Strengthening of the tanning and leather products industries in the developing countries and simultaneous reduction of leather processing in many developed countries have led to a change in the trade pattern concerning these commodities.

The intensified trade in the leather sector and movement of goods in virtually all directions, and in all forms and stages of processing (raw, pickled, wet-blue, crust, ready to finish and finished leather), has some direct environmental implications not only in leather processing itself but also in other stages such as raw hide and skin preservation and recently in consumer goods made of leather.

This paper, drawing from various sources and primarily focussing on environmental aspects of hide and skin trading, is an attempt to make an overview of some developments and highlight some issues with a view to stimulating further discussions on the future of the leather sector.

## 2. SALIENT FEATURES OF THE MEAT PRODUCTION

The rate at which farm animals are slaughtered depends on the market for meat, milk and wool, demand for leather has no direct impact on the production of hides and skins. While changes in the demand for leather directly influence the price of hides and skins, there is virtually no impact on supply which results in considerable volatility in prices. Demand for hides and skins mainly depends on purchase power of the population but normally all hides and skins produced are used.

According to data compiled by FAO, the global meat production based on carcass weight and, for poultry, on a ready-to-cook basis, was in 1994 about 192 million tonnes (Figures 1 and 2).

The recovery in world economic growth is estimated to have stimulated meat demand in 1994 with a global increase in meat consumption of over 2 percent compared with 1993. This is somewhat above world population growth, thus leading to a modest increase in average per caput meat consumption to 34 kg (Figure 3). For the developing countries this is estimated to have reached 21 kg, 3 percent more than in 1993. In contrast, per caput meat consumption is estimated to have slightly fallen in the developed countries, reflecting a further contraction in the countries of the former USSR and in eastern parts of Europe. The consumption of poultry meat continues to exhibit the strongest growth among the different types of meat due to its relatively low price in most countries. The combined quantity of pork and poultry meat continues to be over double the tonnage of beef and sheep-meat.

## 3. SALIENT FEATURES OF THE CURRENT PRODUCTION OF HIDES AND SKINS

Production of hides and skins are directly dependent on animal livestock base (Figure 4) and on meat production - number of animals slaughtered. However, changes in off-take rates, breed, sex and age of animals slaughtered, flaying of fallen animals and the use of hides and skins for human consumption are additional factors which also influence the total production.

The global production of all **bovine hides and skins** in the period 1978 - 1988 has been growing at the average annual rate of 0.8 per cent, the average annual production for 1990 - 1992 being 5.22 million tonnes of wet salted weight.

The United States of America still maintains its position as the world's leading producer of bovine hides in terms of weight. It appears that in comparison with 1993 the output in 1994 rose by about 3%, reflecting a cyclical increase in slaughtering. Output in the EU also recovered in 1994, sustained by higher slaughtering, mainly in Germany and the United Kingdom. In Australia, herd rebuilding continued in 1994 so that slaughter and hide supply fell. Brazil remained the leading producer among Latin American

countries with an increase in production of bovine hides in 1994 of approx. 4.5% over the previous year. The output also continued to expand in Argentina.

However, production of bovine hides contracted in Africa in 1993 and 1994 as cattle herds continued to suffer from the severe drought of previous years.

Preliminary data suggests that world production of **sheep and lambskins** declined during the last two years (the average yearly production for the 1990 - 92 period was 0.390 million tonnes dry weight) with the former USSR remaining the world's largest producing region. Australian sheep numbers have been reduced by about 30 percent since 1990, whereas in New Zealand skin production was reduced in 1993 due to flock rebuilding. Increased production in the EU and China in 1994 was not sufficient to offset the declines which occurred in other major producing countries.

Global **goatskin** production increased in 1993 and 1994 mainly as a result of the steady expansion in China. In Africa, goat numbers appeared to have recovered from the effects of the drought from previous years, and production was estimated moderately higher in 1994 compared with annual average of 0.180 million tonnes dry weight in 1990 - 92.

#### **4. IMPACT OF THE URUGUAY ROUND FINAL ACT ON TRADE IN HIDES AND SKINS**

Should the national ratification of the Final Act resulting from the Uruguay Round of multilateral trade negotiations take place as envisaged the main impact on the hides and skins sector is expected to be caused by the Agreement on Agriculture, market access commitments on industrial products and the Agreement on Textiles and Clothing.

Owing to the complexity of various linkages and the fact that many measures are related to agriculture as a whole and are not specific to individual sectors (such as livestock) and that, for example, agriculture includes raw hides and skins but not leather and leather products which are classified as industrial products, it is difficult to determine the ultimate effect on the production of hides and skins. It is likely that the main impact will be made indirectly ie. through the effect on meat production. It is reasonable to expect that prices in the more highly protected agricultural markets will decline, while international prices will increase. Consequently, beef and sheep meat production in some countries, including the EU and Japan, is likely to decline, while production in and exports from the United States and major producers in South America, Australia and New Zealand are expected to increase.

Changes in market access and export subsidies, which are product specific, have a more definable impact.

#### **5. HIDE AND SKIN PRODUCTION AND TRADE PROJECTIONS TO THE YEAR 2000**

According to FAO projections, global production of **cattle hides and calfskins** is projected to increase at 0.6% annually, a little slower than in the eighties, to reach a total of more than 5.5 million tonnes by the year 2000 (Table 1).

Following a slight increase in 1994, world production of bovine hides and skins, is likely to stabilize in 1995. This reflects lower cattle numbers, particularly in countries of the former USSR. In Australia slaughtering and hide output are expected to contract further while by contrast hide production is likely to increase in the United States and the EU and in major Latin American producing countries.

The growth in developing countries is likely to be faster than in the past decade, possibly around 2.3% annually, as compared to 1.4% during the period 1978 - 1988. The developing countries are expected to increase their share of the world supply of cattle hides from less than 40% in the late eighties to almost 50%, or 2.7 million tonnes by the year 2000.

This will be partly offset by a decline in the production of cattle hides in developed regions, which had an annual growth rate of 0.4% during the period 1978 - 1988, to a decline of estimated 0.8% during the period up to the year 2000, when the cattle hides production is forecast to be less than 2.9 million tonnes.

Global production of **sheepskins and goatskins** is projected to rise at a pace of 1.6% during the period up to the year 2000, while during the period 1978 - 1988 the corresponding growth rate was 2.3%. This means, however, that the global skin production is still growing more rapidly than the global bovine hides production (Table 2).

The developing countries' share of world skins output is forecast to rise from 50% in 1990 to 54% by the year 2000. In developed regions, however, the aggregate rate of growth is projected to decline from 1.7% (in the period 1978 - 1988) to 1% annually during the period up to the year 2000.

## 6. SOME TRENDS IN LEATHER CONSUMPTION AND TRADE (See Tables 3 - 6)

World production of leather (all types) is more or less steadily increasing: output of light bovine leather is rising faster than the utilization of cattle hides, as more split leather is required for the leather garment trade and some heavy hides are diverted from sole leather production into light leather end-uses.

Production of heavy leathers (sole leather and industrial leathers) declined whereas the production of leather from sheepskins and goatskins grew, but at a slower pace than for light bovine leather.

FAO expects global demand for leather and leather products to continue to expand under the influence of increasing incomes and population.

While demand is likely to grow at a slower rate than in the eighties, it is projected to grow at a slightly faster rate than production, pointing to some firming of prices.

As in the past, growth in demand for raw hides and skins will be concentrated mainly in those developing countries where tanning industries are expanding so that large quantities of good quality cattle hides produced in developed countries are increasingly being imported. **However, this frequently results in considerable losses caused by inadequate preservation of salt preserved hides due to reduction of the quality during long sea transports and extended storage over longer periods under unfavourable climate conditions ultimately resulting in lower quality of the leathers produced from such hides. It is important to find practical ways and means of reducing such economic losses.**

The leather manufacturing and tanning industries in western Europe continue to experience high labour costs and increasingly severe environmental regulations. Asia and the Pacific have surpassed Latin America as the principal light bovine leather exporting region and have consolidated their role as the chief sheep and goat leather supplier among the developing regions.

Among industrialized countries, shipments of light leather from all types of hides and skins rose in all regions notably Europe.

More recently, in some traditional hide-importing developing countries in Asia, rising labour costs and the necessity to provide for effluent treatment have also eroded margins in leather product manufacture and reduced competitiveness. By contrast, continued expansion is expected in the import requirements of new low cost exporters of leather goods such as China and Indonesia. Some revival in the fashion for leather products and upholstery in western Europe and North America might further boost demand for leather and leather products.

The developing countries are, as a group, net exporters of sheep and goat skins. However, the net exports from developing to industrialized countries declined by almost 10% annually during the eighties. They are expected to continue to decline at a similar rate over the nineties, as domestic consumption is likely to expand at a faster rate than production. However, in many developing countries the production is still confined to mainly wet-blue or crust leather for export purposes.

In recent years leather production in some African countries decreased while export of raw hides and skins gained importance again.

Footwear is likely to remain the principal end-use for hides and skins. Consequently, demand prospects for leather shoes would continue to determine to a large extent the demand for hides and skins.

However, the share of leather output absorbed by the footwear industry is expected to decline, while demand for other end-uses such as upholstery is expected to continue to strengthen.

The demand for leather and leather goods in developing countries is projected to grow in the nineties at much the same rate as in the past decade. In developed countries, however, the rate of growth of the demand has been projected to decline. Nevertheless, developed countries will continue to account for more than 60% of the total leather consumption in the year 2000.

The total value of trade in hides and skins, leather and leather products exceeds that of meat, the commodity of which hides and skins are by-products.

## **7. SOME ENDEAVOURS IN IMPROVEMENT OF THE QUALITY OF RAW HIDES AND SKINS - REGULATORY ASPECTS OF HIDE, SKIN AND LEATHER TRADING**

According to the International Hide and Allied Trades Improvement Society (IHATIS) the main problems concerning hide and skin quality, listed in rank order, are as follows:

- Lice, mites and warble infection
- Dung
- Transport, goads etc.
- Barbed wire and
- Identification

It is considered that raw stock could be most effectively improved by:

- paying less for poorer quality hides (or, rather, paying more for good quality)
- introducing a legislation which enacts a system of quality standards for hides affecting the prices paid to primary producers

The hide and leather trade exercise only limited influence on the quality of their raw materials, mainly in the areas of preservation and flaying. Currently there are several schemes at different stages of implementation attempting to introduce advanced identification systems as well as incentives to primary producers for upgrading the quality of raw hides and skins such as the Central Cattle Register (CKR) in Denmark, Faultless Hide in Sweden, a joint effort by a few organizations in Australia which combines

an incentive payment with feedback information to the producer on the hide quality (evaluation score), possible areas of improvement and financial gain in case of achieving it<sup>1</sup> - to mention just a few. Unfortunately, for various reasons, it is quite unlikely that such schemes will be widely accepted in the foreseeable future.

FAO and UNIDO experience also confirms that despite evident, albeit not necessarily immediate, short-term benefits, it is very difficult to raise funds for hide and skin improvement projects as it, for example, recently happened in one African country where annual losses, due to significant downgrading of sheep skins caused by a specific disease, are estimated to be of the order of several million dollars.

The grading of hides and skins according to quality standards is, of course, one measure to obtain the better quality raw materials suited for the end-uses in consideration. However, in many regions there is hardly any proper grading (e.g. in several countries of West and Central Africa).

The International Council of Hides and Skins and Leather Traders Associations, ICHSLTA, in agreement with the International Council of Tanners, ICT, has established contracts used in the international trade of hides and skins and leather.

These contracts facilitate orderly trading and provide great protection to buyer and seller alike, particularly in respect to resolving disputes without recourse to expensive litigation. They spell out the exact procedures to be followed in cases of claims, default, force major, non-payment etc. but they also cover arbitration procedures in case amicable settlements cannot be achieved in a dispute.

The most recent contracts in this connection are:

- International Contract No. 6 - Hides and Skins effective as of 1 May 1993,  
Covers: Raw hides and skins, pickled, wet blue, chrome, vegetable or other tanned unfinished leather in the dry or crust condition
- International Contract No.7 - Finished Leather also effective as of 1 May 1993.

The ICHSLTA and the ICT constantly review the changing world conditions which affect the entire leather industry sector and there may be future revisions to adapt the contracts to any changes which may occur.

## **8. ENVIRONMENTAL IMPACT OF HIDES AND SKINS PRESERVATION AND TRADE.**

The environmental impact of the most frequently used and/or promoted hide and skin preservation methods in various stages of leather processing (raw material preservation, pickling, tanning, post-tanning operations) is becoming of increasing relevance to the sector's activities. Disregarding air drying (still widely used in warm climate countries, a cheap and simple method but difficult to control and often negatively affecting the quality) the following are the main characteristics of the most frequently used preservation methods:

---

<sup>1</sup> It is reported that the estimates put the total cost of damage to Australian hides to about A\$ 350 million per annum or, on average, A\$ 50 per hide.

## A. Raw stock preservation

### i. Salt curing

The concentrated liquor emanating from piles of salted hides is very rich in chloride and nitrogen compounds. A special problem is the spent brine disposal. Legislation in many countries does not allow brine discharge into the sewer, it must be disposed of as waste, which is very costly. The reuse potential is rather limited mainly due to risks associated with the increase of halophilic bacteria. Disposal of the excess solid salt used is an important environmental problem as well. The thermic treatment used prior to recycling is known but very expensive. Disposal on special depositing sites is necessary.

The problem of salinity is especially pronounced in arid areas, affecting the quality of water used for irrigation and livestock watering.

### ii. Low temperature preservation (cooling/chilling/freezing/CO<sub>2</sub>)

The favourable effect of low temperature preservation can be seen by comparing some characteristics of effluents from processing salted hides and unsalted hides preserved at low temperature:

| Operations | Hides           | Amount (g/kg of weight) |             |           |
|------------|-----------------|-------------------------|-------------|-----------|
|            |                 | TS                      | COD         | BOD       |
| Washing    | unsalted (l.t.) | 8.6-11.6                | 5.8-10.7    | 3.6-6.1   |
| Soaking    | salted          | 159.4-231.3             | 20.3-22.5   | 7.7-8.1   |
|            | unsalted (l.t.) | 23.4-30.9               | 6.5-8.6     | 2.7-4.6   |
| Liming     | salted          | 277.6-429.3             | 88.5-104.3  | 33.2-40.0 |
|            | unsalted (l.t.) | 81.9-135.3              | 59.2-89.6   | 33.9      |
| Total      | salted          | 437.0-660.6             | 108.8-126.8 | 41.3-47.7 |
|            | unsalted (l.t.) | 113.9-177.8             | 71.5-108.9  | 40.2-44.6 |

Very important is also the improved quality of fleshings recovered by mechanical processing of the flesh side of unsalted hides prior to liming.

### iii. Preservation with biocides

Application of various biocides (antiseptics, bactericides, fungicides etc.) increases the efficiency of salt preservation and reduces the amount of and, possibly, eventually altogether avoids use of salt.

#### Chlorinated phenols

Pentachlorophenolate (PCP), the best known and longest used substance for the prevention of deterioration by microbiological attack, stable, highly efficient but unambiguously proved to be carcinogenic. Combustion of materials containing PCP can lead to the formation of extremely dangerous polychlorinated dibenzodioxins and furans. Manufacture and use of PCP and marketing of products containing PCP is banned almost all over the world.

Use of some other chlorinated phenols such as 2,3,5-trichlorophenol is not a better alternative.

### **Antiseptics**

Most frequently applied or promoted inorganic chemicals (used alone or as admixtures) are: boric acid, borax, acetic acid, sodium sulphite, sulphur dioxide, hexafluorosilicates, sodium hypochlorite, sodium salts of Zn, Sn and others. The inorganic compounds are sometimes combined with some organics, for example naphthalene and parachlormetacresol, a track likely to be abandoned.

### **Bactericides**

In recent years, new phenolfree bactericides with methylthiocarbamate and isothiazolin, as the active compound and mainly strong fungicidal effect, have appeared on the market but their use is still quite limited, primarily to reduce the amount of salt and to suppress the growth of halophilic bacteria.

No significant unfavourable effect of these new bactericides has been observed. They can be regarded as low toxic products, requiring, nevertheless precautionary measures to avoid ingestion, inhalation and contact with human skin, eyes and mucous membranes.

#### **iv. Preservation by irradiation**

This preservation method (based on electron beam irradiation and gamma beam irradiation) has been tested on an industrial scale only in Canada, the USA and Russia and it has been claimed to be effective for several months due to enzymes inactivation and thereby prevention of putrefaction. From the environmental point it is a very attractive method provided the workers operating the equipment are fully protected.

#### **B. Soak preservation**

A wide variety of bacteria such as chromogenic (with pigmented cells that may stain hides), proteolytic (causing putrefaction) and halophilic (that survive salt curing) have been isolated from the soak water. The most frequently used bactericides, normally applied 0.02-0.1% on hide weight are:

- 2-thiocyanomethylthiobenzothiazole (TCMTB)
- dimethyldithiocarbamate
- N-hydroxymethyl-N-methyldithiocarbamate
- tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione

Mixtures added usually contain certain inert matter and surfactant as well. The producers claim that these bactericides are non-toxic and bio-degradable.

A study carried out in South Africa (completely mixed laboratory scale activated sludge unit, two days retention time, mixed liquor suspended solids maintained at the level of 4,000-6,000 mg/l) indicates the tolerance level of various bactericides measured on the basis of their effect on the COD level as follows:

| Active ingredient  | Approximate tolerance level (mg/l) |
|--|------------------------------------|
| Boric acid   | 200-500                            |
| Potassium N-hydroxymethyl- N-methyldithiocarbamate plus sodium 2-mercaptobenzothiazole | 100-200                            |
| A blend of dithiocarbamates  | 125                                |
| An organic heterocyclic compound   | 125                                |
| Tributyl tin oxide   | 125                                |
| Phenolic ingredient including pentachlorophenolates                                    | 100                                |
| 2-thiocyanomethylthiobenzothiazole   | 50                                 |

The usual dilution of tannery effluents brings the concentration level below the figure which would affect the activated sludge system. Also, the residues are mostly destroyed in reductive conditions of tannery effluents prior to their treatment.

### C. Preservation of pickled and tanned hides/skins

The most significant and prevalent form of microbiological activity found in the tannery is that of fungal growth on pickled or tanned stock. The acid pH of chrome or vegetable tanned hides promotes the proliferation of mould growth and, if left untreated, grain deterioration is inevitable.

#### Preservation with chlorinated phenols

For many years biocides based on phenylmercury salts and chlorinated phenols (mainly a combination of phenylmercuric acetate and potassium 2,4,6-trichlorophenolate) were widely used, the practice which, for well known reasons, had to be abandoned.

#### Preservation with newly developed fungicides

The active component of modern fungicides is the same or similar as of bactericides used for soak preservation. Commercial products have been mostly used based on:

- 2-thiocyanomethylthiobenzothiazole (TCMTB)
- dimethyldithiocarbamate
- 1,3,5-thiadiazine-2-thione
- methylene-bis-thiocyanate

Dosing is 0.06-0.3% on leather weight. Generally, they meet the essential criteria for suitable leather preservatives, i.e. they are:

- compatible with leather as well as with the pickling, chrome tanning, vegetable tanning and post-tanning liquors,
- readily absorbed from solution by the stock,
- remain in the stock after considerable washing,
- efficient in providing long-term protection against fungal growth,
- have only a moderate adverse effect on human beings (irritation on dermal contact).

Adequate conditions for high uptake of fungicide from the liquor such as dosage at the beginning of operation, slight acid or neutral pH etc. are essential also from the environmental point of view (uptake of 99% possible as opposed to less than 50% under inadequate conditions). Leathers containing more than 100 ppm of TCMTB should be protected against mould growth for at least 25 days. No significant effect on the biological treatment of waste waters has been observed.

The following overview summarizes the characteristics of typically used preservation agents.

### **Sodium Chloride**

|                      |   |
|----------------------|---|
| <u>Advantages</u>    | Does not interfere with processes in the activated sludge treatment<br>Non-toxic<br>Hygienically acceptable when safety measures observed<br>Inexpensive, widely available  |
| <u>Disadvantages</u> | Large quantities (over 30-50%) needed, high salinity pollution load in effluents<br>Salt is not eliminated in the course of physical, chemical and biological treatment of effluents<br>Reuse of spent salt rich in bacteria is not recommended, disposal on special depositing sites should be taken into account<br>Can cause slight irritation to human skin |

### **Low temperature preservation**

|                      |  |
|----------------------|--|
| <u>Advantages</u>    | Decreased pollution load in effluents (mainly salinity)<br>Improved quality of fleshings suitable for processing the protein and fat products<br>Hygienically safe handling of cooled and chilled hides            |
| <u>Disadvantages</u> | Slightly higher slipperiness during beamhouse mechanical operations necessitating better precautionary measures at work<br>High investment and operation costs, high power consumption especially in warm climates |

### **Preservation with chlorinated phenols**

|                      |   |
|----------------------|---|
| <u>Advantages</u>    | Decreased salinity of effluents   |
| <u>Disadvantages</u> | Have a high toxic and carcinogenic effect when entering the skin or swallowed<br>Development of harmful substances during combustion of products containing chlorinated phenols<br>Release of non-biodegradable compounds |

### **Preservation with chemical antiseptics**

|                      |  |
|----------------------|--|
| <u>Advantages</u>    | Decreased salinity of effluents<br>Low- or non-toxic when labour safety measures observed during handling<br>Fleshings suitable for processing into protein and fat products                             |
| <u>Disadvantages</u> | Irritant odour is given off by the antiseptics and the hides preserved with them<br>Slightly higher slipperiness of pelts requiring better precautionary measures during beamhouse mechanical operations |

### **Preservation with bactericides and fungicides**

|                      |   |
|----------------------|---|
| <u>Advantages</u>    | Decreased salinity of effluents<br>When properly absorbed from the bath no increase in the effluent organic pollution load<br>To a great extent biologically degradable<br>Low- or non-toxic when labour safety measures observed during handling |
| <u>Disadvantages</u> | Irritate the human skin and mucous membranes<br>Higher cost   |

**Intensified sensitization and dissemination of information to various government and nongovernment organizations, trade industries and to the general public on practical measures and the importance of the quality of raw hides and skins (including losses) as well as on associated environmental issues, is possibly one of the priority issues in the leather sector.**

## **9. ECO - LABELLING AND THE UNIDO INITIATIVE**

The ecological impact, public health and waste management of leather industry products such as footwear, leather garments and various other leather goods, has recently received an unusual amount of public interest. This has partly been caused by some sensationalist mass media publications but also by legitimate worries of the general public and the trade industry concerned with the sound ecological development of the branch.

Voices have been raised by tanners and leather products manufacturers from industrialized countries that it is increasingly difficult to be competitive with countries which allow tanneries to operate without regulating and enforcing sound environmental legislation. This situation is, rightly or wrongly, claimed to be the cause of the economic ruin of the branch in countries where ecological factors in leather production are to be taken into strict consideration.

**In any case, there is little doubt that environmental considerations constitute one of the most important development problems of the leather and leather products branch today.**

Several initiatives at different levels have been undertaken recently attempting to define an ECO-LABEL that could be issued to products which can be called environmentally friendly. The label would act as an incentive to the trade to apply ecologically sound production methods and waste management practices and, at the same time, protect and satisfy the increasingly environmentally sensitive consumer.

On the basis of a UNIDO Secretariat project concept on eco-labelling, this subject was discussed during the 11th Session of the UNIDO Leather Panel held in Nairobi in December 1993 which recommended the establishment of a small expert group to further study this matter and elaborate on appropriate criteria and guidelines.

Following some preparatory activities a meeting of the Expert Group, comprised of eminent representatives from leather and leather products industry and R & D institutions from both industrialized and developing countries and from international organizations (IULTCS, COTANCE, FAO, UNCTAD), took place in UNIDO Vienna 3-4 October 1994. Different, sometimes quite opposing viewpoints on both

the technical aspects involved and on optimum methodology to deal with this complex but very relevant matter were presented by the participants.<sup>2</sup>

Various types of eco-labels and/or company self-declarations for footwear collected during the recent GDS 78 International Footwear Fair in Düsseldorf, Germany, were reviewed by the Expert Group. The exhibition clearly showed that many different types of "eco-labels" and self-declarations by companies already exist in the market place, but that most of them do not provide reliable information or even mislead the consumer.

Many felt that eco-labelling is more of a marketing and trade issue rather than a technical one. It is, however, impossible to arrive at suitable criteria if the scientific and technical parameters of the materials and products involved are not clearly established.

The prevailing opinion was that there is the necessity of introducing an International Eco-label (especially the representatives from developing countries were strongly in favour of it). Although such a label cannot be used as a tool to stop company self-declarations and it is not intended to replace the national and regional eco-labels, it will be of significance especially to those countries which have not yet joined any eco-labelling scheme.

It also emerged that one of the crucial questions is whether the Eco-label should cover products and/or processes: the majority of the experts were of the opinion that since the eco-label is a consumer-oriented matter, the Eco-label should only be attached to manufactured products, such as leather footwear and other leather products. Some participants were of the strong opinion that the Eco-label for leather products should not only cover the main raw material of the product - the finished leather - but that it should also cover all other raw materials included in the product. Finished leather used for such products qualifying for the International Eco-label should receive certificates through national certifying institutes to be appointed. Likewise, the processing of leather, footwear and other leather products will be subject to the national environmental legislation. It was, however, recommended that a set of suitable guidelines should be compiled from the internationally accepted norms and standards of such bodies as ISO, IULTCS, UNEP, UNIDO, as well as from major international standards.

Another important issue is the type of eco-label needed, i.e. should it only be a statement of tox-proof material along the lines of the SG (Schadstoffgeprüft) label used in Germany, or should the International Eco-label adopt the LCA methodology, i.e. the cradle to the grave approach (the LCA method possibly overly too complex in this sector). Most of the participants held the view that a phased approach was called for and it was most important that the International Eco-label should stand for credibility, based on verifiable criteria and clear specifications, easily understood by the general public, and facilitate the monitoring and controlling process so that the monitoring and controlling cost and bureaucratic delays are kept to a minimum.

The meeting recognized that a great deal has already been done in this area by such agencies as EU, GATT, ISO, UNCTAD, and others and that the work to be carried out by UNIDO for the International Eco-label for leather footwear and leather products should draw on the experience already made by other bodies and thereby avoid a duplication of efforts.

The meeting reached consensus on and adopted the following conclusions and recommendations:

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<sup>2</sup> One of the participants strongly opposed the entire Eco-label idea whether national, regional or international - and felt that such a label would hinder trade and, thereby, be counter-productive.

## CONCLUSIONS AND RECOMMENDATIONS

1. The meeting appreciated the valuable information and comprehensive material on this complex matter provided by the consultant<sup>3</sup> and representatives of the participating organizations. It also recognized the work done by other national, regional and international institutions on the subject of eco-labelling.
2. The meeting was of the opinion that an international Eco-label would help counter the proliferation of inconsistent or misleading initiatives and that the technical criteria for such an ecological certification should be drafted by UNIDO in cooperation with the interested bodies such as ISO, UNCTAD, and the non-governmental agencies working in the leather field such as ICT, IULTCS, UITIC, and research institutes from industrialized and developing countries.
3. To counteract misleading claims, there is a need for harmonization of eco-labelling schemes on the basis of verifiable parameters. To that end, the meeting recognized that generally, the Eco-label is a consumer-oriented issue and, therefore, an international Eco-label should, in the first instance, be applied to leather products. The inputs (including chemicals) to these products should be subjected to ecological certification.
4. As regards process certification, it was recognized that this is governed by national environmental legislation. To support process certification, process guidelines (including treatment of waste) and glossaries, conforming to internationally acceptable processing technology, norms and standards should be compiled from existing data and information for the national bodies concerned. The Eco-label and process guidelines may constitute elements of a package which could promote the adoption of low waste technology and waste treatment in the sector.
5. The International Eco-label should be of a voluntary nature and be developed in phases. Such a labelling scheme should be in conformity with the stipulations in the revised text of the GATT Technical Barriers to Trade (TBT) Article 7 which deals with "certification systems" and requires, inter alia, that these systems do not have the effect of creating obstacles to trade.
6. It is recommended that UNIDO will assume a catalytic and coordinating role, and prepare the first technical draft for the International Eco-label in the leather footwear and leather products industry. The views of the expert group meeting on Eco-labelling held in Vienna 3-4 October 1994 will be taken into consideration, in particular the recommendation of a strategy facilitating the participation of the developing countries in an Eco-labelling scheme.
7. The first draft should also include a proposal for the establishment of an International ECO-LABEL Committee (IELC) which should be formed with members from appropriate international, regional and national institutions such as ICT, IULTCS, research institutes from industrialized and developing countries and UNIDO, in cooperation with ISO and UNCTAD. The terms of reference of this Committee should include, inter alia, the following:

to formulate the ECO-label technical specifications, and to recommend certifying institutes.

Accredited R&D establishments are seen as the most appropriate institutions for monitoring, testing/verifying an Eco-label.

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<sup>3</sup> A UNIDO consultant who prepared the background paper for the meeting.

8. The first draft of the Eco-label scheme should be circulated by UNIDO to the agencies concerned for comments prior to the forthcoming 12th Session of the UNIDO Leather Panel, scheduled to take place at the end of August 1995, and ultimately be presented to the Regional Consultations on the Leather and Leather Products Industry to be held during the last quarter of 1995.
9. It is further recommended that a feasibility study should be prepared by UNIDO in association with selected national and regional leather and leather products institutions to assess the economic impact of such an Eco-label as applicable to various regions of the world.

**UNIDO feels that the adoption and implementation of appropriate measures in eco-labelling could ensure both a smooth flow of goods internationally and a proper protection of the environment.**

Figure 1

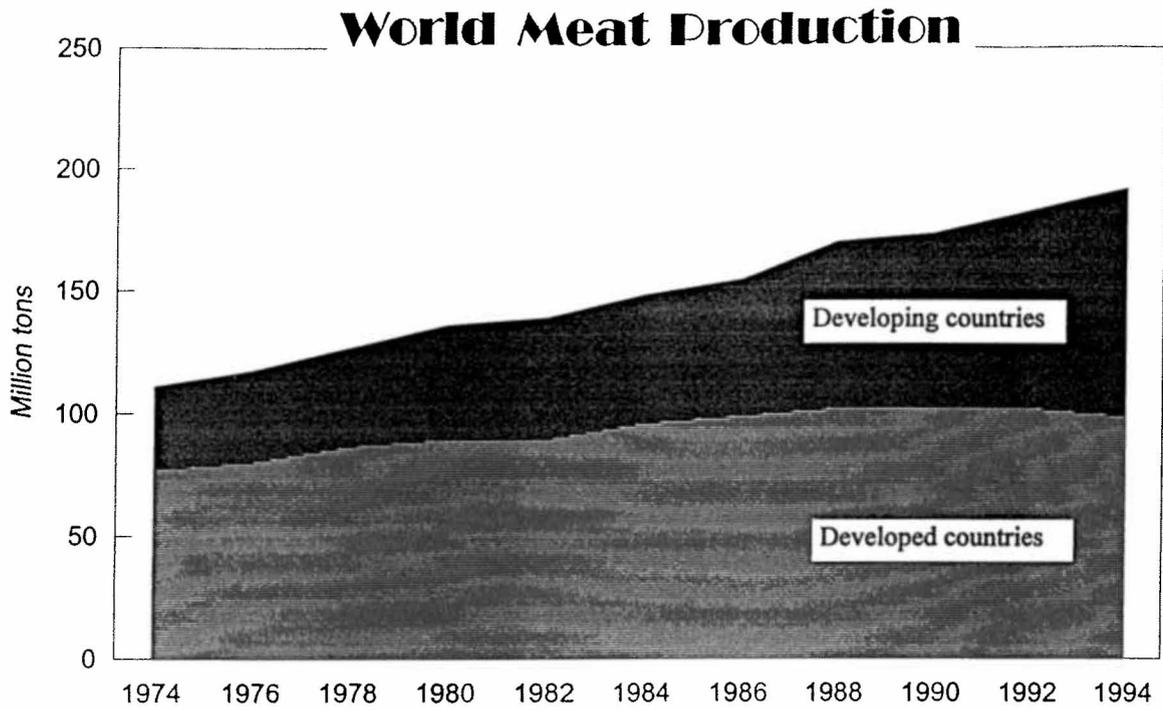


Figure 2

### World Meat Production by Type

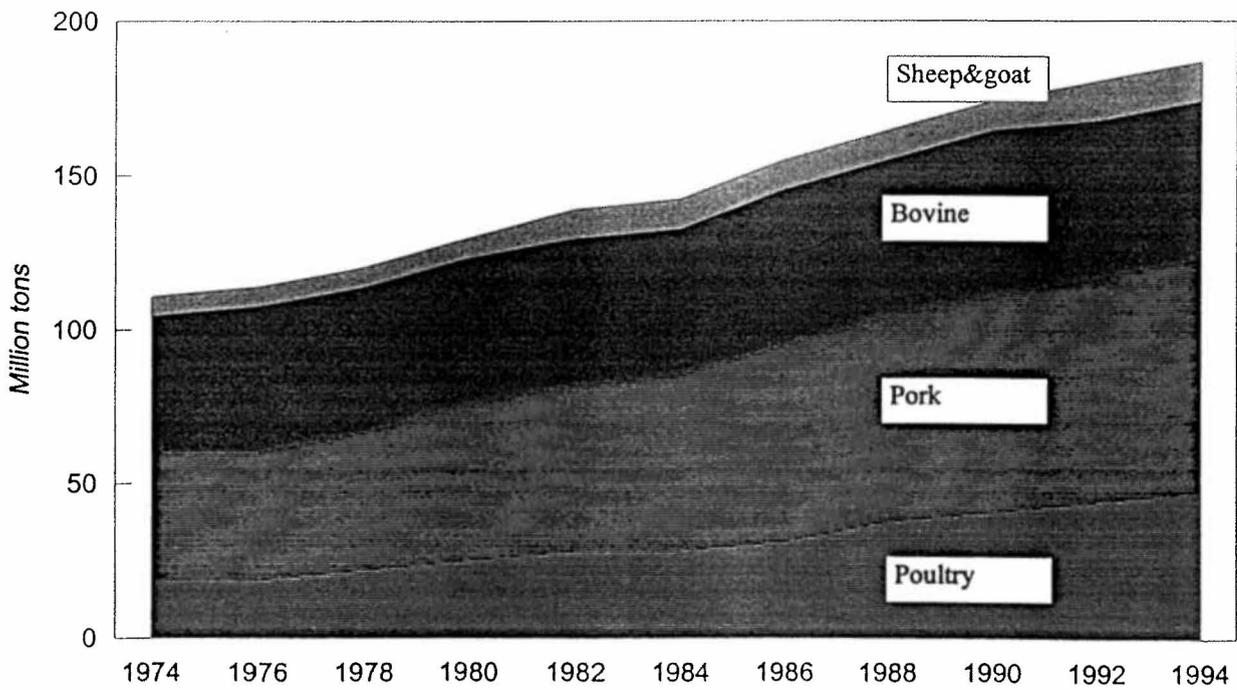


Figure 3

# Per Caput Meat Consumption

## 1992-94 Average

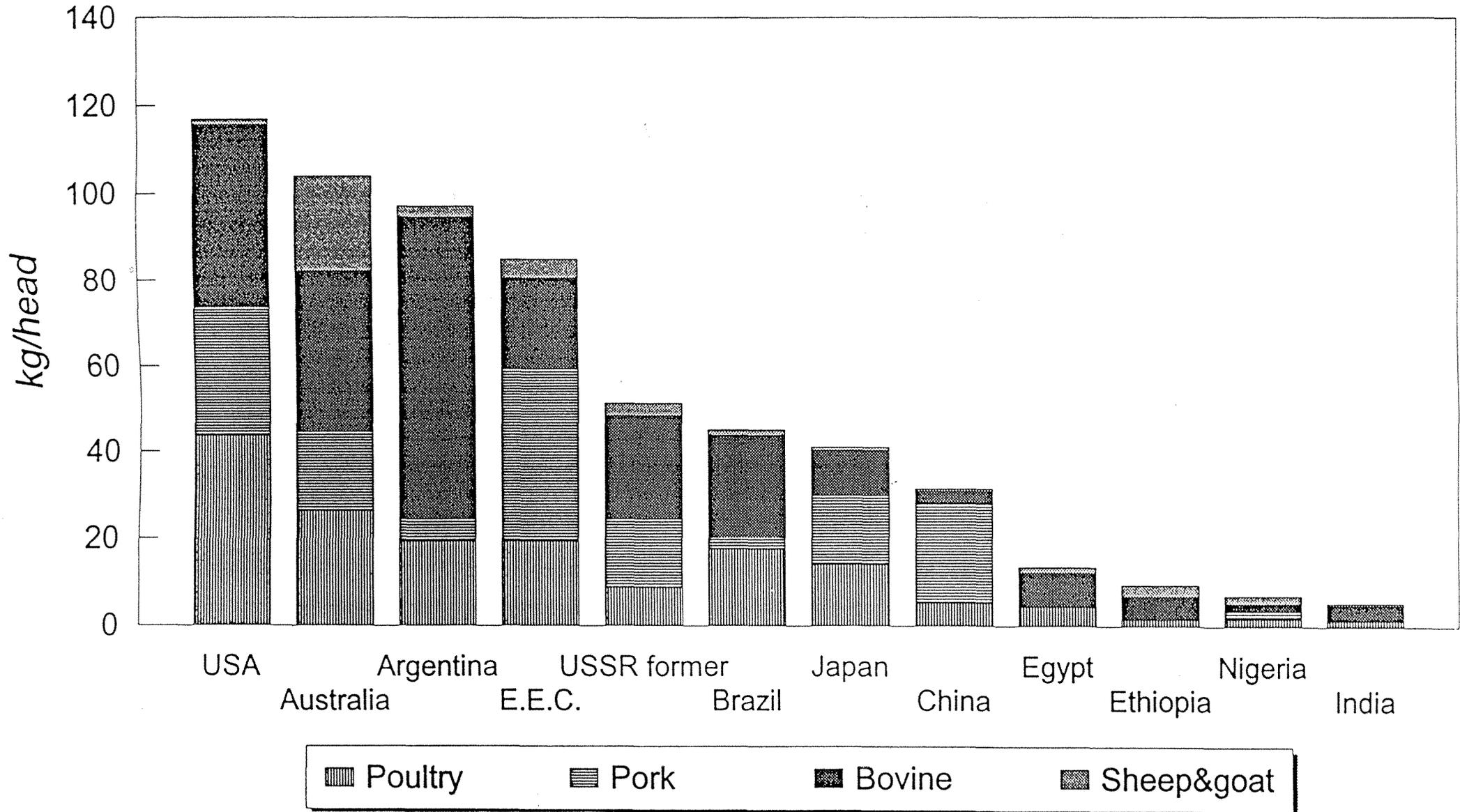
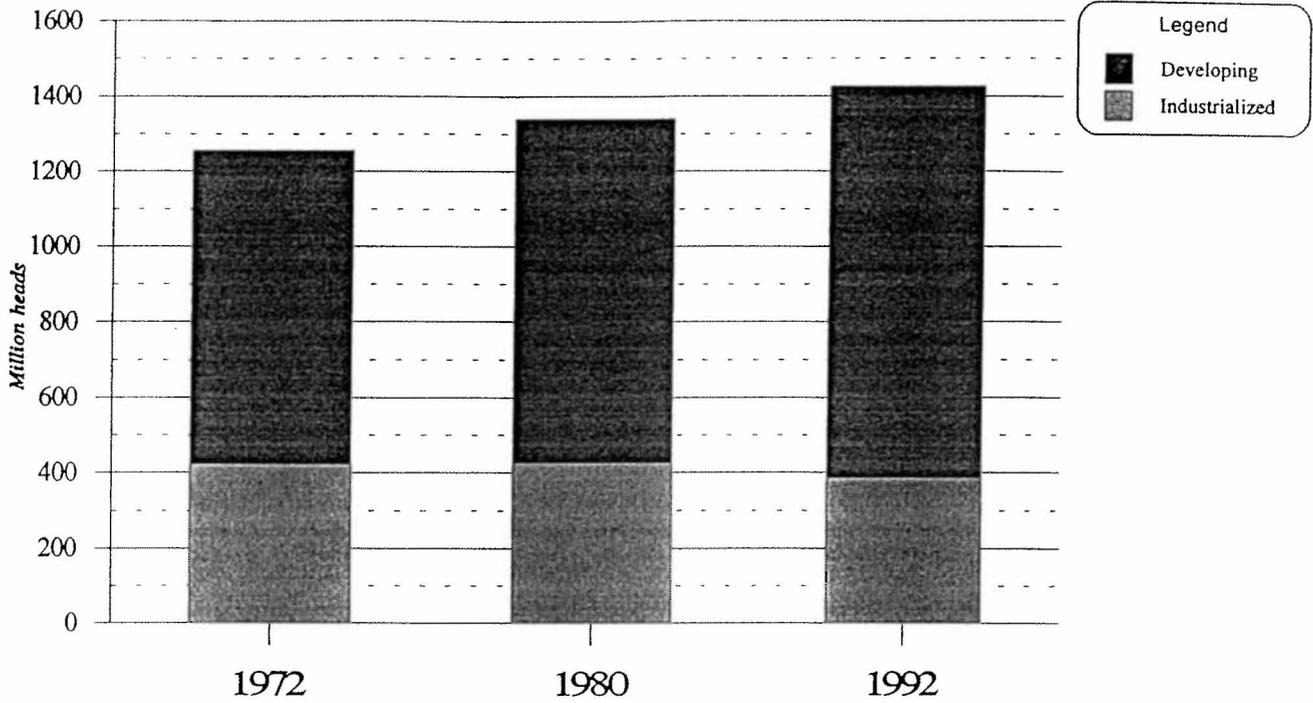


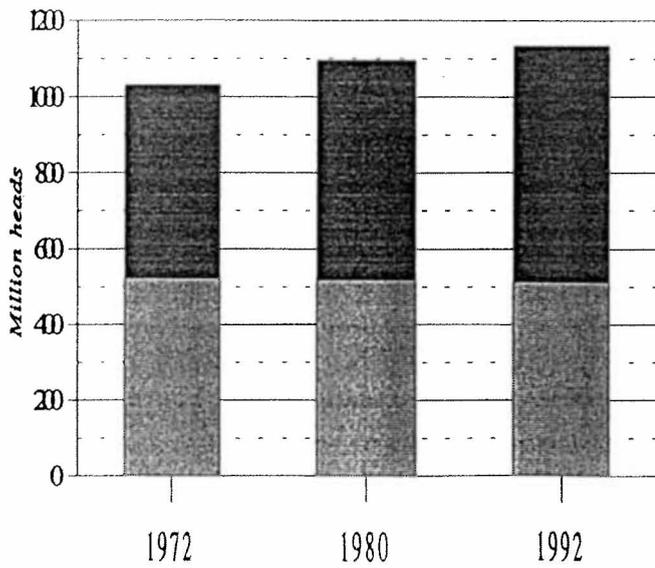
Figure 4

# ANIMAL LIVESTOCK

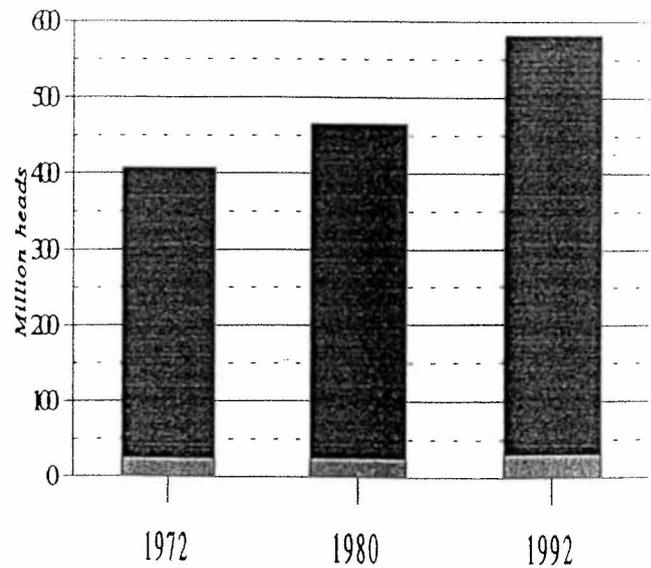
## Bovine



## Sheep and Lambs



## Goats and Kids



**BOVINE HIDES AND SKINS: ACTUAL AND PROJECTED PRODUCTION:** Table 1

| Countries  | Regions       | Actual                 |       | Projected | Growth Rates            |               |
|------------|---------------|------------------------|-------|-----------|-------------------------|---------------|
|            |               | 1978*                  | 1988* | 2000      | 1978*-<br>1988*         | 1988-<br>2000 |
|            |               | <i>thousand tonnes</i> |       |           | <i>percent per year</i> |               |
| WORLD      |               | 4,815                  | 5,209 | 5,574     | 0.8                     | 0.6           |
| DEVELOPING |               | 1,791                  | 2,051 | 2,711     | 1.4                     | 2.3           |
|            | Africa        | 189                    | 213   | 273       | 1.2                     | 2.1           |
|            | Latin America | 852                    | 895   | 1,248     | 0.5                     | 2.8           |
|            | Near East     | 145                    | 169   | 190       | 1.5                     | 1.0           |
|            | Far East      | 605                    | 774   | 1,000     | 2.5                     | 2.2           |
| DEVELOPED  |               | 3,024                  | 3,158 | 2,863     | 0.4                     | -0.8          |
|            | North America | 1,038                  | 1,020 | 938       | -0.2                    | -0.7          |
|            | Europe        | 905                    | 1,044 | 928       | 1.4                     | -1.0          |
|            | Oceania       | 291                    | 200   | 206       | -3.7                    | 0.2           |
|            | Other         | 790                    | 894   | 791       | 1.2                     | -1.0          |

**SHEEPSKINS AND GOATSKINS: ACTUAL AND PROJECTED PRODUCTION:** Table 2

| Countries  | Regions       | Actual                 |       | Projected | Growth Rates            |               |
|------------|---------------|------------------------|-------|-----------|-------------------------|---------------|
|            |               | 1978*                  | 1988* | 2000      | 1978*-<br>1988*         | 1988-<br>2000 |
|            |               | <i>thousand tonnes</i> |       |           | <i>percent per year</i> |               |
| WORLD      |               | 406.6                  | 511.2 | 620.0     | 2.3                     | 1.6           |
| DEVELOPING |               | 193.0                  | 258.6 | 334.2     | 3.0                     | 2.2           |
|            | Africa        | 45.4                   | 56.9  | 76.0      | 2.3                     | 2.4           |
|            | Latin America | 19.4                   | 19.8  | 25.3      | 0.2                     | 2.1           |
|            | Near East     | 49.3                   | 56.4  | 69.2      | 1.4                     | 1.7           |
|            | Far East      | 78.9                   | 125.5 | 163.7     | 4.8                     | 2.2           |
| DEVELOPED  |               | 213.6                  | 252.6 | 285.8     | 1.7                     | 1.0           |
|            | North America | 5.9                    | 5.7   | 4.8       | -0.3                    | -1.4          |
|            | Europe        | 79.0                   | 97.3  | 124.1     | 2.1                     | 2.0           |
|            | Oceania       | 64.1                   | 78.4  | 84.7      | 2.0                     | 0.6           |
|            | Other         | 64.6                   | 71.2  | 72.2      | 1.0                     | 0.1           |

1978\* refers to the average of calendar years 1977-79

1988\* refers to the average of calendar years 1987-89

**BOVINE HIDES AND SKINS: ACTUAL AND PROJECTED CONSUMPTION:** Table 3

| Countries  | Regions       | Actual                 |       | Projected | Growth Rates            |               |
|------------|---------------|------------------------|-------|-----------|-------------------------|---------------|
|            |               | 1978*                  | 1988* | 2000      | 1978*-<br>1988*         | 1988-<br>2000 |
|            |               | <i>thousand tonnes</i> |       |           | <i>percent per year</i> |               |
| WORLD      |               | 4,815                  | 5,209 | 5,574     | 0.8                     | 0.6           |
| DEVELOPING |               | 1,820                  | 1,966 | 2,160     | 0.8                     | 0.8           |
|            | Africa        | 74                     | 97    | 110       | 2.7                     | 1.1           |
|            | Latin America | 693                    | 659   | 700       | -0.5                    | 0.5           |
|            | Near East     | 147                    | 171   | 200       | 1.5                     | 1.3           |
|            | Far East      | 906                    | 1,039 | 1,150     | 1.4                     | 0.8           |
| DEVELOPED  |               | 2,995                  | 3,243 | 3,414     | 0.8                     | 0.4           |
|            | North America | 496                    | 448   | 430       | -1.0                    | -0.3          |
|            | Europe        | 1,828                  | 1,974 | 1,992     | 0.8                     | 0.1           |
|            | Oceania       | 36                     | 43    | 39        | 1.8                     | -0.8          |
|            | Other         | 635                    | 778   | 953       | 2.1                     | 1.7           |

**SHEEPSKINS AND GOATSKINS: ACTUAL AND PROJECTED CONSUMPTION:** Table 4

| Countries  | Regions       | Actual                 |       | Projected | Growth Rates            |               |
|------------|---------------|------------------------|-------|-----------|-------------------------|---------------|
|            |               | 1978*                  | 1988* | 2000      | 1978*-<br>1988*         | 1988-<br>2000 |
|            |               | <i>thousand tonnes</i> |       |           | <i>percent per year</i> |               |
| WORLD      |               | 408.2                  | 497.9 | 620.0     | 2.0                     | 1.8           |
| DEVELOPING |               | 95.1                   | 223.0 | 324.2     | 8.9                     | 3.2           |
|            | Africa        | 13.5                   | 23.8  | 40.0      | 5.8                     | 4.4           |
|            | Latin America | 16.7                   | 22.4  | 27.2      | 3.0                     | 1.6           |
|            | Near East     | 32.4                   | 62.9  | 95.0      | 6.9                     | 3.5           |
|            | Far East      | 32.5                   | 113.9 | 162.0     | 13.4                    | 3.0           |
| DEVELOPED  |               | 313.1                  | 274.9 | 295.8     | -1.3                    | 0.6           |
|            | North America | 21.4                   | 23.5  | 24.0      | 0.9                     | 0.2           |
|            | Europe        | 233.3                  | 198.5 | 220.5     | -1.6                    | 0.9           |
|            | Oceania       | 2.8                    | 6.7   | 7.5       | 9.1                     | 0.9           |
|            | Other         | 55.6                   | 46.2  | 43.8      | -1.8                    | -0.4          |

1978\* refers to the average of calendar years 1977-79

1988\* refers to the average of calendar years 1987-89

**BOVINE HIDES AND SKINS: ACTUAL AND PROJECTED NET TRADE:** Table 5

| Countries  | Regions       | Actual                 |       | Projected | Growth Rates            |               |
|------------|---------------|------------------------|-------|-----------|-------------------------|---------------|
|            |               | 1978*                  | 1988* | 2000      | 1978*-<br>1988*         | 1988-<br>2000 |
|            |               | <i>thousand tonnes</i> |       |           | <i>percent per year</i> |               |
| WORLD      |               | 0.0                    | 0.0   | 0.0       | 0.0                     | 0.0           |
| DEVELOPING |               | 29                     | -85   | -551      | n.d.                    | 16.9          |
|            | Africa        | -115                   | -116  | -163      | 0.1                     | 2.9           |
|            | Latin America | -159                   | -236  | -548      | 4.0                     | 7.3           |
|            | Near East     | 2                      | 2     | 10        | 0.0                     | 14.4          |
|            | Far East      | 301                    | 265   | 150       | -1.3                    | -4.6          |
| DEVELOPED  |               | -29                    | 85    | 551       | n.d.                    | 16.9          |
|            | North America | -542                   | -572  | -508      | 0.5                     | -1.0          |
|            | Europe        | 923                    | 930   | 1064      | 0.1                     | 1.1           |
|            | Oceania       | -255                   | -157  | -167      | -4.7                    | 0.5           |
|            | Other         | -155                   | -116  | 162       | -2.9                    | n.d.          |

**SHEEPSKINS AND GOATSKINS: ACTUAL AND PROJECTED NET TRADE:** Table 6

| Countries  | Regions       | Actual                 |       | Projected | Growth Rates            |               |
|------------|---------------|------------------------|-------|-----------|-------------------------|---------------|
|            |               | 1978*                  | 1988* | 2000      | 1978*-<br>1988*         | 1988-<br>2000 |
|            |               | <i>thousand tonnes</i> |       |           | <i>percent per year</i> |               |
| WORLD      |               | 1.6                    | -13.3 | 0.0       | n.d.                    | n.d.          |
| DEVELOPING |               | -97.9                  | -35.6 | -10.0     | -9.6                    | -10.0         |
|            | Africa        | -31.9                  | -33.1 | -36.0     | 0.4                     | 0.7           |
|            | Latin America | -2.7                   | 2.6   | 1.9       | n.d.                    | -2.6          |
|            | Near East     | -16.9                  | 6.5   | 25.8      | n.d.                    | 12.2          |
|            | Far East      | -46.4                  | -11.6 | -1.7      | -12.9                   | -14.8         |
| DEVELOPED  |               | 99.5                   | 22.3  | 10.0      | -13.9                   | -6.5          |
|            | North America | 15.5                   | 17.8  | 19.2      | 1.4                     | 0.6           |
|            | Europe        | 154.3                  | 101.2 | 96.4      | -4.1                    | -0.4          |
|            | Oceania       | -61.3                  | -71.7 | -77.2     | 1.6                     | 0.6           |
|            | Other         | -9.0                   | -25.0 | -28.4     | 10.8                    | 1.1           |

1978\* refers to the average of calendar years 1977-79

1988\* refers to the average of calendar years 1987-89

(-) signifies net exports

n.d. signifies not definable

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*Most of the papers listed here were presented at the Fourth Session of the Sub-group on Hides and Skins,*

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3. *FIGURES 1-3 have been taken from the FAO paper, "Review of the Current World Meat Situation and the Short-term Outlook", Fifteenth Session of the Committee on Commodity Problems, Intergovernmental Group on Meat, Rome, 3-6 October 1994.*

*FIGURE 4 AND TABLES are based on the FAO, "World statistical compendium for raw hides and skins, leather and leather footwear, 1974-1992" and on the FAO Economic and Social Development paper 120, Projections to the year 2000.*