



# Indian Leather Sector Network Report

## Sector Overview and SWOT Analysis

Within the initiative

Sustainable Industrial Networks and Its applications on Micro  
Regional Environmental Planning (SINET)



**Partner  
Organizations**



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**Asia Pro Eco Programme**

Is a five years programme launched by European Union in 2002, The main target is to adopt policies, technologies, and practices that promote cleaner, more resource efficient, sustainable solutions to environmental problems in Asia. The programme provides support through grants to policy reinforcement, operational and practical dialogue, diagnostic studies, technology partnership and demonstration projects, in the field of environment. The programme supports non profit organizations from EU and Asia.

**About SINET**

The aim of sustainable industrial network and its application on micro regional environmental planning is to interpret and adapt an understanding of the natural system and apply it to the design of the man-made system, in order to achieve a pattern of industrialization that is not only more efficient, but which is intrinsically adjusted to the tolerances and characteristics of the natural system. An industrial system of this type will have built-in insurance against environmental surprises, because their underlying causes will have been eliminated at the design stage. A micro-region is a distinct territorial unit with clearly marked boundaries below the regional level, but above the village level. Micro-regional environmental planning attempts to coordinate the planning activities of the various actors within a limited territorial unit.

The project will look at analyzing and documenting various success and failure stories of industry networks from Sweden/Europe and India/Asia, and to ascertain their impacts on environment and sustainability aspects of the respective micro regions. Emphasis will also be placed on creating awareness on the influence of industry network (key economic activity) on the micro region's environmental and sustainability aspects.

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## Background

Leather was one of the first manufactured materials, and the Leather Technologist can claim to be a member of an ancient profession. Leather has long outgrown in its practical purpose and today is regarded more as a luxury than a necessity, particularly in the affluent West.

The global industry is valued at about Rs.3964.4 billion (71.27 Billion Euro). Most of the producing countries are developing countries, yet China and Italy are the leading producing and exporting nations in the world with exports worth Rs. 886.16 billion (15.93 billion Euros) and Rs. 606.32 billion (10.901 billion Euros) respectively. The industry is buyer –driven, with producing countries manufacturing in line with specifications, guidelines and technical advice provided by the buyer countries.

The leather industry occupies a prominent place in the Indian economy in view of its substantial export earnings, employment potential and growth.

- **Leather Industry in India**

#### Indian leather sector: A Profile

India is the largest livestock holding country 21% large animals and 11% small animals

- A source for 10% global leather requirement
- Annual production value over Rs. 186.56 billion (3.354 billion Euros)
- Annual export value over Rs. 125.46 billion (2.225 billion Euros)
- Export growth CAGR (compound annual growth rate) 8.61% (5 years)
- About 2.50 million workforce (30% women)
- Promising technology inflow and Foreign Direct Investment
- Enormous potential for future growth (domestic as well as export)

The Indian leather industry, one the most vibrant sector of the country's economy, is well-structured and spans various segments, such as tanning and finishing, footwear and footwear components, leather garments, leather goods, including saddles and harness. Well-recognized in the international market, the Indian leather goods constitute about 7 per cent of India's export earnings. Besides being a significant earner of foreign exchange, the leather industry generates employment, ensuring jobs for over 2.5 million people, with 75 per cent of the production from small and cottage sectors. India, with an output of Rs. 186.56 billion (3.354 billion Euros) and exports of Rs. 125.46 billion (2.225 billion Euros), is placed third, while developed markets such as the US are major consumers of leather products. It is now poised for a big leap to double its global share from the present 3%. The industry covers a vast spectrum of inputs, activities, skills and products i.e. livestock, hides and skins, tanning, leather products and exports.

The Indian Leather Industry is growing by leaps and bounds. One must be wondering why India is exporting so much of leather to western countries. Apparently because leatherwear still enjoys a great demand abroad and now-a-days even the domestic market is developing and consuming the offerings of this industry.

#### Major Production Centres of Leather and Leather Products

<b>Southern Region</b>	
■ Tamil Nadu	Chennai, Ambur, Ranipet, Vaniyambadi, Trichy and Dindigul
■ Andhra Pradesh	Hyderabad
■ Karnataka	Bangalore
<b>Northern Region</b>	
■ Punjab	Jalandhar
■ Delhi	Delhi
<b>Eastern Region</b>	
■ West Bengal	Kolkata
<b>Central Region</b>	
■ Uttar Pradesh	Kanpur and Agra
<b>Western Region</b>	
■ Maharashtra	Mumbai

- **Slaughter houses in India**

There are 2702 slaughterhouses in the country, which are recognized or authorized by local bodies. In addition a considerable number of animals are slaughtered in unauthorized places. A rough estimate indicates up to 50 percent of animals slaughtered in any urban center are from unauthorized slaughter. Over the years, the facilities and hygienic conditions in most of the slaughterhouses have deteriorated. Compared to 1951, livestock population increased by about 62 percent and human population increased by 134 percent but the number of authorized slaughterhouses have not increased to meet the demand for meat production. The increased demand for meat is met either through over crowding operations in the existing slaughterhouses operating at much higher capacity than feasible in the facilities or through unauthorized slaughter at many places. In both these situations not only meat hygiene is a casualty, increased pollution and adverse public reactions are observed. The existing slaughterhouse capacity in the country is unable to meet the growing public demand for clean and hygienic meat. This can be achieved by improving existing slaughterhouses to accommodate higher capacities and creating new slaughterhouses with modern facilities.

***Major source of cattle for slaughterhouses***

Several head of cattle are reportedly being transported from Karnataka to slaughterhouses in Andhra Pradesh, Maharashtra and Kerala. It is estimated that more than three million cattle head are being transported out of the State annually. It is said that Karnataka has emerged as a major source of cattle for slaughterhouses as they are available at cheaper rates.

The demand for beef in Kerala is said to be one of the reasons for the transportation of a large number of cattle to slaughterhouses there. While the domestic consumption in that State is said to be around two lakhs tonnes, the slaughterhouses also cater to the international market. Though Kerala has a high count of cattle, some experts say these cannot be sent to slaughterhouses as they are expensive hybrid cattle.

- **CII SME Cluster project for leather**

In order to enhance the internal competitiveness of the small and medium enterprises (SMEs) - a dominant and fast growing segment of the Indian economy - the Confederation of Indian Industry (CII), Southern Region is extending its unique SME Cluster initiative to Hyderabad, Madurai, Chennai, Pondicherry and Coimbatore.

Encouraged by the successful CII Ambattur Industrial Estate Manufactures Association (AIEMA) SME Cluster Model, CII will be launching three new SME Clusters in the southern region states. CII formally launched the SME Leather Cluster in Chennai on March 20, 2006, coinciding with the Tamil Nadu Annual Day. The Leather Cluster will comprise 10-12 industries in the leather sector from Ambur, Ranipet and Chennai.

Formed by voluntarily coming together of a group of 10-12 companies to work towards a focused goal, CII clusters represent specific industrial sector, a particular geographical location or a group of companies that are vendors to an original equipment manufacturer (OEM).

The SME Cluster members will be hand-held for a specific period of 12 or 18 months and will be offered services by the CII Centres of Excellence to enhance their internal competitiveness in the areas of manufacturing excellence, energy management and total cost management.

- **Leather Park**

Under the leather park package, Chennai is going to have two parks — one for footwear and the other for components. An exclusive park for tanneries is also coming up at Nellore, a leather goods park within the upcoming Calcutta Leather Complex in Kolkata and another component park in Agra.

The leather goods park project of Indian Leather Products Association (ILPA), coming up on approximately 60 acres of land inside the Calcutta Leather Complex (CLC) at Bantala in east Kolkata, is expected to be completed by 2008-09. The facility will put Kolkata on the international leather goods buyers' map.

Ten leather product manufacturing companies, including Liberty Shoes and Irving Leather Company of the US besides a couple of Chinese companies, are keen to set up units in the leather park proposed to be set up in Nellore district.

- **Scope of tanneries in India**

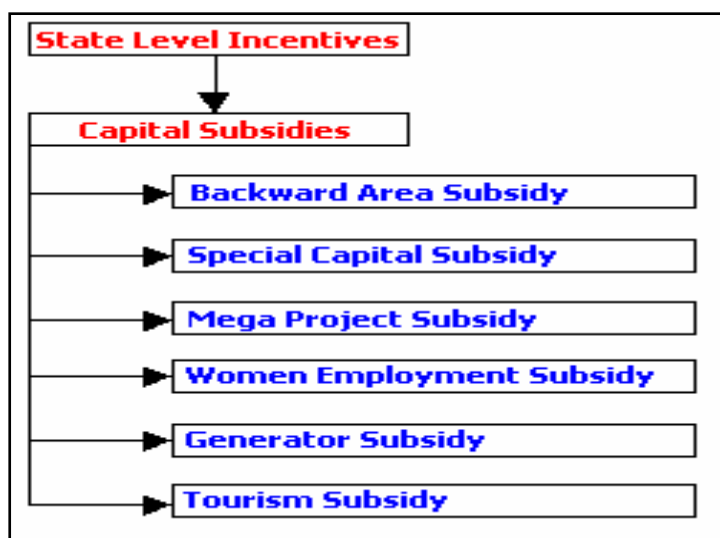
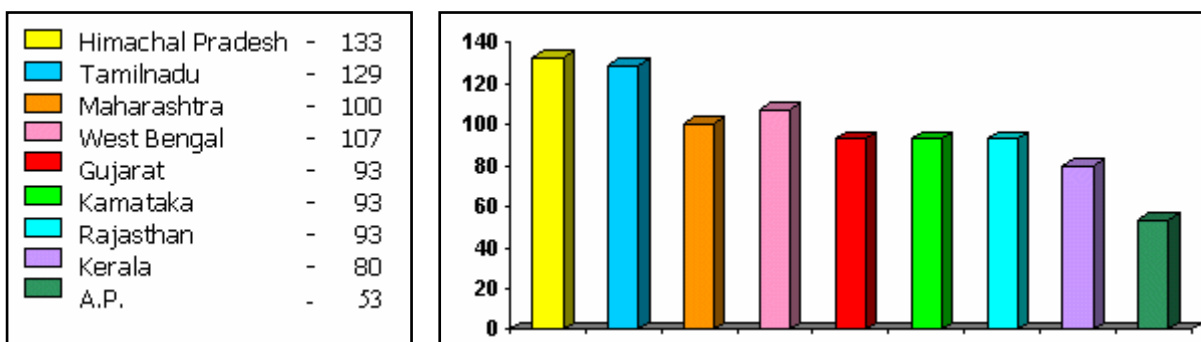
The Indian market has been fragmented with about 2200 tanneries of which 2100 are small scale units and over 8000 leather product manufacturing units. The tanning industry is concentrated in three states viz. Tamil Nadu, West Bengal and Uttar Pradesh. Of the total number of tanneries in India, Tamil Nadu accounts for 52%, West Bengal 23% and U.P 12%. The other important states are Maharashtra, Andhra Pradesh and Punjab. Looking from the angle of scale of operations, the tanning industry largely exists in the small-scale sector with a share of 93% in the total number of tanneries in the organized sector.

### ***Tamil Nadu***

Tamil Nadu has a dominant presence in the leather and leather based industries. The tanning industry in India has a total installed capacity of 225 million pieces of hide and skins of which Tamil Nadu alone contributes to an inspiring 70%. Leather industry occupies a pride of place in the industrial map of Tamil Nadu. Tamil Nadu enjoys a leading position with 40% share in India's export. It currently employs about 2.5 million persons. Leather exports by the end of the year 2000-2001 were Rs. 9000 crores. This translates into exports worth nearly Rs. 102.6 billion (1.844 Billion Euros) from Tamil Nadu - given the major share it has traditionally enjoyed. Govt. of Tamil Nadu offers a special capital subsidy to further encourage the leather industry. TALCO-a state govt. organisation is setting common effluent treatment plants in leather industry clusters.

A recent study by the National Council of Applied Economic Research (NCAER) made a comparison of the incentive packages of all Indian States which reveals that Tamil Nadu offers the most attractive package among industrialized States of India. Tamil Nadu ranks II at the all India level in terms of attractiveness of incentives.

NCAER – Incentives Index



**West Bengal**

West Bengal is one of the country's top states for export of finished leather goods. 70% of the country's leather goods are exported from West Bengal. Bata India Limited is India's largest manufacturer and marketer of footwear products. Bata India sells 60 million pairs of footwear products per year throughout India and in overseas markets such as USA, UK, Europe, Middle East and Far East. Its registered office is at S.N.Banerjee Road, Kolkata. It has 5 plants near Kolkata. Main plant is located in Batanagar near Kolkata. Bata India secures its leather supply from two tanneries in Mokamehghat (Bihar) and Batanagar (West Bengal).

The number of manufacturing industries engaged in leather products is 538. West Bengal Leather Industrial Development Corporation provides market facilities for the leather products manufactured by small scale industries located in the state.

The export market for leather products is very high for good quality leather footwear's and leather crafts and articles. The exports are mainly to European countries as Germany, Italy, UK, France etc.

**Uttar Pradesh**

U.P. is one of the most important states in India holding sizeable population of live stock. Claiming a share of 22% U.P. ranks 1st in case of Buffalo and 11th in case of Cattle having a share of 12%. With regards to Goat and Sheep it has 14th and 11th position respectively. Thus, U.P. has a very strong raw material base and all types of main raw material for leather industry are available.

Major production centers and Number of leather and leather products industries in U.P. are to the tune of approx. 11500 of which Kanpur and Agra are the two famous production centres in the world.

Kanpur is a prominent centre for leather processing. About 200 tanneries are located in Kanpur. Kanpur tanneries specialize in processing hides into heavy leather (Sole, harness and Industrial leather). This is the only centre in India where saddlery products are manufactured. Agra has been the biggest centre for shoe-manufacturing in the country.

Apart from these traditional centers for leather and leather products manufacturing in U.P., NOIDA has recently emerged as another major centre especially for leather footwear and leather garments. NOIDA provides very good infrastructural facilities and establishment of FDDI in NOIDA is expected to promote more footwear. Meerut is another centre for production of sports goods.

The investment opportunities and some typical project profiles are as follows:-

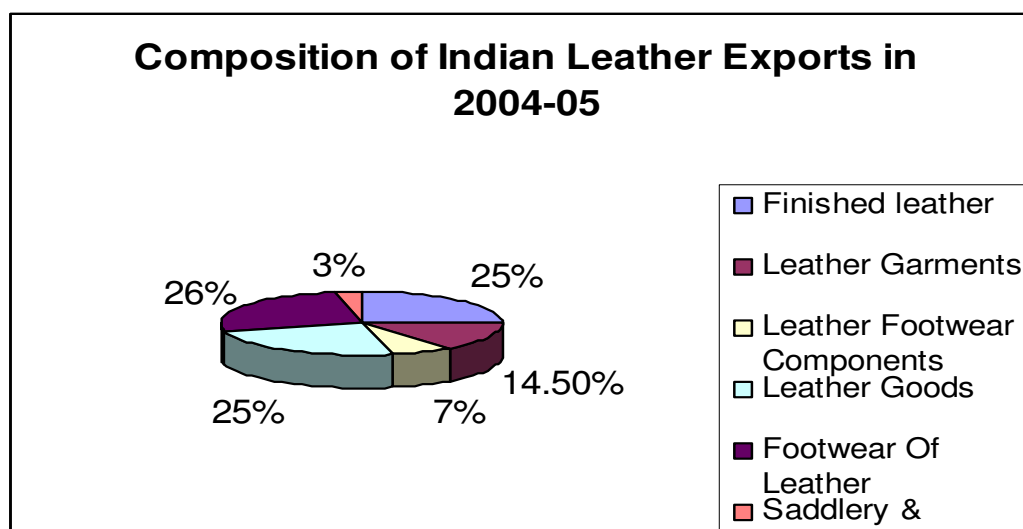
Project	Cost (Rs. in million)	Cost (in million Euros)
Leather Shoes	50.00	0.898
Vegetable Leather Tannery	25.00	0.475
Leather Tannery	80.00	1.438
Polymer Shoe Lasts	152.00	2.732
Leather Shoes, Garments & Saddles	80.00	1.438
Leather Shoe Uppers	35.00	0.629
Finished Leather, Shoes, Garments & Suitcases	420.00	7.551

- **Small & Cottage industries**

It is apparent that the small-scale sector accounts for large processing capacity ranging from 70% to 87% for different leathers. In view of widespread modernization and mechanization of the tanning industry, the role of the cottage sector is fast declining. It is unable to compete with the fast-growing organized sector.

The Tanning industry in India is well developed. It has back up of a strong R&D base, modern technology as well as trained manpower. The unique aspect is that it turns out best possible quality leathers from relatively low quality hides. India annually produces around 1800 million sq. ft. of leather which accounts for 11% of global production. Goat and buffalo based leathers are India's major strength.

The main products made out of leather are footwear, leather garments, leather goods such as handbags, belts, wallets, gloves, sport goods, harness and saddlery, upholstery, etc. Of all these items, it is footwear that consumes about 60% of the total leather production. The manufacture and export of leather products is systematically promoted, as their value addition is 4 to 5 times that of raw materials.



Source: DOGI&S

The industry has a large tanning capacity per day but it utilizes only 60-70% of its installed capacity. The turnover of the tanning of the tanning industry is estimated at Rs.8000-9000 crore (182.35-205.15 crore Euros) for the year 1999-2000. The industry produces about 2 billion sq.ft of finished leather of which only 10-15% valued at Rs. 10543.2 Million (240.32 Million Euro) is exported. The problem relating to effective discharges of effluents which is a WTO compulsion is increasingly threatening the small and medium scale tanneries all over the country. The tanning industry is heavily dependent on indigenous raw hides and skins for its supply of raw materials which is very fragmented. Imports are low despite exemption from customs duties due to high import prices (3-4 times higher) and absence of appropriate machinery to process the imported hides and skins. As international pressures to supply good quality leather products mount, the leather manufacturers would have to increase the use of imported hides and skins to improve the image of Indian Leather and Leather products. In the Indian tanning sector, the tiny units primarily engage in producing semi-finished leather, the small units engage in producing both semi-finished leather and finished leather and the large units are usually fully integrated units.

### **Indian Footwear Industry**

There are nearly 4000 units engaged in manufacturing footwear in India. The industry is dominated by small scale units with the total production of 55%. The total turnover of the footwear industry including leather and non-leather footwear is estimated at Rs.8500-9500 crore (Euro 551.3-1723.1 Million) including Rs.1200-1400 crore (Euro 217.6-253.9 Million) in the household segment. India's share in global leather footwear imports is around 1.4% Major Competitors in the export market for leather footwear are China (14%), Spain (6%) and Italy (21%).

The footwear industry exist both in the traditional and modern sector. While the traditional sector is spread throughout the country with pockets of concentration catering largely to the domestic market, the modern sector is largely confined to select centres like Chennai, Ambur, Ranipet, Agra, Kanpur and Delhi with most of their production for export. Assembly line production is organized, and about 90% of the workforces in the mechanized sector in South India consist of women. In fact, this sector has opened up plenty of employment opportunities for women who have no previous experience. They are trained to perform a particular function in the factory itself.

### **Leather Garments Industry in India**

The second most important product made out of leather is leather garments. Modern factories have been established in the small-scale during the last decade, mostly in the vicinity of urban

areas of Chennai, Bangalore, Delhi and Hyderabad. The leather garment is relatively high leather intensive commodity.

Garments and Goods, these segments are essentially dominated by the small scale sector with Large Scale Industries (LSIs) having a very negligible share of less than 3% in garments. Due to increased export demand, the capacity for the leather garment industry has been rising and is presently 18 million pieces per annum. Production is placed at 12 million pieces per annum with capacity utilization at 60-75% with an aggregate turnover of Rs.2200 crore (399.05 million Euros). The share of leather garments in total exports of leather and leather products has been rising and is presently around 24%, having grown at CAGR of 9%, since 1995-96 to reach Rs. 2104 crore (503.8 Million Euros) in 2000-01. India's import in world import garments is around 11%. Our main competitors are China, Italy and Turkey.

State wise Distribution of Manufacturing Units			
States	Footwear Units	Leather Garments Units + Leather Goods Units	Total
	Factories + Household		
Tamil Nadu	160	598	758
Karnataka	48	40	88
West Bengal	230	436	666
Maharashtra	20	48	68
Andhra Pradesh	128	10	138
Haryana & Punjab	163	8	171
Uttar Pradesh	268	22	290
New Delhi	112	43	155
Others	279	12	291

Source: The All India Skin and Hides Tanners and Merchants Association (AISHTMA)

The industry has production capacity across all key sectors, as shown below:

#### Estimated Production Capacities

ITEM	CAPACITY
Hides	65 million pieces
Skins	170 million pieces
Leather Footwear	909 million pairs
Leather shoe uppers	100 million pairs
Leather Garments	16 million pieces
Leather Goods	63 million pieces
Industrial Gloves	52 million pairs
Saddlery	0.10 million pieces

## Leather Industry Network

An ideal leather industry network would comprise of the following:

- Livestock (Cattle, Buffalo, Goat)
- Slaughter houses
- Raw Hide/Skin Collection
- Tanning Industry
- Leather Industry
- Other Allied Industries
- Export Market

The other small industries that can co-exist within this network are the glue and manure manufacturing industries that utilize the bones and discarded organs of the slaughtered animals respectively. Besides, operating in close co-operation with the slaughter houses are corporations that have built their services and products around the meat-consuming market - processors of meat into various forms of fast food, processed meat transporters, deep freezer manufacturers, cattle feed 'enhancers', drug manufacturers who sell 'meat growth hormones' and antibiotics for cattle and even agribusiness' banks that will give loans only for cattle 'producing'. Not to forget the fast-growing biotech industry.

Other value added product manufacturing industries like Meat-cum-Bone Meal (MBM), Tallow, Bone Chips, Pet Foods and Methane as a source of energy can also exist close to the slaughter houses.

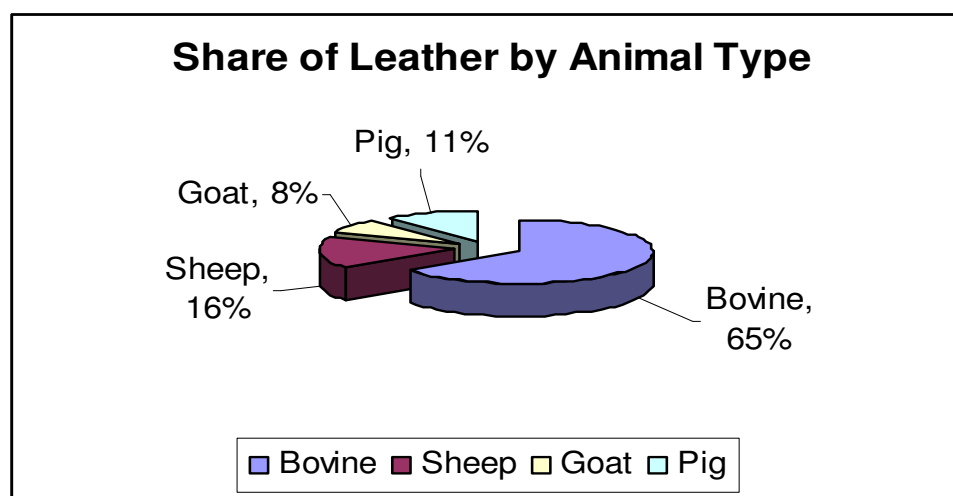
Thus the leather industry network appears to offer numerous possibilities for the establishment of other small enterprises.

## Status of Livestock in India

India is the leading livestock holding country in the world. It ranks first in the case of cattle (including buffaloes), second in goats and fourth in the case of sheep. India has a predominant share of buffaloes. While buffaloes and goats have recorded annual growth rates of 1.86% and 3.11% respectively, cattle and sheep have recorded a marginal growth rate of 0.52%.

Hides and skins are the basic raw materials. Trends in the livestock population and its management; rate of mortality of animals and meat consumption pattern greatly influence the availability of hides and skins.

Cattles, buffaloes, goats and sheeps are the major sources of hides and skins. The other sources are pigs, horses, camels and wild animals such as crocodiles, snakes, foxes, etc. However, processing and use of wild animal skins is prohibited due to ecological reasons.



Source: Industry estimates

Indian's population of livestock, cattle (cows and bulls), buffalo, sheep and goat is constantly increasing. The large population of cattle, buffalo, sheep and goat gives Indian an edge in the international markets of leather and products which are backed by introduction of latest tanning technologies to produce quality leather for the manufacture of many value-added products.

<b>World raw Hides and Skins Production</b>			
<b>Category</b>	<b>Raw Hides and Skins (Metric Tonnes)</b>		
<b>Year</b>	2002	2003	2004
<b>Total</b>	6,535,454	6,806,099	6,667,937
<b>Bovine Hides and Skins</b>			
<b>World</b>	5,895,375	6,147,035	6,018,291
<b>Developing Countries</b>	3,315,001	3,547,112	3,460,311
<b>Developed Countries</b>	2,580,374	2,599,923	2,557,980
<b>Sheep and Lambskins</b>			
<b>World</b>	382,459	390,712	384,932
<b>Developing Countries</b>	202,345	209,020	210,264
<b>Developed Countries</b>	180,114	181,692	174,668
<b>Goat and Kidskins</b>			
<b>World</b>	257,620	268,352	264,714
<b>Developing Countries</b>	243,660	254,120	250,363
<b>Developed Countries</b>	13,960	14,232	14,351

*Source: Compiled from FAO*

- **Hide and Skin Quality**

Raw material quality is a prime concern of tanners the world over. The tanning industry and the downstream industries which it supplies - footwear, furniture, automotive, clothing, leather goods, saddlery - are entirely dependent for their raw material on supplies of cattle hides and sheep skins, plus a small number of goat and other skins. While supplies and quality of hides and skins are vital to the tanning industry, they are just by-products for the meat, dairy or wool industries. For the tanner, the raw hides and skins represent 50-60% of the cost of producing a piece of leather.

In order for many companies in the leather industry to be competitive, they specialize in producing particular types of leather - for example high quality and high performance leathers. However the potential benefits can only be fully realized when the hides and skins available to the industry reach a consistent quality, allowing tanners to buy with confidence that the material will be suitable for the manufacture of leather to meet their target markets.

The quality of leather that the tanner can produce is determined primarily by the quality of the raw hides that he buys. But the quality of the hides cannot be fully assessed until after the hair or wool has been removed, and after the completion of the tanning process when the hide has been turned into leather. The value of the hide depends on the end use to which the leather goes. This eventually has to be reflected in what the tanner pays for his raw material.

The quality of the hide or skin is to a large extent related to the amount of damage to the grain (or "outside") surface. The damage may be due to skin parasites that affect the live animal, related scratch, husbandry practices on the farm or in transport of the live animal (scratches, bruising, or dirt contamination); it may be due to damage during slaughter or removal of the hide; or it may be caused by inappropriate handling or inadequate preservation techniques. Most types of damage can be reduced or avoided altogether by better management of the animal or the hide. IHATIS - the International Hide and Allied Trades Improvement Society is the international organisation that specializes in the improvement of hides and skin quality.

As part of a project funded by the European Commission, a network was developed of researchers into improvement in the quality of hides and skins under the FAIR project. Areas identified for further research and development are a need for further investigation into the operating methods of delivering clean animals to the abattoir without damaging the hide or skin,

optimum methods of minimizing parasite damage to hides and skins, practical and economic methods of identifying hides and skins through the chain from farmer to tanner where quality can be fully assessed, and development and evaluation of quality improvement systems, in order to provide some incentive to farmers and/or abattoirs to reflect much more directly the quality and value of the hide in the price.

- **Care and Handling of Leather**

Leather is a versatile, durable and prestigious material, with a wide range of desirable attributes - such as flexibility, strength, mouldability, breathability, friction resistance and with the possibility of being prepared in a way to be resistant to heat and water.

Leather will retain its appearance and its functional properties if it is correctly handled and maintained. The correct method of care and handling will depend on the type of leather.

## Competitive Advantages of Leather Industry

The leather industry can benefit from several characteristics of the Indian Market and the corresponding advantages they offer.

Some of these advantages are:

1. **Supply side advantages**

- Availability of low cost skilled labour
- Abundance of raw material
- Availability of supporting institutions

2. **Demand side advantages**

- Large and growing domestic market

3. **Regulatory / policy related advantages**

- Government Regulation
- Government Support
- Licensing Policy

- **Supply Side Advantages**

### *Availability of low cost skilled labour*

India's advantage as a source of low cost, skilled labour is quite relevant to industries such as manufacturing of leather goods and footwear that are manufacturing of leather goods and footwear which are relatively labour intensive.

India has among the lowest cost of labour among key footwear producing countries.

<b>Labour costs in leading Footwear producing countries</b>		
<b>Country</b>	<b>Rs./ hr</b>	<b>Euros/ hr</b>
<b>Korea</b>	297.1	7.01
<b>Taiwan</b>	243.4	5.75
<b>Hong Kong</b>	222.85	5.26
<b>Portugal</b>	218.73	5.16
<b>Brazil</b>	61.90	1.46
<b>Indonesia</b>	28.88	0.68
<b>Romania</b>	28.88	0.68
<b>China</b>	24.76	0.58
<b>Vietnam</b>	24.76	0.58
<b>Thailand</b>	20.63	0.48
<b>Pakistan</b>	8.254	0.19
<b>India</b>	8.254	0.19

*Source: SATRA Technology Centre*

In India to low costs, India also has the world's largest technically trained manpower in leather craft. The twin advantages of low cost and technical skills offer India distinct competitive advantages of low cost and technical skills offer India a distinct competitive advantage in this industry.

### ***Availability of Raw Materials***

India is the largest livestock holding country with 21 percent of the large animals and 11 percent of small animals in the world. The large population of cattle, buffaloes, goat and sheep that the country possesses ensures that India has ten percent of the world's raw material base. IN addition, some of the leather available in India is premium quality and much sought after.

### ***Availability of Supporting Institutions***

India has institutions that support the leather industry in specific areas such as product development, design and R & D. These institutions enable capability building in the industry and help it become globally competitive.

#### a) Product development/ design

A design development centre for leather and leather accessories is underway under the joint efforts of the council for Leather Exports and the National Institute of Fashion Technology (NIFT). The design development centre functions from the NIFT campus in New Delhi.

#### b) Research and Development Capabilities

The Central Leather Research Institute (CLRI) is the world's largest leather Research Institute. CLRI today, is a central hub in Indian leather sector with direct roles in education, research, training, testing, designing, forecasting, planning, social empowerment and leading in science and technology relating to leather. State-of-art facilities in CLRI support innovation in leather processing, creative designing of leather products and development of novel environmental technologies for leather sector.

- **Demand side advantages**

### ***Large Domestic Market***

India has a large and growing consuming class (with an annual income of Rs. 20941.36 [376.50 Euro] or above), that constitutes the largest segment of the population today. This segment is estimated to constitute nearly 90 million households by 2006-07, up from just 32.5 million households in 1997-98 – a CAGR of over 12 percent. Coupled with relatively lower penetration levels – penetration levels for footwear has been estimated to be about 60 percent – this represents a large and growing market for leather goods.

- **Regulatory / policy related advantages**

### ***Government Regulation & Support***

The Government of India has announced various initiatives to make the leather more competitive. Key Policy initiatives include:

- De-licensing of integrated tanneries that convert raw hides and skins into finished leather.
- Several leather goods have been de-reserved from the small Scale Sector.
- Free import of raw hides & skins, semi-finished and finished leather.
- Concessional duty on imported machinery and chemicals.
- Free export of raw hides & skins, semi-finished and finished leather and leather products.
- Policies to facilitate modernization / up gradation: In June 2005 the government initiated a Rs. 2788.45 million (50.82 Million Euros) 'modernizing scheme' called the 'Integrated Leather Development Programme', whereby all leather tanning and product units will be

- eligible for modernization assistance. The assistance will be to the extent of 30% of project cost for Small scale industry (SSI) units and 20% for non-SSI units, subject to ceiling of Rs. 4792 thousand per unit (87.36 thousand Euro per unit).
- Setting up of leather parks: An outlay of Rs. 4792.7 million (87.36 Million Euro) for setting up five leather parks – two in Chennai and one each in Nellore, Agra and Kolkata. The Council for Leather Exports has estimated that this scheme will generate a total investment of Rs. 11633.1 million (2120.05 Million Euros) in about three years.
  - Establishment of 'design centres' at individual manufacturing units, to facilitate improvement in design capabilities: Under this scheme, 25 % of the project cost is provided to the units under the market access initiative scheme of the Ministry Of Commerce and Industry. Several individual units have come forward to establish their own design centres.

### **Government Support**

With an eye on the potential of the sector, the Indian Government has placed an emphasis on the Utilization of the available raw materials to maximize returns. It has introduced a number of initiatives, with the special emphasis on integrated development of the tanning sector.

These have included raw material augmentation, technology upgrade, and promotion of environmental cleaner processing options, quality standardization and human skills development. To encourage training of unorganized artisan workers, the Government has given support to well-equipped training institutions to encourage training programmes to be given jointly with reputed foreign enterprises and experts.

### **Licensing Policy**

After de-reservation of 11 items in leather sector, which include semi-finished hides and skins, leather shoes, leather washers and laces, moulded rubber soles and heels for footwear, flexible polyurethane foam, polyurethane shoes soles, show-tacks & eyelets and leather pickers and other leather accessories for textile industry, vide Notification No SO 603(E) dated 29th June, 2001, no industrial license is required for manufacture of most of the items of the leather industry. However, the location of industrial projects will be subject to Central or State environmental laws and regulations including local zoning and land use laws and regulations. Industrial undertakings desiring to set up industrial undertakings for manufacture of these items have to only file an Industrial Entrepreneurs' Memorandum (IEM), in the prescribed format, with requisite fees to Secretariat for Industrial Assistance in the Department of Industrial Policy & Promotion, Government of India, Udyog Bhawan, New Delhi-110011.

Some of the items of the Leather industry viz. leather shoe uppers (closed), leather sandals and chappals, leather garments, industrial leather gloves, leather suitcase and travel goods, leather purses and hand bag, fancy leather goods and novelty items, watch straps and leather straps of all types are still reserved for exclusive manufacture by the small scale sector. Small scale sector units are defined in terms of investment in plant and machinery. Non-small scale units can manufacture these items after obtaining industrial license, which is granted subject to an export obligation of 50 percent production in each year.

### **Leather Technology**

The making of leather is an age-old process. Tanner converts the raw hides and skins of animals into leather. As its simplest, leather is hide or skin which has been treated so that it will not decay, and will last for hundreds of years. Every hide and skin is unique and varies not only from species to species, but even between individual animals. To this natural difference of grain pattern, stretching properties and strength, further features are added which tanners can tailor during processing, such as Colour and softness. The complexity of leather manufacturing becomes apparent.

Leather is turned into a wide variety of articles – footwear, clothing; bookbinding, gloves, saddles, harness, belts, wallets, luggage, bags, gas meter diaphragms, driving belts, gaskets, hydraulic

seals used in aircraft, rocket and underwater craft, upholstery including automobiles, sports goods and many others. Tanners keep the end use very much mind, and since many of the uses are subject to fashion, such features as eye appeal, Colour, texture and drape, while difficult to quality, are essential to success. Using modern techniques of production engineering, tanners must retain the individuality of each skin and, without losing its appeal, produce leather to a degree of uniformity required by customers.

Although the leather industry has a long history, the pace of change has been rapid in the twentieth century, and accelerating in the last decade. The time required to process rawhide or skin to finished leather has decreased from over a year to a matter of days. Quality, variety and consistency of products have improved in response to customer demand.

While remembering its craft past, the leather industry is now firmly established as a technology based in scientific principles. From the early 1900, the scope and depth of knowledge of protein chemistry and of the other natural and synthetic products used in leather manufacture have advanced at an accelerating pace. The Leather Technologies has become familiar with a wide range of pure and applied science, and with the constitution and properties of many types of material.

To produce high quality leather, entrepreneur must understand the nature of the materials used, the way in which they react, the means of controlling the reactivity, and the methods of testing and analyzing the finished product. With this knowledge as a basis, tanners must become familiar with all the practical tanning processes and machinery operation that are necessary to prepare the skins for tanning, the tanning process itself and the many subsequent operations which determine thickness, softness, texture & Colour of leather.

- **Biotechnology for Leather: Towards a Cleaner Processing**

World over leather is made employing technologies which involve processing of skin or hide using large amounts of industrial chemicals and a wide variety of specialty chemical formulations. A large number of the processes involve 'do-undo' operations resulting in severe environmental pollution. The world is compelled to follow this highly polluting 'Chemical Route' in absence of any alternative. This was a great challenge before the scientific community.

Under the New Millennium Indian Technology Leadership Initiative (NMITLI) programme, a paradigm shift has been brought about in beam house operations in leather manufacture through bioprocessing as opposed to the currently used chemical processes. World-class leads have been obtained for an environmentally friendly bioprocessing route for ambient preservation of skin/hide, enzyme only dehairing and defleshing. Specific technology packages for the above are being developed with the user industry for commercialization. The development is poised to change globally, the face of a highly polluting industry forever.

- **Leather Technology Mission**

The Leather Technology Mission (LTM) aimed at development of a technology driven development grid integrating the needs of the decentralized as well as organized sectors.

Major technology initiatives through LTM included resource augmentation efforts through establishment of fallen carcass recovery centers at various locations in the country; animal health care systems aimed at providing better quality skins for the leather sector; engineering inputs through development of prototypes; design engineering packages for establishment of leather complexes; implementation of cleaner technologies viz. less salt curing techniques, ammonia free delimiting, better chrome management, chrome recovery and reuse systems, process control systems. Innovations in human resource development activities have been made to enable skill upgradation of grass root level personnel thus facilitating reaching the unreached segment of the leather sector. New technology initiatives included chemo autotrophic wet air oxidation method and biomethanation. Some of the major outputs of LTM were Fallen Carcass Recovery Unit.

### Fallen Carcass Recovery Units

Low cost and viable fallen carcass centers designed and developed by CLRI has been propagated. 25 centres have been upgraded at various locations in the country. Bankability has been established for processing capacity of 4 animals/day. The technology has been referenced to the social context. A case for propagation phase has been made.

Wide scale technology diffusion of cleaner production methods including cleaner preservation, mechanical/manual desalting, enzyme assisted dehairing, salt less pickling, chrome recovery/reuse and better management of chromium in tannery clusters in Tamil Nadu/Uttar Pradesh/Punjab has been possible.

Microprocessor controlled wet operations have been introduced in Tanneries in UP, Haryana, TN, AP. Six CETP/ETP demonstration units have been established for environmental sustainability. More than 250 tanneries throughout the country have benefited. Benefits accrued are reduction in BOD/COD by 35%, sulfide reduction by 50%, 20% reduction in hydraulic load, 25-30% reduction in TDS levels in tannery waste water.

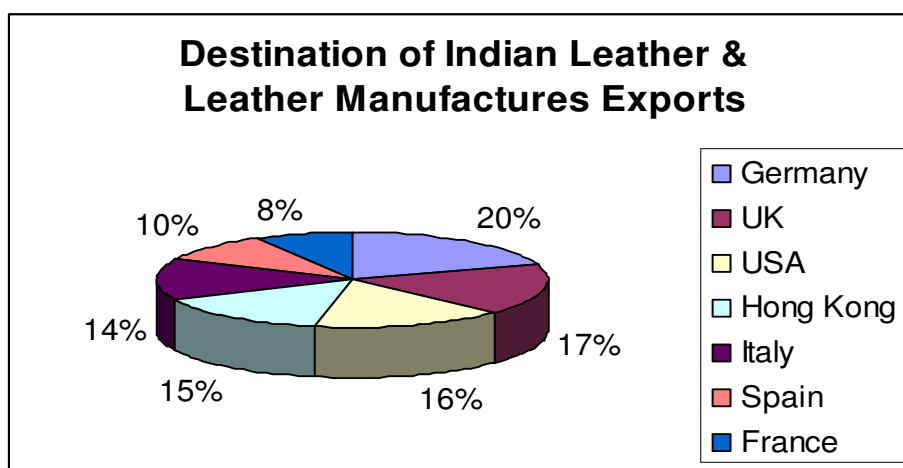
### Export Potential in Leather industry

India is a major exporter of leather and leather products. It accounts for 2 percent of world trade in leather and leather related products and 10 percent of leather raw material available in the world. Leather exports account for 7 percent of India's export basket. US and some European countries together account for 80 percent of India's leather products exports. New market being developed includes South Africa, Australia, New Zealand, Canada, Japan, Spain, Portugal, and Saudi Arabia.

The notable feature of our export performance is the change that has taken place in the export pattern in favour of high value added items, a development in consonance with the export policy. In the 1960s, exports were more in the form of raw materials. In the early 1980s exports were in the form of finished leathers. And, in the 1990s and beyond the target is in favour of fully fabricated products.

Five types of leather products exported from India are Leather Footwear, Footwear Components (Shoe Upper, Soles, etc.), Leather Garments, Leather Goods (including Harness & Saddlery, Leather Gloves, etc.) & Finished Leather.

The major customers for India's export are Germany, USA, Italy, UK, Spain and France. In recent year, Hong Kong has emerged as a large importer of leather. Around 70% of the global imports of leather products are accounted for by Western Europe and North America. USA is the largest importer of all kinds of leather products, accounting for about 25% of the global trade. Germany is the second largest importer of leather products in the world.



Source: RBI & DGCIS

Italy, Portugal, Spain, Czechoslovakia and Romania are potential competitors from the European region. Though these countries enjoy the advantages of easy access to the West European market, rising labour costs is the limiting factor. However, the former East European countries are trying to consolidate their position slowly. Their unfamiliarity with the market mechanism is their major drawback.

In the Asian region, countries like South Korea and Taiwan are still continuing their activity, but in a different style. In view of the high labour costs, they are relocating their production bases and consolidating their hold on the market. The real competitors for India are China, Indonesia, Turkey and Thailand. These countries enjoy favorable labour costs and congenial industrial and investment climate, though they may not have significant raw material base of their own. However, current global trade favours import of hide and skins, and their processing in any part of the world. Countries like Bangladesh, Sri Lanka, Nepal and a few African countries may be future competitors for India. They have consolidated their gain in the tanning sector, and are slowly penetrating the products market.

The global market for leather products is estimated at Rs. 2781.4 bn (50.45 Billion Euro). Of the various items, the market for upholstery is growing fast, while the market for leather goods is likely to remain stable.

<b>Trend in World Trade in Leather and Leather Products and share of India and certain other competing countries 2000-2004</b>										
<b>Values in Rupees &amp; Euro in Billion</b>										
<b>Year</b>	<b>2000</b>		<b>2001</b>		<b>2002</b>		<b>2003</b>		<b>2004</b>	
	<b>Rs.</b>	<b>Euro</b>	<b>Rs.</b>	<b>Euro</b>	<b>Rs.</b>	<b>Euro</b>	<b>Rs.</b>	<b>Euro</b>	<b>Rs.</b>	<b>Euro</b>
<b>World Import</b>	3467.53	83.53	3801.21	90.48	3988.30	87.94	4190.33	80.24	4795.39	85.44
<b>Export from India</b>	88.04	2.12	91.30	2.17	91.32	2.013	103.39	1.980	116.90	2.083
India's share in world import%	<b>2.54%</b>		<b>2.40%</b>		<b>2.29%</b>		<b>2.47%</b>		<b>2.44%</b>	
<b>Export from China</b>	616.17	14.84	692.87	16.49	787.02	17.35	670.93	12.84	1054.54	18.79
China's share in world import%	<b>17.77%</b>		<b>18.23%</b>		<b>19.73%</b>		<b>21.42%</b>		<b>21.99%</b>	
<b>Export from Italy</b>	550.93	13.27	618.96	14.73	630.28	13.89	670.93	12.84	758.2	13.51
Italy's share in world import%	<b>15.89%</b>		<b>16.28%</b>		<b>15.80%</b>		<b>16.01%</b>		<b>15.81%</b>	
<b>Export from Brazil</b>	108.84	2.62	123.38	2.93	124.86	2.753	129.62	2.482	162.49	2.895
Brazil's share in world import%	<b>3.14%</b>		<b>3.25%</b>		<b>3.13%</b>		<b>3.09%</b>		<b>3.39%</b>	
<b>Export from Romania</b>	37.64	0.906	49.94	1.188	61.69	1.360	72.80	1.394	82.11	1.463
Romania's share in world import%	<b>1.09%</b>		<b>1.31%</b>		<b>1.55%</b>		<b>1.74%</b>		<b>1.71%</b>	
<b>Export from Korea Rep</b>	110.56	2.66	101.87	2.42	89.06	45.35	75.94	1.454	77.99	1.389
Korea's share in world import%	<b>3.19%</b>		<b>2.68%</b>		<b>2.23%</b>		<b>1.81%</b>		<b>1.63%</b>	
<b>Export from Indonesia</b>	86.22	2.077	81.94	1.95	63.79	1.406	61.84	1.184	73.20	1.304
Indonesia's share in world import%	<b>2.49%</b>		<b>2.16%</b>		<b>1.60%</b>		<b>1.48%</b>		<b>1.53%</b>	
<b>Export from Taiwan</b>	68.43	1.64	61.91	1.473	63.31	1.396	58.22	1.115	60.32	1.074
Taiwan's share in world import%	<b>1.97%</b>		<b>1.63%</b>		<b>1.59%</b>		<b>1.39%</b>		<b>1.26%</b>	

**Source : International Trade Centre (ITC), Geneva**

According to the statistics available from the Council for Leather Exports (CLE), export of footwear, both leather and non-leather, has made a significant growth in recent times but the export of leather garment has declined.

Exports of leather and leather products have increased by 13.02 percent in rupee terms and 7.42 percent in dollar terms during the first half of 2006-2007.

Exports jumped to Rs 6,844.63 crore (1190.78 million Euros) during April-September 2006, from Rs 6,056.25 crore (1053.62 million euros) in the previous fiscal year.

Leather footwear exports were up to Rs 2,075.85 crore (361.14 million Euros) from Rs 1656.72 crore (288.22 million Euros).

CLE expects exports to cross Rs. 137.76 billion (2.39 Billion Euros) mark in 2006-07. The target for 2010-11 is Rs. 321.44 billion (5.592 Billion Euros).

EXPORT OF LEATHER AND LEATHER PRODUCTS FROM INDIA DURING APRIL- SEPT 2005 VIS-A-VIS APRIL-SEPT 2006					
CATEGORY	Value in Million Rs		Value in Million Euro		% VARIATION
	APR-SEPT 2005	APR-SEPT 2006	APR-SEPT 2005	APR-SEPT 2006	
FINISHED LEATHER	14055.05	15361.84	257.41	267.25	9.30%
LEATHER FOOTWEAR	16567.24	20758.56	303.42	361.14	25.30%
FOOTWEAR COMPONENTS	4411.90	5087.74	80.804	88.513	15.32%
LEATHER GARMENTS	8164.28	7719.16	149.52	134.29	-5.45%
LEATHER GOODS	14522.81	16206.05	265.98	281.94	11.59%
SADDLERY AND HARNESS	1729.97	1738.13	31.684	30.238	0.47%
NON-LEATHER FOOTWEAR	1111.25	1574.82	20.352	27.397	41.72%
<b>TOTAL</b>	<b>60562.50</b>	<b>68446.30</b>	<b>1109.20</b>	<b>1190.78</b>	<b>13.02%</b>
<i>Source : DGCI&amp;S</i>					

## Economic Issues

In the overall food chain, the positive economic importance of the industry taking care of one of its major waste products should not be underestimated or marginalized. As the tanning industry is sometimes criticized on environmental grounds, ponder the alternative hazard of millions of dumped, putrefying hides and skins. Whoever it was who first thought of preserving hides and skins did mankind a tremendous service.

The leather industry in total produces about 18 billion square feet of leather a year, and the total value of this is estimated at about Rs. 1766 billion (32.03 Billion Euros). If the by-product of the meat industry, hides and skins, was not used to produce this quantity of leather, then, for example, shoes and upholstery would be manufactured from alternative, non-renewable raw materials such as plastics and other petrochemical based products. Developing countries now produce over 60% of the world's leather, and this proportion is growing.

About 65% of the world production of leather is estimated to go into leather footwear and the global production of footwear is estimated at around 11 billion pairs (worth an estimated Rs. 6622.5 billion [120.12 Billion Euro] at wholesale prices).

The value of leather products at retail level would be commensurately higher - and the value of products containing leather, if one counts automobiles and aircraft, would be substantially greater than a straight proportion of the footwear value. The value of leather produced for the automotive industry has been calculated at Rs. 59602.5 Million (1081.12 million Euros) internationally.

## Social issues

- **Employment to the people**

India's leather industry employs 1.7 million people and helps the socially-disadvantaged, known as Scheduled Castes in officials, earn a livelihood. And even though India has a cattle population of 195 million – the world's largest – cows provide only 10.8 percent of hides. The rest are derived from goat and sheep. The fear is that the campaign against Indian leather will embrace these animals too.

The exclusion of disadvantaged social groups from full participation in the opportunities of society lies central to the existence of child labour in slaughter House and allied activities, as there is a substantial concentration of certain religious and caste groups.

<b>Labour Costs and Production Costs in Selected Countries</b>				
<b>Country/Region</b>	<b>Labour Costs</b>	<b>Total Production Costs</b>	<b>Labour Costs</b>	<b>Total Production Costs</b>
	<b>Rs./hr</b>	<b>per pair of Oxford Shoes</b>	<b>Euro/hr</b>	<b>per pair of Oxford Shoes</b>
<b>India</b>	8.254	528.25-713.97	0.19	12.47-16.86
<b>China</b>	24.76	528.25-712.97	0.58	12.47-16.86
<b>Romania</b>	28.88	528.25-713.97	0.68	12.47-16.86
<b>Philippines</b>	165.08	528.25-713.97	3.89	12.47-16.86
<b>Italy</b>	590.161	961.5	13.94	22.71
<b>France</b>	854.28	1258.7	20.18	29.73

**Source:** UNIDO, December 11, 2000 "Structure and Production Costs in Footwear Manufacture, Prepared by F. Scheme for the 14 Session of the Leather Products Industry Panel.

- **Child Labour**

The Leather Industry is Labour intensive and is concentrated in the small and cottage industry sectors. While leather shoes and uppers are concentrated in large scale units, the sandals and chappals are produced in the household and cottage sector. The processes in the footwear making include last making, pattern cutting, clicking, sewing Assembling and finishing. There is no gender selectivity in child labour. Adults earn wages that are only marginally higher than what the children earn. Irrespective of the experience, skill and family size and requirements the wage payment system remains insensitive and relatively inelastic. Children contribute 20 to 40 per cent of the family income. The labour in the leather industry is defined by the caste location. While market forces predominantly govern all other aspects of the industry, the labour is drawn exclusively from the most downtrodden section. As heads of 60 per cent of the households are engaged in leather work, the leather sector study establishes the incidence of child labour in leather flaying as an intergenerational phenomenon.

Children between 10 & 15 yrs. old are mainly employed in assembling shoes. Some 80% of the children work for contractors at home. Children work on soling (fixing upper portions of shoes to leather or rubber soles) with glue. Children in cramped poorly lit rooms suffer from continuous skin contact with industrial adhesives & breathing vapors from glues. The children working in the footwear industry are exposed to physical factors like poor illumination, noise & poor ventilation and chemicals like leather dust, benzene that is used as a solvent in glues and p-tert. Butyl phenols, which is used in neoprene adhesives. Thus most children suffer from respiratory problems, lung diseases and skin infections through constant exposure to glue and fumes. They are also exposed to risk of nasal cancer, neurotoxicity and adverse physical factors. In addition to the general hazards of child employment in leather industry, the specific hazards for single migrant child labour of slaughterhouses consist in their being exposed to all kinds of weather conditions, occupational Injuries and diseases, the detrimental impact of watching the slaughtering of cattle continuously and the lack of sanitary facilities which makes the children to suffer from psychological problems.

- **Women Employees**

Women are employed in large numbers in Indian leather industry and are making important contribution to the national economy as well as to exports. Women are involved in footwear production in Athani (Karnataka), Rajasthan, Agra (UP) and Chennai, Ambur, Ranipet and Vaniambadi (Tamil Nadu). Their entry into productive work has helped considerably in improving their household situation. With the 'take off' of the footwear industry, especially in the last 20 years and the rapid rise of exports, women's employment has increased.

The leather industry has been designated as a **hazardous industry** under the Factory Act 1948, and has a mandatory requirement of formal approvals for expansion. It has been observed that formal units expand and set up illegal units, where the bulk of women workers, especially dalit women are found. Women are not documented as 'workers' on any official records. Therefore, they are not legally entitled to any compensations or benefits. These women are recruited through contractors and are engaged in all stages of the tanning process. Their tasks are time consuming, backbreaking and the most hazardous.

The present study and other studies -indicate that, prolonged contact with chemicals used in the leather industry leads to problems such as dermatitis, loss of hair on the head, conjunctivitis, nervous disorder, itching of skin and throat mucous membrane, chest pain, ulcer, breathing problems, asthma, bronchitis, fissure in fingers, toes, mouth and nose, frequent fever, headache and stomach upsets. Specific gynecological problems faced by women workers are: menstrual disorders; premature death, still births and prolapsed of the uterus.

## **Environmental issues**

The leather industry has been traditionally considered as a heavy polluting industry in the tanning and finishing stages of the chain. Pesticides, chemicals and organic materials are the main sources of pollution. Chrome is the most dangerous and long-lasting chemical pollutant. Others are sulphides and solvents. Additionally the industry emits protein residues in the form of putrescible organic materials and its disposal is one of the tanners main problems since about 50% of the original hides and skins is not converted to leather and is left as solid waste (UNIDO 1993).

- **Odour**

The tropical climate of our country enhances the process of degeneration of any tissue material remaining as a waste in the premises of the slaughter houses. Therefore, the slaughter house premises always give a particular stink. In order to avoid this stinking odour proper ventilation of slaughtering halls, washing of the floors with non-poisonous disinfectants and if need be use of aerobic deodorants must be provided at each slaughter house.

## **Tanneries**

Tanneries harbour the greatest risk potential for the environment. This is due on the one hand to the considerable odour nuisance and on the other to the dyes and other chemicals (particularly chromium compounds) used in the tanning process which complicate the wastewater treatment operation. And there is also biological pollution. Besides a substantial impairment of the quality of the nearby surface waters, an enrichment of the hazardous substances in the soil, and possibly also in the groundwater must also be expected.

Odours in tanneries have various origins. They mainly originate from the putrefaction of hides, skins, trimmings and fleshings, from the release of hydrogen sulphide from sulphides used in processing, and from the use of volatile organic compounds (VOCs). They can also occur in the wastewater treatment both in effluent processing and in sludge de-watering.

- **Effect on Groundwater**

Most parts of India are facing anthropogenic groundwater pollution. Such types of pollution are mainly enrichments of various chemical parameters such as nitrate, hardness, metallic trace elements and microbiological organisms. The overexploitation of groundwater in some parts of the country induces water quality degradation. Untreated industrial effluents discharged on the surface cause severe groundwater pollution in the industrial belt of the country. This poses a problem of supply of hazard-free drinking water in the rural parts of the country. More than 50% of the tanneries in the country exist in Tamil Nadu. There are about 80 tanneries operating in and around Dindigul town in upper Kodaganar river basin, Tamil Nadu. The untreated effluents from these tanneries have considerably affected the quality of groundwater in this area.

Pollution of water resources, both surface and underground, by indiscriminate discharge of spent wastes of chromium-based industries has become a serious global concern, for it has created an acute scarcity of safe drinking water in many countries.

Wastes and chemicals released to water system are the main pollution concerns for the leather industry. They are produced during washing, dehairing and tanning of the leather.

The washing of skins removes dirt, salt and some organic matter from the raw material. Lime and sulfides are used to dehair the skins. The water discharge from turnover is called Raw Effluent.

The Indian government has numerous laws in place that effect the leather industry. Although compliance is effective achieving the required norms of total dissolved solid from the tannery effluent is a problem. The common effluent plants have been established in all areas of where tanneries are clustered.

The TDS in Tannery effluent is high because common salt is widely used practices for preserving raw hides and skins all over the world. The only viable Technology available for reaching the TDS norms is reverse osmosis (RO). Some of the large Tanners have established the RO plants at their own cost at their treatment plants and these are operating well.

Apart from meeting discharge standards, these also help tanners to recover water, a very valuable commodity in Tamil Nadu. Given the fact that most of the tanneries are in small scale sector and are already connected to the common effluent treatment plants for treatment of their waste water, The RO Plants are being installed in the common Facilities.

The Tanning Industry in India has adopted the "Zero Liquid discharge " concept by implementing the reverse osmosis system in all CEPTS/IETPS.

#### **Leather Industry: Wastewater Discharge Standards**

Parameter	Concentration in the effluents not to exceed, mg/l (except for pH and per cent sodium) Mode of disposal			
	Inland surface water	Public sewer	Land for irrigation	Marine coastal areas
Suspended solids	100	600	200	100
BOD, 3 days at 27 OC	30	350	100	100
pH	6.0 to 9.0	6.0 to 9.0	6.0 to 9.0	6.0 to 9.0
Chlorides as (Cl)	1000	1000	600	-
Chromium (VI)	0.1	0.2	0.1	0.1
total	2.0	2.0	2.0	2.0
Sulphides (as S)	2.0	5.0	-	5.0
Sodium percent	-	60	60	-
Boron (as B)	2.0	2.0	2.0	-
Oil & grease	10	20	10	20

Source : (Environmental Protection Agency) EPA Notification [S.O. 64(E), dt. 18th Jan; 1988]

- **Bio-accumulation of Chrome**

The presence of chromium in the effluent is a major concern for the tanning industry. Currently, chemical precipitation methods are practiced for the removal of chromium from the effluent, but that leads to the formation of chrome-bearing solid wastes. The other membrane separation and ion exchange methods available are unfeasible due to their cost.

- **Noise Pollution**

In course of the surveys in tanneries, the experts measured **noise pollution** and pin-pointed the respective sources. Together with the concerned tanners, low-cost noise reducing devices e.g. noise baffles for locally made tanning machines, low noise emitting gears on tanning drums, were designed and trials conducted in tanneries in India. Once accepted by the tanners, these solutions were presented to tanners in the other countries inviting them to replicate. For example, drum pinions made of Teflon or nylon with up to 70% reduction of noise levels are installed in tanneries in India, Indonesia, Nepal and Sri Lanka, following the successful trial runs in two Indian tanneries.

## **Research Institution and Associations**

- **Central Leather Research Institute (CLRI)**

The World's largest Leather Research Institute was founded on 24 April, 1948. CLRI made an initiative with foresight to link technology system with both academy and industry. CLRI, today, is a central hub in Indian leather sector with direct roles in education, research, training, testing, designing, forecasting, planning, social empowerment and leading in science and technology relating to leather.

State-of-art facilities in CLRI support innovation in leather processing, creative designing of leather products viz. leather garment, leather goods, footwear and development of novel environmental technologies for leather sector.

(<http://www.clri.nic.in>)

- **Council for Leather Exports (CLE)**

The Council for Leather Exports was set up in July 1984. A non-profit company registered under the Indian Companies Act, 1956, the Council functions under the Ministry of Commerce, Government of India. The Council is entrusted with export promotion activities and overall development of the Indian leather industry.

The Council's activities also include promoting Foreign Direct Investments and Joint Ventures in the Indian leather industry. The CLE serves as a bridge between Indian leather exporters and buyers all over the world.

(<http://www.fibre2fashion.com>)

- **People for Ethical Treatment of Animals (PETA)**

**PETA** has more than 800,000 members and with offices in the United States, England, Italy, Germany and Mumbai, is the largest animal rights organization in the world.. PETA India, based in Mumbai, was launched in January 2000.

PETA India operates under the simple principle that animals are not ours to eat, wear, experiment on or use for entertainment, educating policymakers and the public about animal abuse and promoting an understanding of the right of all animals to be treated with respect. ([www.petaindia.com](http://www.petaindia.com))

- **International Council of tanners (ICT) (UK)**

The worldwide organisation for producers of leather

The purpose of International Council of Tanners is to promote the interests of the leather industry internationally, and in particular: to provide for an interchange of views amongst members (ie. National associations of leather producers in membership with the ICT) on matters affecting the leather industry. (<http://www.tannerscouncilict.org>)

- **International Council for Hides Skins & Leather Traders Associations (ICHSLTA)**

The International Council of Hides, Skins and Leather Traders Associations, ICHSLTA, represents the interests of the hide, skin and leather trades of more than thirty countries. It is the only international recognized body of its kind.

Founded in 1929 as a non-political organisation, its principal object is the promotion, development and protection of the international trade in raw hides, skins and leathers. It's success is reflected in the growing number of member countries.

Central to the work of the council is the drafting, publishing and constant revision of the international series of contracts which ensure the integrity of the trade, affording both maximum protection to both buyers and sellers. In this work ICHSLTA negotiates regularly with the International Council of Tanners to ensure accord on an unbiased set of rules for the civilized and fair conduct of the trade internationally. (<http://www.ichslta.org>)

- **International Union of Leather Technicians and Chemists (IULTCS)**

The International Union of Leather Technologists and Chemists Societies is founded for the purpose of encouraging the technology, chemistry and science of leather on a worldwide basis and arranging meetings for the national leather technologists and chemists associations of the world.

The **aims** of the Union are:

- To establish and maintain regular contact and effective co-operation between Member Societies, Associate members and Supporting members and any other national and international bodies which are relevant to the leather industry.
- To hold and organise Congresses, conferences, meetings and the like.
- To form International Commissions and Study Groups (IU Commissions and IU Study Groups):
  - For the study of common and special problems relating to the technology and science of leather
  - For the development of international methods (IU methods) for sampling and testing of leathers and of materials used in the leather industry and for the control of leather manufacture
- To approve IU methods recommended by the IU Commissions- To promote the correct use of these IU methods and support the adoption of them as ISO and country Standards. (<http://www.iultcs.org>)

- **National Leather Development Programme (NLDP)**

A UNDP-assisted National Leather Development Programme (NLDP Phase-I) has been executed by the Department from 1992 to 1998. The UNDP had contributed about US \$ 17 million for the Programme. The Government of India provided counterpart funding of about US \$ 11.065 million. The Programme was aimed at integrated development of leather industry through selected institutions/agencies in the country. The Programme was successful in upgrading training systems for design and manufacture of footwear, garments and leather goods. Research and Development work has got a fillip under the Programme. The response from the artisan

community and small enterprises clusters has been very encouraging towards the Programme. (<http://www.undp.org>)

- **The All India Skin and Hide Tanners and Merchants Association, Chennai (AISHTMA)**

**Apex institution of leather industry (<http://www.aishtma.com>)**

This apex body of the tanning industry in India based in Chennai has three categories of members, namely, Associations of Tanners, Common Effluent Treatment Plants and individual tanners and merchants. At present, there are about 700 members from all over the country and membership keeps changing every now and then as members who fail to renew the membership are removed from the membership. As the custodian of leather industry AISHTMA is “charged with the responsibility of promoting the interest of tanning industry, leather trade and other allied trades and industries”, this is the main organization providing the link between the industry and trade on the one side and central and state governments on the other side. This 82 year old Association has been headed by stalwarts of leather industry from time to time.

- **Indian Leather Industry Foundation (ILIFO)**

Yet another Association promoted by the industry with the basic objective of providing pollution related services to the industry. It trains people in skills of running effluent treatment plants put up by tanneries. It has conducted an awareness programme in Ambur on workers’ safety and occupational health hazards.

- **National Environmental Engineering Research Institute (NEERI)**

All the CETPs in the leather sector are heavily depending upon NEERI and CLRI to overcome the problems faced by them in day-to-day operation and maintenance of the plants. They have also sought the help of NEERI to find a solution to vexatious problem of high TDS. For this purpose, the industry contributed more than Rs.4.00 crores to these organisations and the contribution of Ambur was more than Rs. 50.00 lakhs. Under this scheme, a team of scientists from NEERI and CLRI camped in Ambur for more than 6 months. The CLRI team propagated cleaner technologies in tanneries and the NEERI team modified the treatment processes in the CETP. It has also put in place the High Rate Transpiration System (HRTS) in the CETP to solve the TDS problem. The system is under trial.

## **SWOT Analysis of Indian Leather Industry**

SWOT analysis for leather sector based on the information already provided in this section is given below.

### **STRENGTHS**

- Existence of more than sufficient productive capacity in tanning.
- Easy availability of low cost of labour.
- Exposure to export markets.
- Managements with business background become quality and environment conscious.
- Presence of qualified leather technologists in the field.
- Comfortable availability of raw materials and other inputs.
- Massive institutional support for technical services, designing, manpower development and marketing.
- Exporter-friendly government policies.
- Tax incentives on machinery by Government.
- Well-established linkages with buyers in EU and USA.

## WEAKNESSES

- Low level of modernisation and upgradation of technology, and the integration of developed technology is very slow.
- Low level of labour productivity due to inadequate formal training / unskilled labour.
- Horizontal growth of tanneries.
- Less number of organised product manufacturers.
- Lack of modern finishing facilities for leather.
- Highly unhygienic environment.
- Unawareness of international standards by many players as maximum number of leather industries are SMEs.
- Difficulties in accessing to testing, designing and technical services.
- Environmental problems.

## OPPORTUNITIES

- Abundant scope to supply finished leather to multinationals setting up shop in India.
- Growing fashion consciousness globally.
- Use of information technology and decision support software to help eliminate the length of the production cycle for different products
- Product diversification - There is lot of scope for diversification into other products, namely, leather garments, goods etc.
- Growing international and domestic markets.

## THREATS

- Entry of multinationals in domestic market.
- Stiff competition from other countries.(The performance of global competitors in leather and leather products indicates that there are at least 5 countries viz, China, Indonesia, Thailand, Vietnam and Brazil, which are more competitive than India.)
- Non- tariff barriers - Developing countries are resorting to more and more non – tariff barriers indirectly.
- Improving quality to adapt the stricter international standards.
- Fast changing fashion trends are difficult to adapt for the Indian leather industries.
- Limited scope for mobilising funds through private placements and public issues, as many businesses are family-owned.

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### **Asia Pro Eco Programme**

Is a five years programme launched by European Union in 2002, The main target is to adopt policies, technologies, and practices that promote cleaner, more resource efficient, sustainable solutions to environmental problems in Asia. The programme provides support through grants to policy reinforcement, operational and practical dialogue, diagnostic studies, technology partnership and demonstration projects, in the field of environment. The programme supports non profit organizations from EU and Asia.

### **About SINET**

The aim of sustainable industrial network and its application on micro regional environmental planning is to interpret and adapt an understanding of the natural system and apply it to the design of the man-made system, in order to achieve a pattern of industrialization that is not only more efficient, but which is intrinsically adjusted to the tolerances and characteristics of the natural system. An industrial system of this type will have built-in insurance against environmental surprises, because their underlying causes will have been eliminated at the design stage. A micro-region is a distinct territorial unit with clearly marked boundaries below the regional level, but above the village level. Micro-regional environmental planning attempts to coordinate the planning activities of the various actors within a limited territorial unit.

The project will look at analyzing and documenting various success and failure stories of industry networks from Sweden/Europe and India/Asia, and to ascertain their impacts on environment and sustainability aspects of the respective micro regions. Emphasis will also be placed on creating awareness on the influence of industry network (key economic activity) on the micro region's environmental and sustainability aspects.



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