Future Trends in the World Leather and Leather Products Industry and Trade

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Foreword

This report assesses the worldwide prospects of the leather and leather products industry in the coming decade. It examines the major underlying trends of recent years and how they are expected to evolve in the short to medium term. In its attempt to provide a thorough picture of the leather sector, the report covers its various aspects: the availability of raw material, the tanning industry, and the manufacture of footwear and other leather products. The basic intention is to help discern prevailing trends in global trade and to support efforts to design an effective role for organizations in the industrial development arena. The findings and forecasts published here are meant to be indicative rather than definitive and to form a basis for further surveys and studies.

The need to compile this report arose out of the 16th session of the UNIDO Leather and Leather Products Industry Panel held in Brazil in May 2007. The panel recommended that UNIDO undertake a comprehensive study on the future development of the world leather and leather products industry, a study that would cover demand, technology, production, and trade. Consequently, the UNIDO study provides an analysis of the contemporary demand for leather products (footwear, leather goods, gloves, leather garments, sports goods, upholstery, etc.) vis-à-vis the availability of resources (raw hides and skins, manufacturing capacities, skilled labour, knowledge, support industries, and services). It also contains information on other important aspects of the leather industry: trade statistics, the geographic distribution of production, technology developments, physical infrastructure, environmental conditions, and social aspects involved in the production of leather.

This report is a follow-up to *Worldwide Study of the Leather and Leather Products Industry,* which was the outcome of an exhaustive survey carried out by UNIDO in the 1970s. It is intended to assist the Organization in the formulation of future assistance programmes and in detecting areas where further study of various kinds may be useful.

For this type of study, it is no longer enough to track the trends of recent years and to predict their future course. There are distinct areas of potential discontinuity that need to be taken into account. One is the fact that the world population is still growing rapidly, and when this is combined with issues of climate change and other environmental concerns, it is clear that trends have to be predicted tentatively, taking into consideration possible drastic changes. Issues of population growth and climate change have inevitable implications for livestock, as eating habits change with development and land for rearing animals becomes scarce. A second factor that needs to be taken into account is the rise of the so-called BRIC economies (Brazil, Russia, India, and China). Their dominant position in the labour-intensive textile and leather industries makes it difficult for other countries to follow the development path taken by most Asian nations in the past 50 years. While this report attempts to treat these questions in some detail, some of the consequences of recent changes are still unforeseeable. Nevertheless, the findings in this study are expected to be useful to all those involved in setting priorities for the years ahead and in dealing with current and future problems.

Notes on statistics and sources

A great deal of help was required in the preparation of this report. While all sources are identified in the text and in References, the main contributors are listed in Appendix A.

The statistical compendium of the Food and Agriculture Organization of the United Nations (FAO) was the data foundation upon which most of this report has been built. Additional information came from the International Council of Tanners (ICT), the Confederation of National Associations of Tanners and Dressers of the European Community (COTANCE), the Shoe and Allied Trades Research Association (SATRA) and other national and international organizations. Individual experts have also provided their findings and views, and such contributions are acknowledged wherever necessary.

In spite of all these efforts to obtain accurate data, the complexity of an industry whose raw material comes from farms and homesteads throughout the world, and whose data is collected irregularly, or not at all, is enormous. Moreover, the mere fact that the raw material is measured – approximately – by weight and sold by square feet after various layers of matter have been removed makes measuring leather production in the world a rather daunting task.

Numerous associations have import and export data, but surprisingly little information on any other aspects of the business. Marketing companies publish extensive surveys at country level, but these reports are expensive, and they tend to focus on sales and investment opportunities rather than on manufacture.

In some parts of the world, it is almost impossible to obtain reliable data on the leather goods and leather clothing markets. Partly due to time constraints, putting together a complete picture of these markets proved to be an elusive task. A better sense of the global situation may be gained by relating the information on the imports and exports of the USA and the main European markets to the exports of major suppliers, such as China and India. Even then, the reporting categories fail to cover the leather items and the part-leather items accurately. And while there are also some very good reports on individual markets from organizations such as the Market Information Database of the European Union (CBI), this report does recommend some changes in taxonomy and recording that would improve the available statistics.

Many footwear production surveys omit the 1 billion pairs of chappals (thin leather sandals) manufactured and sold in India. The chappal industry is a significant consumer of leather as well as a lucrative business both in India and abroad. In 2005 alone, the chappal industry chalked up exports worth US$122 million. This report includes the manufacture of chappals in the global footwear production and its calculations of market share, etc. Therefore, the figures published here might differ from those provided by other sources.

As mentioned already, more information is available on imports and exports than on production. There is also considerable confusion caused by the trade in partly processed material. Smuggled goods are also an issue, mostly in finished products, but the practice now appears to be on the rise at all stages of the value chain. For example, in Africa and in South America, it is apparent that there is considerable illegal movement of raw material across borders.

Furthermore, the duties applied by the EU on imports from China have led to avoidance, which also distorts the figures. Part processing, transshipping via Macau, and changes in product category have been quite common. If one adds to all this the inestimable, but substantial black market in counterfeits of leather products, it becomes clear that a good amount of statistical data can only be estimates.

Nonetheless, the available data is still considered useful as it provides the industry and other interested parties with relevant information needed in decision making. Some inconsistencies will be noted in the data on total volumes and end uses of leather; they are the result of using different sources at different times. Although some figures vary from source to source, the general scale remains the same and therefore conclusions can be regarded as valid.

Comparisons of production statistics should be treated with some caution since statistical bases vary from country to country. Nevertheless, this does not invalidate the general ratios and the trends indicated in the report.

Three experts in different areas of the industry have been the main contributors to this undertaking; therefore, some overlap was inevitable. For example, each of them approached the dominance of China and its implications in a slightly different way, although their conclusions are very similar; this created a measure of repetition in the report and extended its length, but the reader gains a better understanding of the issues and of how various sectors of the industry views them.

Appendix B provides some information about clusters. This is a complex subject with imprecise terms and definitions, but the report does wish to acknowledge the significant advantages that can be drawn from various types of agglomerations of similar industries.

This report has only dealt with trends in leather and leather products manufacture and trade. There are several industries associated with the leather sector that also need to be considered. These industries supply software, machinery, components, and chemicals, and they themselves have undergone significant changes. Many of the “traditional” suppliers have ceased to exist, some are involved in joint ventures with Asian companies, and others have downsized or moved their operations to Asia. Simultaneously, new Asia-financed suppliers have assumed dominance in some areas. Reference is made to these developments in the discussions on new technologies, research, and environmental matters, but mostly they are not within the scope of this report. Nevertheless, it is beyond any doubt that the support industries have changed as much as the industry they are supporting.

List of abbreviations

AAFA	American Apparel and Footwear Association
ABICALCADOS	Brazilian Association of Shoe Manufacturers
APICCAPS	Portuguese Footwear Manufacturers Association
APRISINDO	Association of Indonesian Shoe Manufacturers
BLC	BLC Leather Technology Centre, Ltd
BRIC	Brazil, Russia, India, and China
BSE	bovine spongiform encephalopathy
BSLT	British School of Leather Technology, University of Northampton
CBI	Market Information Database of the European Union
CICB	Centre for the Brazilian Tanning Industries
CJD	variant Creutzfeld-Jakob disease
CLE	Council for Leather Exports, India
CLIA	China Leather Industry Association
CLRI	Central Leather Research Institute, India
CMT	cut, measure, and trim
CNCC	Centre National du Cuir et de la Chaussure, Tunisia
COMECON	Council for Mutual Economic Assistance
COTANCE	Confederation of National Associations of Tanners and Dressers of the European Community
CSIC	Spanish Council for Scientific Research
CTC	Comité Professionnel de Développement Cuir Chaussure Maroquinerie
DANIDA	Danish International Development Agency
EMLR	Egyptian Mathematical Leather Roll
ERRC	Eastern Regional Research Centre, Pennsylvania
ETP	effluent treatment plant
EUROSTAT	European Commission Statistics
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
GTZ	German Development Cooperation Agency
ICT	International Council of Tanners
ILO	International Labour Organization
IMS	Automotive Interiors Worldwide
ISF	Indian Shoe Federation
ISO	International Standards Organization
ITC	International Trade Centre

ISTAT	Istituto nazionale di statistica, Italy
ITGLWF	International Textile, Garment and Leather Workers Federation
IULTC	International Union of Leather Technologists and Chemists
JALCA	Journal of the American Leather Chemists Association
JSLTC	Journal of the Society of Leather Technologists and Chemists
LASRA	Leather and Shoe Resesarch Association, New Zealand
LEFASO	Viet Nam Leather and Footwear Association
LLPTI	Leather and Leather Products Technology Institute
LPDI	Leather Products Development Institute, Pakistan
NILT	National Institute of Leather Technology, Pakistan
NMCC	National Manufacturing Competitiveness Council of India
OICA	Organisation Internationale des Constructeurs d'Automobiles
PETA	People for the Ethical Treatment of Animals
RESTORM	Radical Environmentally Sustainable Tannery Operation by Resource Management
REACH	Registration, Evaluation, Authorization, and Restriction of Chemicals
RFID	radio-frequency identification technology
RMB	yuan (RENMINBI), Chinese currency
SATRA	Shoe and Allied Trades Research Association
SECEX	Secretariat of Foreign Trade in the Ministry of Development, Industry, and Foreign Trade, Brazil
TICC	Taiwan-India Cooperation Council
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
USDA	United States Department of Agriculture
USMEF	United States Meat Export Federation
WTO	World Trade Organization
XINHUA	China's official news agency

Executive summary

Leather is one of the most widely traded commodities in the world. The leather and leather products industry plays a prominent role in the world's economy, with an estimated global trade value of approximately US$100 billion per year.

World population grew dramatically in the 20th century and it continues to grow at present. This growing population and the general increase in wealth have led to increases in the demand for meat, which in turn have kept the supply of leather raw material fairly constant. The current predictions are that the supply of leather raw material will continue to grow in step with population growth, but that higher costs and a decreasing availability of land for raising cattle and for growing grains to feed the cattle, as well as an increase in pork and poultry consumption in Asia and Africa, are now becoming apparent. At some stage, these developments may generate tighter traditional supplies and raise the importance of such non-mainstream sources of raw material as camel, kangaroo and deer.

Leather raw materials have increasingly become available in the developing world, while in the developed countries, a declining per capita consumption of red meat has reduced the supply of hides and skins. Now, more than half of the world supply of leather raw material comes from the developing world and, increasingly, those countries with large supplies are seeking to process them through to finished leather articles.

About 65% of all leather comes from bovine material. Climate and adequate husbandry acount for the fact that the best bovine raw material generally comes from the developed countries. The shift in raw material origins has prompted the industry to use more hides with surface defects or other structural deficiencies. This trend is expected to continue. It has already led to changes in finishing techniques to disguise defects, and to greater efforts to explain to consumers that some defect types are natural and should be accepted. The demand for high-quality hides for products such as automobile upholstery has helped, at least until now, to retain highly efficient upholstery leather tanning in the developed world.

Pigskin accounts for over 10% of all leather made currently in the world. China is now by far the dominant producer of pigskins and pigskin leather. Although this material may become important for the industry in the future, the structure and fat content of pigskin makes it very difficult to process. Moreover, of all leather raw materials, pigskin is the one most closely connected with the food industry. Consequently, for cultural or cost reasons, the skin is often left on the carcass or used in the production of gelatine.

At the same time, animals such as pigs and poultry are increasingly bred in factory-like facilities, which entails a higher danger of diseases and epidemics, such as the blue-ear pig disease in China. These issues could have dramatic effects on supply and demand, as well as on prices.

Historically, the tanning industry was characterized by small or medium-size family businesses. The trend has been for the manufacture of leather products to move to where labour is cheapest, and for tanneries to follow. Very often, the countries with the fastest growing leather industries – such as the Republic of Korea, Taiwan, China, Indonesia and Viet Nam – have been hindered by shortcomings in raw material supply and had to import large quantities of hides and skins. Now, new tanneries are being set up in these countries in order to meet the growing demand for leather, while most tanners in Europe, Japan and the USA have closed down their facilities. This trend seems likely to continue.

Tanneries that have remained viable in the developed world, in countries like Italy and Spain, have built clever business models, some of them entering into lucrative interntional alliances and others becoming what might be called "boutique units" with very high levels of creativity and quality.

On the other hand, many footwear businesses, even very small ones, have been able to adapt to the steep decline of shoe manufacturing in the developed countries by changing their structure and resorting to out-sourcing or joint ventures. An important development has been the growing power of major brands and retailers, which makes the industry more demand-led than supply-driven.

It has also been the case that countries with good raw material supplies, such as India and Brazil, have continued to grow their industries successfully all the way to the finished product stage. We expect that this trend will continue in places such as Ethiopia and Pakistan, which are joining the group of countries determined to achieve high levels of competence and employment in the leather industry by capitalizing on indigenous resources.

China has been, by far, the most significant player in all sectors of the leather industry in recent years. The country now dominates every category of manufacture by a considerable margin. Lately, China has recognized that it has allowed development without proper environmental safeguards, and it is now starting to take corrective action. It has also reduced its support for footwear manufacture since it hopes to make similar progress with products with a higher level of value added.

This does not mean that China's dominance of the industry will end. It is expected that the Chinese industry will continue to grow, but at a slower pace and in a different way. More of its output of leather products, in particular footwear, will be used to meet domestic demand. In addition to these changes, increased costs in China have already created new opportunities for further development of the industry in Viet Nam, Indonesia, Bangladesh, and India. No country has the size or capability to replace China as industry leader, but these shifts have given a boost to many other aspiring nations.

Location changes have been caused by other factors that need to be taken into account. Among them are the many tariff and non-tariff barriers to trade that have increased as the leather industry accelerated its progress on its globalization course. These barriers have led to corruption and cheating, thereby damaging the industry and making statistics unreliable. The trade in second-hand footwear, while its origins were built on the best of intentions, has created problems in many countries, particularly in Africa, where large volumes of imported second-hand articles far outweigh local manufacture.

Historically, about 65% of leather went into footwear, but this proportion has been decreasing lately toward 55%. In 2008, for the first time, less than 50% per cent of footwear was made of leather. On the other hand, there has been growth in lether upholstery and other leather products, and leather has acquired new and innovative uses. The automobile upholstery sector has been exceptionally strong since around 1990.

There are now no sectors in which leather cannot be replaced by other materials, and the industry has to protect the image of leather products as synonimous with quality – both aesthetic and functional. As technical textiles develop further and "synthetic leathers" improve, the challenges to leather will become more menacing.

As a consequence, research and development are of extreme importance. This is an area where, in spite of all the activity in excellent institutes in Europe, Brazil, India, China and elsewhere, there is a definite decline in long-term research funding. The chemical supply companies have had to reduce their investments in fundamental research, and the traditional research institutes have lost income as tanneries shifted location or saw their profit margins shrink. Many of the most famous institutes have closed or evolved into testing houses.

For the last hundred years, chrome tanning has been the dominant method of making leather. Efforts are now being made to find alternatives, and there has been some increase in the use of vegetable tanning of leather for footwear and other products. Non-chrome tanning methods have become quite popular with automobile manufacturers.

Nevertheless, if well managed, chrome tanning remains the most efficient way to make leather, and while some further erosion of its market share can be foreseen, it is expected to maintain its dominant position. At the same time, the industry will have to work harder to reduce water and energy consumption and to manage better its waste materials, particularly in the case of many developing countries, where industry development has not included waste treatment procedures.

Overall, the industry is expected to continue to grow in many developing and newly industrialized countries, meeting a large proportion of the demand in the industrialized world as well as the needs of growing middle classes in their own markets. To do so, the industry must deliver quality, avoid commoditization, be more creative, and deal more positively with environmental matters of all kinds.

In many developing countries, a great deal of assistance is needed to achieve these goals, but the likely ultimate benefits are a very attractive proposition: high levels of employment in an industry that adds value to a high-quality renewable natural resource.

1. Leather industry raw material

1.1 Summary

The leather industry relies on by-products of the meat and dairy industries for over 95% of its raw materials. Consequently, raw material supplies reflected population growth throughout the 20th century.

The ratio of cattle populations (by far the primary source of leather raw material) and leather produced to the size of human populations has remained remarkably steady for the last one hundred years.

The FAO report *World Agriculture: Towards 2015/2030, An FAO Perspective* highlights the fact that the proportion of animal products in the human diet has increased over the last three decades – at the expense of cereals and other crops. This trend is likely to continue, but to slow down eventually.

Hide and skin supply is likely to continue to grow at slightly less than 3% per annum. The sourcing shift from developed to developing countries has raised issues of land use, raw material quality, and farming efficiency. Over the last decade, China has become the largest hide producer in the world, followed by India, Brazil and the USA.

Current data on agriculture indicates that these trends will remain stable up to 2030, but also highlights evidence of potential serious discontinuities, mostly related to land availability and other aspects of livestock development. Cattle convert grain into protein inefficiently, therefore requiring large pieces of land. Land for herd expansion is either not available, or it is quickly diminishing in many parts of the world.

Farming efficiency and hide and skin off-take and collection, including the quality of flaying and preservation techniques, could be improved in some regions, most notably in Africa. However, over many decades, the extensive efforts to make such improvements have had limited success.

As countries develop and people grow more prosperous, the overall demand for meat and dairy products grows, even though some declines in this demand have been seen in Europe and the USA. In Africa, the Middle East and Asia, the growing demand for meat is increasingly being met by intensive industrial pig and poultry farming.

Pigskin was considered the largest reservoir of future leather raw material, but its potential has diminished. The entry of pigskin into the leather market depends on price, culture and technology. Not all pigs are skinned and much of the pigskin is used for gelatine production. Making good leather out of pigskin involves considerable technical challenges. Pigskin leather is estimated to account for 11% of the current world leather production, China being by far the leading producer.

Overall, it is entirely unlikely that the basic raw material supply for tanneries will grow faster than the rate seen in recent decades. Moreover, declines in both the volume and the quality of raw materials are likely.

It is expected that raw materials coming from animals such as buffalo, yak, camel, ostrich, deer and kangaroo, which are available in limited or very small amounts, will become increasingly important. Estimates put these raw materials at around 1% of total world supply, although a figure closer to 2% may be more accurate.

1.2 Industry trends

Figures for the last 100 years show that the world cattle stock has remained closely related to the growth of the human population. As the table below shows, cattle stock has grown steadily and has remained aligned with population growth:

Table 1: Cattle stock and the world human population

Year	World population	Cattle stock	Ratio population/ cattle stock
	millions	millions	
1910	1,686	482	0.29
1920	1,810	500	0.28
1950	2,504	663	0.28
1970	3,580	1,114	0.30
1980	4,432	1,344	0.30
1995	5,200	1,450	0.28
2000	6,100	1,580	0.26
2030	8,000	?	?
Growth p/a	2.9%	2.5%	

Sources: Reich, et al, 2007; FAO.

The industry has long anticipated that the demand for leather would outstrip raw material supply, but this is not supported by the above figures, at least not until the end of the 20th century. In part, this is related to changing end uses for leather and to the introduction of more replacement materials. Overall, the position of leather has remained remarkably stable in spite of changes in world economics, farming, and technology.

The major trend over the last few decades has been the faster growth of raw material supply in the developing world. This has brought about some deterioration of the quality of raw material available to tanners, largely due to climate and husbandry issues.

The supply of leather raw material depends on the world's demand for meat and milk, which has grown dramatically over the last three decades in many parts of the world, although it has remained flat in Africa. The growth of poultry and pork consumption has been stronger in many developing economies, including China, and the increase in the consumption of pork has been almost completely related to changes in China. Table 2 (opposite) gives an indication of growth rates in meat consumption.

Table 2: World meat market

	2006	2007 estimate	2008 forecast	Change 2008/2007
	million t			%
Meat production	**271.5**	**274.7**	**280.9**	**2.3**
Bovine meat	65.7	67.2	68.0	1.1
Poultry meat	85.4	89.5	92.9	3.8
Pig meat	101.7	98.8	100.6	1.8
Ovine meat	13.3	13.7	14	2

Source: FAO Food Outlook, May 2008.

China has emerged as the fastest growing producer and consumer of meat by a considerable margin. In 1995, the developing countries overtook the developed ones in meat production for the first time. It is anticipated that by 2050 developing countries will produce twice the amount of meat produced in the developed world. It is also believed that meat and dairy products will continue to provide an increasing share of the human diet, with poultry expanding at the fastest rate.

Table 3: Major meat producing countries

Countries	Production					Share of world production				
	'000 t					%				
	1979-1981	1989-1991	1999-2001	2003	2004	1979-1981	1989-1991	1999-2001	2003	2004
World	**136,219**	**179,648**	**234,671**	**253,688**	**260,098**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
China	14,526	30,644	62,833	71,155	74,306	10.66	17.06	26.77	28.05	28.57
USA	24,325	28,827	37,567	38,911	38,891	17.86	16.05	16.01	15.34	14.95
Brazil	5,224	8,228	15,332	18,388	19,919	3.83	4.58	6.53	7.25	7.66
Germany	6,925	6,987	6,377	6,602	6,798	5.08	3.89	2.72	2.60	2.61
France	5,423	5,767	6,538	6,408	6,255	3.98	3.21	2.79	2.53	2.40
India	2,620	3,881	5,272	5,941	6,032	1.92	2.16	2.25	2.34	2.32
Spain	2,601	3,459	4,955	5,479	5,531	1.91	1.93	2.11	2.16	2.13
Mexico	2,535	2,839	4,468	4,870	5,040	1.86	1.58	1.90	1.92	1.94
Russia			4,399	4,945	4,981			1.87	1.95	1.91
Canada	2,514	2,799	4,006	4,217	4,592	1.85	1.56	1.71	1.66	1.77

Source: FAO.

The relationship between meat consumption and the type of meat being consumed is also important for tanners. Bovine hides consistently represent about two thirds of the raw material used by the world leather industry, which makes them by far the most important raw material. Pigskin represents approximately 11% (slightly more than 2.5 billion sq ft/year), but this is the least well documented of the main types of raw material. This unsatisfactory documentation reflects a niche position, difficult technology, and the changing balance between the use of pigskin for leather and its consumption as food.

Table 4: Share of leather raw material by type

	%
Bovine	66
Sheep	15
Pig	11
Goat	7
Other	1-2

Source: FAO.

It is believed that the continued growth in the demand for meat can be met, but that the negative environmental consequences of livestock development must be addressed. One important aspect that needs to be taken into account is the industrialization of livestock farming. Issues such as bird flu and the blue-ear pig disease are indicative of the problems entailed by this trend.

This is an area of great controversy that brings the livestock industry into a heated dialogue with development agencies, climate scientists, conservationists, and pressure groups. One of several important papers written on this subject, *Livestock's Long Shadow*, was published jointly in 2006 by LEAD (Livestock, Environment and Development Initiative) and FAO. The key points made in this study can be summarized as follows:*

8 % of water used by humans goes to livestock production;
18 % of global greenhouse gas emissions are generated by the livestock sector;
20 % of terrestrial animal biomass is livestock;
20 % of pastures and rangelands are degraded by livestock;
26 % of ice-free land is occupied by livestock;
30 % of land once home to wildlife is now occupied by livestock;
33 % of cropland produces feed for livestock;
37 % of anthropogenic emissions are generated by the livestock sector;
37 % of pesticides are used in livestock production;
50 % of antibiotics are used in livestock production;
55 % of anthropogenic nitrous oxide emissions are generated by the livestock sector;
70 % of agricultural land is occupied by livestock;
70 % of deforested land is converted to pastures.

Livestock's Long Shadow has had a great deal of influence on the public sector and it has been widely publicized in support of a number of causes. There is doubt about some of the numbers and calculations in the report and the debate continues. It would appear that, due to errors in the calculations on deforestation, the 18% of global greenhouse gas emissions would more correctly be 12%. In Latin America, grazing on land cleared from rainforests creates soil erosion and further deforestation. In semi-arid environments, overstocking during dry periods frequently involves desertification risks.

Slower population growth in the developing world, along with obesity and food safety concerns after incidents of bovine spongiform encephalopathy (BSE) and variant Creutzfeldt-Jakob disease (vCJD), will slow down the growth in meat consumption. This is also due to the fact that a relatively high level of meat consumption has already been reached. Over the last decade, meat consumption has risen by only 1.3% a year in the industrial countries. This is in contrast with the developing countries, where demand for meat has grown by 5.6% a year over the last two decades. Some projections indicate that this growth will slow down by up to half of the current rates over the next two decades. The reasons for this decrease cited by FAO are:

- slower population growth;
- countries such as China and Brazil have now reached fairly high levels of consumption and therefore have less scope for further rises;

* "Cows, pigs and sheep: Environment's greatest threats?," Catherine Brahic, New Scientist, December 2006.

• the growth of meat consumption in India may be limited by cultural factors, and many people living in rural areas are likely to remain vegetarians;
• in Sub-Saharan Africa, slow economic growth will limit increases in both meat and dairy consumption.

The slowdown of growth in the demand for meat is expected to be most noticeable in the bovine sector. Herd development is also expected to decrease as better husbandry leads to larger animals and therefore to more meat and milk per animal. The proportion of cattle grazed on pasture is about one third of the total and this is expected to drop further.

Data for pigs is far less reliable from the point of view of the leather industry since it depends on whether the skins are removed or scalded on the carcass.

Table 5: Swine stock and kill in selected countries

Unit: '000 heads

		2004	2005	2006	2007	2008	Oct 2009
Total beginning stock	China	413,818	421,234	433,191	418,504	439,895	446,662
	EU-27	158,970	156,973	159,115	161,526	160,006	158,000
	USA	60,444	60,975	61,449	62,490	68,173	67,200
	Brazil	32,081	32,323	32,938	33,147	32,797	32,870
	Russia	17,200	16,500	16,550	17,180	18,187	19,520
	Canada	14,725	14,810	15,110	14,907	13,810	12,435
	Japan	9,724	9,600	9,620	9,759	9,745	9,745
	Mexico	10,668	10,303	10,125	10,250	10,134	9,365
	Others	64,694	64,456	67,653	70,566	20,766	16,756
	World total	**782,324**	**787,174**	**805,751**	**798,329**	**773,513**	**772,553**
Production (pig crop)	China	583,062	618,587	605,823	592,080	600,000	615,000
	EU-27	256,108	257,362	259,158	266,000	259,000	257,000
	USA	102,781	103,965	105,618	112,897	115,139	114,700
	Russia	35,000	35,500	37,000	39,150	41,700	44,440
	Brazil	30,015	32,295	33,304	33,940	35,080	36,040
	Canada	33,242	33,020	32,274	31,832	30,000	29,000
	Japan	17,160	17,000	16,950	17,000	16,950	16,880
	Mexico	15,350	15,500	15,700	15,265	15,295	15,600
	Republic of Korea	14,796	13,817	13,943	14,351	13,592	14,174
	Ukraine	6,254	6,865	7,543	6,986	6,528	6,100
	Australia	5,304	5,283	5,301	5,484	5,030	4,950
	Others	72,100	78,546	81,461	84,356	5,030	0
	World total	**1,171,172**	**1,217,740**	**1,214,075**	**1,219,341**	**1,143,344**	**1,153,884**

Source: USDA.

A major producer omitted by the USDA statistics is Viet Nam with around 27 million pigs. The EU is clearly an important producer; the current estimates for key countries are: Germany: 27 million; Spain: 25 million; Poland: 16 million; France: 15 million; and Denmark 12 million (data for other EU countries have not yet become available). Undoubtedly, pigskin supply from Central European countries has dropped significantly in the last fifteen years.

FAO figures tend to be a little higher and indicate a global pig stock of 896.4 million in the year 2000 and of 960.3 million in 2005. Nevertheless, these figures need to be regarded with caution since China has recently revised its numbers for the first six years of the current decade.

In the USA, the development of skinning machines for abattoirs played a pivotal role in the use of pigskin as raw material for the leather industry. Outside the USA, pigskin handling skills have developed primarily in China and in the Central European countries. The period from 2007 onwards has been affected by the blue-ear swine disease in China and, to a lesser extent, in Viet Nam. Around 44% of gelatine produced worldwide is made from pigskin, and over 80% of edible gelatine made in Europe comes from the same raw material. This market has also had to change as a result of the emergence of digital photography. Photography was formerly the primary user of top-grade gelatine. This role has now shifted to foodstuffs, raising religious and cultural issues as a consequence. Pigskin is also increasingly regarded as a potential source of sausage skins.

Growth in the production of bovine hides and ovine and caprine skins is more directly related to leather production, and gaps between kill and tannery consumption essentially have to do with hide and skin collection issues. Table 6 below shows the percentage growth per annum in each of the three raw material types since 1986. In terms of meat production, it should be noted that cattle, sheep and goats are more often than not grazed, whereas pigs and poultry are products of industrialized farming.

Table 6: Hide and skin production growth (1986-2003 average)

Unit: % per year

	Bovine	Sheep	Goat
World	**0.8**	**0.3**	**3.6**
Developing countries	**3.2**	**2.5**	**3.7**
Latin America	2.5	0.1	0.2
Africa	1.6	1.8	1.3
Near East	1.8	0.6	3.6
Far East	4.8	5.3	4.4
Industrialized countries	**-1.4**	**-1.5**	**1.2**
North America	-0.4	-2.7	-2.7
Europe	-1.9	-0.5	0.5
Former USSR	-3.3	-5.7	2.1
Oceania	1.0	-0.9	5.8
Others	-0.8	-0.5	0.8

Source: FAO.

As indicated above, the demand for meat will continue to grow, and so will cattle, sheep, goat and pig populations. However, some discontinuities must now be expected, particularly in the growth

of bovine production as a combined result of changing diets and various environmental pressures related to land.

Some counterbalance to this comes from the potential for better husbandry and from more intensive farming close to the world's growing conurbations. Yet, demand for meat is increasingly being met by growth in poultry and pig production.

The issues that the beef industry is dealing with globally, most of which apply to all types of meat, include animal diseases, trade issues (often related to animal health), nutrition, obesity and hunger, animal welfare, and environmental issues.

Over the last twenty years, the global shifts in beef production have reflected not only significant growth in Asia, but also changes in Russia. Regional changes shown in Table 7 below have been quite dramatic.

Table 7: Regional changes in beef production (kill)

Unit: million heads

	1990	2006	% change
EU	49.8	28.2	-43
North America	47.3	44.9	-5
South America	45.0	56.6	26
Asia	38.4	82.3	114
Russia	33.7	8.6	-74
Oceania	10.9	12.6	16
Total	**225.1**	**233.2**	**4**

Sources: USDA, USMEF

According to FAO and ICT data, it is expected that consumption of meat per capita in developing countries will increase from 25.5 kg per annum in 2000 to 37 kg per annum in 2030, compared to an increase, over the same period, from 88 kg to 100 kg in industrialized countries. Continued regional changes are expected to meet these demands for meat. Beef production in both Brazil and China is expected to grow aggressively by 2015, while in the USA and most other developed countries it will grow only slowly or will remain flat. Production in the EU is expected to decline slightly; while it is difficult to predict what will happen in Russia, the assumption is that it will follow the trend seen in developing countries.

While beef will remain dominant, growth in pork consumption will be stronger. In China, most of the meat consumption growth is likely to occur in pork and poultry, while in Brazil, consumption growth will be concentrated in bovine red meat. South Asia (excluding India) will see the strongest growth in poultry meat, and East Asia (excluding China), in pork. Sub-Saharan Africa is not expected to depart from its low consumption levels, whereas North Africa and the Middle East will see some growth, mostly in poultry consumption.

Table 8: World beef and veal production

Unit: '000 t (carcass weight equivalent)

	2004	2005	2006	2007	2008	Oct 2009
USA	11,261	11,318	11,980	12,096	12,226	12,203
Brazil	7,975	8,592	9,025	9,303	9,205	9,395
EU-27	8,245	8,090	8,150	8,203	8,220	8,170
China	5,604	5,681	5,767	6,134	6,260	6,360
Argentina	3,130	3,200	3,100	3,300	3,200	3,160
India	2,130	2,250	2,375	2,500	2,655	2,790
Mexico	2,099	2,125	2,175	2,202	2,253	2,293
Australia	2,081	2,102	2,183	2,172	2,100	2,070
Russia	1,590	1,525	1,430	1,370	1,330	1,300
Canada	1,496	1,523	1,391	1,279	1,270	1,260
Pakistan	979	1,005	1,057	1,089	1,121	1,150
Others	8,986	9,259	9,521	9,341	9,410	8,804
World total	**55,576**	**56,670**	**58,154**	**58,989**	**59,250**	**58,955**

Source: USDA.

It is highly unlikely that the basic raw material supply for tanners will grow faster than the rate seen in recent decades. The industry has many reasons to expect a slowdown in supply growth, and this will be accompanied by a continued decline in quality as an increasing proportion of growth comes from areas with poorer climate and husbandry.

1.3 Off-take and husbandry

Strikingly, the overall cattle off-take rate in Africa is estimated at approximately 12%, compared to 40% in the USA, and 35% in Australia.

Ethiopia has Africa's largest raw material supply, and off-take/kill rates there are lower for cattle, but higher for sheep and goats: 6% to 7% for cattle, 33% for sheep, and 32% for goats.

A special case in the complex off-take story is India where, due to cultural reasons, although the cattle population is currently around 200 million, the annual production of cattle hides is just over 20 million.

Livestock off-take rates for Africa vary considerably, and the figures are maintained in detail by FAO. Table 10 (opposite) highlights the countries with the largest raw material supplies. Off-take rates range from 8% to 30% for cattle, from 9% to 45% for sheep, and from 7% to 37% for goats.

Table 9: Off-take rates for different regions and raw material types

	Bovine (including buffalo)			Sheep and lamb skins			Goat and kid skins		
	Share	Off-take	Average weight	Share	Off-take	Average dry weight	Share	Off-take	Average dry weight
	%	%	kg/pc	%	%	kg/pc	%	%	kg/pc
World	100.0	21.5	18.52	100.0	48.9	0.77	100.0	48.8	0.70
Developing countries	78.3	17.6	16.34	65.3	47.9	0.63	95.6	48.5	0.70
Latin America	24.6	18.6	21.80	7.9	26.5	0.87	4.3	30.0	0.59
Africa	11.0	12.0	12.73	15.7	34.2	0.71	22.8	31.3	0.53
Near East	4.9	15.8	17.63	18.0	42.4	0.71	13.6	30.8	0.75
Far East	37.0	19.0	13.35	23.8	68.1	0.53	54.8	61.7	0.73
Industrialized countries	21.7	35.6	22.41	34.7	50.7	1.02	4.4	54.5	0.78
North America	7.4	36.7	24.66	0.7	51.3	0.90	0.2	46.2	1.00
Europe	6.6	33.7	23.98	11.8	64.1	0.91	2.0	66.9	0.68
Former USSR	4.0	42.3	18.75	5.3	51.6	0.66	1.1	35.7	1.00
Oceania	2.5	34.1	18.27	14.0	43.5	1.32	0.3	95.5	1.00
Others	1.2	20.5	22.66	2.8	28.8	1.04	0.9	36.4	0.75

Source: FAO (data based on average 2001-3, bovine wet salted, sheep and lamb dry weight without wool, and goat dry weight).

Table 10: Livestock and off-take rates in African countries

	Unit	Burkina Faso	Cameroon	Chad	Cote d'Ivoire	Ethiopia	Kenya
Cattle	'000 heads	7,607	4,623	7,154	1,346	41,000	14,727
Sheep	'000 heads	7,710	2,172	2,864	1,381	25,000	10,829
Goat	'000 heads	10,647	2,949	6,726	1,079	23,000	12,442
Cattle off-take	%	12	11	13	23	8	10
Sheep off-take	%	26	9	25-30	37	33	28
Goat off-take	%	32	7	25-30	37	37	33

	Unit	Mali	Niger	South Africa	Sudan	Tanzania	Uganda
Cattle	'000 heads	7,532	3,760	14,000	39,760	17,700	6,500
Sheep	'000 heads	8,403	7,606	25,000	48,910	3,500	1,100
Goat	'000 heads	12,000	9,636	6,400	42,179	12,500	6,800
Cattle off-take	%	10-12	11	25-30	20	10	17
Sheep off-take	%	28-30	28	30-35	45	15	20
Goat off-take	%	28-30	32	30-35	37	15	35

Sources: FAO and ITC – for Kenya, the off-take rate taken is about double the officially recorded figure; Chad (2005); Zimbabwe (2002), others not specified.

The 2002 UNIDO report (Jabbar, et al) is one of many studies arguing that perhaps the most significant aspect influencing the production of hides and skins are "cultural factors" in livestock rearing that discourage commercial farming/slaughtering and lay emphasis on the numbers of animals maintained by a farmer as a sign of wealth. The major challenge that the industry has been facing is how to overcome these weaknesses and exploit fully the opportunities presented by the availability of hides and skins as a readily renewable resource. This has been the subject of many projects and studies over the years.

According to FAO, there are substantial differences among regions and countries in terms of husbandry. FAO measures productivity by the amount of meat or milk produced per animal per year. In Sub-Saharan Africa, the increase in cattle numbers in the last decade of the twentieth century was greater than the

Table 11: Herd size and meat production

	Number of animals							Carcass weight		
	millions				Growth per year (%)			kg/animal		
	1967/69	1987/89	1997/99	2030	1969-99	1989-99	97/99-2030	1967-69	1997-99	2030
World										
Cattle and buffaloes	1,189	1,418	1,497	1,858	0.8	0.5	0.7	174.0	198.0	211
Sheep and goats	1,444	1,708	1,749	2,309	0.9	-0.1	0.9	14.0	14.0	17
Pigs	566	838	873	1,062	1.4	0.3	0.6	65.0	78.0	84
Poultry	5,585	10,731	15,067	24,804	3.8	3.4	1.6	1.3	1.6	1.8
Developing countries										
Cattle and buffaloes	799	1,013	1,156	1,522	1.3	1.3	0.9	150.0	163.0	188
Sheep and goats	862	1,121	1,323	1,856	1.6	1.5	1.1	13.0	13.0	16
Pigs	297	493	581	761	2.2	1.6	0.8	49.0	73.0	82
Poultry	2,512	6,168	10,544	19,193	5.6	5.5	1.9	1.2	1.4	1.8
Industrial countries										
Cattle and buffaloes	263	253	254	243	-0.5	0.2	-0.1	212.0	284.0	308
Sheep and goats	397	394	341	358	-0.1	-2.2	0.2	16.0	17.0	20
Pigs	172	206	210	220	0.7	0.4	0.1	75.0	85.0	89
Poultry	2,167	2,941	3,612	4,325	1.8	2.2	0.6	1.4	1.8	2.1
Transition countries										
Cattle and buffaloes	127	152	87	94	-1.0	-6.4	0.2	144.0	155.0	170
Sheep and goats	185	193	85	95	-1.9	-9.3	0.3	14.0	15.0	18
Pigs	97	139	81	82	-0.5	-6.2	0.0	77.0	82.0	84
Poultry	906	1,622	920	1,287	0.4	-6.9	1.1	1.3	1.4	1.6

Source: FAO.

growth in meat production, indicating a decline in meat productivity. In Asia, where land is scarce, growth in herd size for cattle and buffaloes was much lower than the growth in meat output, indicating increased productivity.

One of the countries that currently show a strong leather industry development is Ethiopia. It will be interesting to see if a stronger domestic leather industry, rather than one that mostly exports pickle and wet blue, will pull more hides and skins into tanneries, perhaps increasing the off-take rate.

FAO statistics show that 38% of total raw-hide output was traded internationally during 2001-3, which exceeds by over a third the average figure for the 1980s. Sheepskin trade dropped 47% in the same period, with Europe now being the main export area. Goatskin exports also decreased as more countries held on to their own domestic supply for processing. These figures are only indicative since they have to be adjusted for changes in the proportions of leather shipped at the pickle, blue and crust stages.

Table 11 (opposite) shows how FAO views future developments in herd size and meat production.

1.4 Expected future trends

It is already clear that the global demand for meat will need to find a balance with supply problems arising from a wide range of issues. In addition to the studies already mentioned, an FAO study on agriculture (Bruinsma, ed., 2003), notes that: "Livestock production is the world's largest user of land, either directly through grazing or indirectly through consumption of fodder and feed-grains. Globally, livestock production currently accounts for some 40% of the gross value of agricultural production. In industrial countries, this share is more than half. In developing countries, where it accounts for one-third, its share is rising quickly; livestock production is increasing rapidly as a result of growth in population and incomes and changes in lifestyles and dietary habits."

Land use issues are already apparent in China, where some restrictions on development have been put in place and pig farming has increasingly become industrialized. In the case of Brazil, a number of papers (e.g., Caviglia-Harris, 2005) have demonstrated that demand for ranching land for small and medium-size farms has been a reason for deforestation in the Amazon, as it has been the need for crop land, or the value of timber. The more recent development of interest in crops for bio-fuels can only increase the pressure on land use.

These changes raise a number of issues related to health, food safety, environment, and poverty alleviation. Several trends have started to become apparent and are identified in the FAO report:

• an increasing proportion of livestock production will originate in warm, humid, and more disease-prone environments;
• there will be a change in livestock production practices, from a local multipurpose activity to a more intensive, market-oriented and increasingly integrated process;
• pressure on and competition for common property resources such as grazing land and water will increase;
• there will be more large-scale industrial production, located close to urban centres, with associated environmental and public health risks;

• pigs and poultry will increase in importance compared to ruminants;
• there will be a substantial rise in the use of cereal-based feeds.

These trends raise numerous issues for the leather industry:

• what further help can be given to increase the efficiency of farming in Africa in order to improve the off-take and collection of hides and skins?
• what needs to be done to improve and manage the quality of raw material at all stages – farming, slaughter, and tanning?
• Africa appears to be one place where land remains available; is the continent suitable for herd growth to make up for lack of land elsewhere?
• hides and skins from camels, kangaroo, deer, yak and other less mainstream animals are likely to expand their presence in the leather supply chain; the industry needs to learn how to manage both the technical issues and the potential environmental problems arising from the use of these materials;
• final product design for footwear, bags, automobile seats, etc. will need to accommodate hides and skins with surface damage which are otherwise of excellent quality.

Overall, those involved in all aspects of the leather industry can be expected to spend more time ensuring that they have secure raw material supplies.

2. The tanning industry

2.1 Introduction

The large expansion in the use of leather for footwear, in spite of a reduction in the use of leather soles, was a defining feature of the industry in the third and fourth quarters of the twentieth century. Chrome tanning consolidated its position only to weaken slightly toward the end of the century due to partly unfounded fears concerning chrome VI (Cr^{VI}) as well as a reflection of evolving requirements of the automobile industry.

Yet, by far the biggest change over the last few decades has been the move away from the developed world of labour-intensive industries depending on leather. The last fifteen years have witnessed the growth of the Chinese leather industry at an astonishingly fast pace.

It is easy to assume that China has the scale, labour and market to retain and expand further its leather business to the detriment of all other locations. Yet, there are a number of significant emerging developments that will certainly have an impact on the future of the Chinese industry and will perhaps open new opportunities for the rest of the world in both tanning and the manufacture of leather products. However dominant China remains, there are now good reasons to look at how the leather industry will develop elsewhere.

Table 12: Major leather producing countries

million sq ft

Country	1997	2000	2001	2003	2006
Argentina	721	529	561	561	655
Brazil	602	726	741	1,005	1,655
China	1,969	3,005	3,312	3,546	4,000
India	1,036	1,102	1,106	1,092	1,119
Italy	2,020	1,922	1,926	1,902	2,039
Republic of Korea	1,235	1,260	1,349	1,344	1,090
Mexico	614	556	509	511	570
Pakistan	302	323	336	350	359
Russia	660	888	1,034	1,450	1,410
Spain	541	529	528	510	430
Turkey	572	340	470	470	528
USA	560	730	670	558	417

Source: FAO (bovine, buffalo, sheep and goat leather only).

FAO figures are used as the basis for most of the analysis in this report. As mentioned earlier, FAO data does not cover pigskin leather, which is estimated at about 11% of the world leather production. Nor does it cover the production of kangaroo, ostrich, camel and the many "other" (fish, reptile, etc.) types of leather.

The difficulty of measuring the production of pigskin and "other" types of leather makes an important difference; the suggestion is that world leather production is currently running at between 21 and 22 billion square feet, as opposed to the 18.7 billion calculated by FAO for 2006 based on buffalo, cattle, sheep and goat leather only. Most of the difference is pigskin tanned in China. Adding 2 billion square feet of pigskin leather to the total would take China's share of world leather production to 27% or 28%, further indicating how dominant the country has become. Production figures for pigskin tanning from elsewhere in the world are not available, but it does appear that a large proportion of the skins produced elsewhere are now sent to China for processing.

Variations in the statistics – due to misreporting, confusion regarding the handling of splits, and the large amount of semi-processed material – make the accuracy and interpretation of data suspect, but major trends appear to be consistent. The data can be approximated and presented to show the dominance not only of China, but also of a small group of other countries. As indicated, the assumed pigskin production would take China to well over 25% of the world total leather production and the top 12 leather producing countries to almost 80% of the world total. Yet, figures in Tables 13, 14, and 15 can only be approximations as they do not show where beam-house work is taking place, or how much leather might be counted twice or more as semi-processed leather, or how footwear production shifts from country to country. Furthermore, the informal sectors are sometimes estimated and sometimes ignored. Despite the dominance of a few countries, leather and its user industries provide important employment in nearly every country in the world and constitute an important segment of light industry in developing countries.

Table 13: Raw material, leather and shoe production by country

Country	Raw material (bovine)	Leather production	Shoe production
	% of world total	% of world total	% of world total
Argentina	4.4	3.5	0.4
Brazil	10.9	8.8	5.0
China	16.5	21.4	63.7
India	12.6	6.0	12.5
Italy	1.2	10.9	1.5
Republic of Korea	0.2	5.8	0.8
Mexico	2.3	3.0	1.3
Pakistan	2.0	1.9	1.5
Spain	0.8	2.3	0.8
Thailand	0.4	1.1	1.7
Turkey	0.5	2.8	1.1
USA	10.0	2.2	0.2
12 countries	**61.8%**	**69.7%**	**90.5%**

Source: FAO, SATRA.

Table 13 highlights the ongoing trends in the balance between bovine raw material output and leather and footwear production. To some extent, the table demonstrates that, since tanneries require much more capital and equipment (large drum installations and effluent treatment facilities), it is much harder for a tannery to move than for, say, a shoe factory. It is logical, therefore, that tanneries in countries like Italy, which has close links to European fashion houses, should remain and work with imported raw material rather than move overseas. The Korean tanning industry, which grew in order to meet a strong domestic demand, has also chosen to remain at home and to build up exports as its customers move abroad. One should also mention that the labour content varies between tanneries and leather processing industries. Also, raw material quality varies around the world. Finally, what is left of the leather industry in the USA and the EU produces mostly upholstery leather for automobiles and aviation and luxury leather goods.

The elements that support the tanning industry include:

• a strong manufacturing base that requires leather as a basic raw material, which normally implies a large low-cost labour force;
• a good supply of locally available raw material;
• less pronounced environmental constraints/costs (e.g., availability of water and suitable recipients of wastewater, but also lax enforcement of environmental legislation).

If one subscribes to the views of Koppany (2004), who laid out the fundamentals listed above, China, India and Brazil are likely to dominate the global leather scene, with other countries fighting for scraps. This is a simplification of Koppany's comments, but it does define the basis upon which each country or region has to decide the role it will play. Italy's continued strength is believed to be based on tradition and outstanding skills, on its position as a fashion leader as well as on synergies of operations in specialized clusters.

2.2 Location of tanning

We have seen the leather industry move in stages from the developed to the developing world, but now the main question is how to cope with China's sheer might. Among the strategies being adopted are duty protection, seeking joint production with China, or finding a niche position. Table 13 suggests that the geografic movement of the industry has not been totally smooth, structural adjustments being the consequence of a complex mix of factors.

Table 14 (overleaf) is based on FAO data and features the major countries involved in the manufacture of leather from bovine and sheep/goat raw material.

Table 14: Leather production by type

Unit: million sq ft

Country	Bovine	Sheep/Goat	Total
Total	**14,041**	**4,663**	**18,704**
Developing countries	**8,830**	**3,653**	**12,483**
China	2,262	1,438	4,000
Italy	1,750	289	2,039
Brazil	1,600	54	1,654
Russia	1,327	217	1,544
India	647	471	1,118
Republic of Korea	1,072	18	1,090
Argentina	621	34	655
Mexico	547	23	570
Turkey	78	450	528
Spain	310	120	430
USA	350	67	417
Pakistan	172	187	359
Germany	258	20	278
Thailand	210	1	211
Japan	199	4	203
Indonesia	98	36	134
Egypt	120	12	132

Source: FAO, 2006.

The dominance of China is apparent, but other points to be noted are the absence of Africa (although the Mediterranean region – including Egypt – has grown in significance), the staying power of Italy, significant growth in Brazil, and the re-emergence of Russia.

As the location of industries that use leather has moved, so has the tanning industry. Semi-processing to pickle, wet blue and crust has increased at the same time. Tanning countries benefit by participating in international trade rather than by trying to remain isolated, and this has implications for the ongoing DOHA tariffs round. Yet, as mentioned before, the shift has not been perfect, with the US and some European countries retaining a sizeable portion of their leather manufacturing capacity in order to use their domestic supply of higher-quality raw material.

Adopting Koppany's approach, one can take a brief look at the major players in terms of raw material supply, domestic markets, labour cost, and the environment:

China
- very large production of leather footwear, garments, upholstery, and other leather products;
- very large and growing (but not adequate) domestic raw material supply;
- large and fast-growing domestic market for footwear, premium leather goods and upholstery;
- very large imports of leather mainly from India, the Republic of Korea and Italy;
- potential limitations in water and energy supply;
- major environmental issues emerging;
- the world's largest pigskin supply and pigskin tanning industry;
- pigskin supply badly effected in recent years by disease;
- current government policy is to close smaller tanneries and those without effluent treatment (the impact of this policy on total production volume is unclear).

Italy
- strong innovation capacity;
- high dependence on imported raw materials;
- high levels of flexibility and versatility;
- sizeable domestic (and regional – East Europe, North Africa) market;
- industry growth in 2006 and 2007 despite high labour and other costs of doing business in the EU;
- strong international connections;
- good international image and fashion orientation;
- much of production comes from wet blue and other semi-processed material, which distorts figures;
- figures are also distorted by the fact that Italian tanners often outsource both parts of the tanning process and the manufacture of a variety of finished leather products to Romania, Bulgaria, the former Yugoslavia, and North Africa.

The Republic of Korea
- industry survives as a legacy of huge export-oriented footwear and garment production based on earlier cheap labour;
- support from businesses that have moved footwear, garment and leather goods production elsewhere in Asia;
- high degree of dependence on imported raw materials;
- expected expansion of large-scale industrial production, located close to urban centres, with associated environmental and public health risks.

India
- strong raw material base and tradition;
- good benefits from clustering and investment;
- recent switch from second-hand to new machinery in investment policy;
- growing domestic market;
- some limitations in water supply and due to environmental issues in some regions;
- despite significant growth in recent years, domestic consumption is surpassed by tanning capacity;
- sizeable production of leather clothing and other leather goods.

Russia
• historically strong sector with associated domestic culture that favours fur and leather garments, gloves, etc.;
• rapid decline in the 1990s, but 21st century growth at about 20% per annum;
• recovering domestic market;
• in spite of strong reservations about Russian data, it is expected that both domestic raw material supply and footwear manufacture will steadily increase.

Brazil
• strong domestic raw material supply and substantial supply from neighbouring countries;
• strong domestic footwear and leather (especially travel) goods production;
• good links to US footwear market, but exports affected by strength of domestic currency;
• highly active in world export markets;
• tanners are specialized and effective.

Mexico
• strong tradition in leather production;
• due to isolation and protection against imports, the footwear industry entered the new millennium hampered by lesser efficiencies than those of its main international competitors;
• less successful in exporting to the US than its location would suggest;
• has benefited from automobile production;
• some limitation in water supply.

USA
• industry sustained by large export volumes of bovine wet blue;
• significant manufacture of upholstery leather;
• large demand for automotive leather upholstery affected by problems faced by the big three US car manufacturers.

Turkey
• steady market share increase in world leather garment business;
• significant imports of raw materials;
• good international reputation for quality leather garments;
• uneven results reflect the cyclical character of this segment of leather consumption as well as what was called the "carry trade" with Russia when for a number of years Russian buyers arrived with cash for goods.

Spain
• easy access to European raw material;
• high level of design and innovation;
• significant local manufacture of products using leather, especially if outsourcing to North Africa is added in;
• some water shortage issues.

Argentina
- reasonably large local hide supply of good quality;
- strong tradition in exports of quality leather, both crust and wet blue;
- efficient leather goods manufacturing sector, and recovering shoe industry.

Pakistan
- good supply of raw material;
- well established tanning centres in Karachi and Lahore with strong exports;
- some clusters for gloves and garments (Karachi and Sialkot);
- lower-quality garments made from imported lower-grade African raw materials;
- some significant environmental issues.

There is no doubt that China has the scale, the labour and the market to retain and continue growing its leather business. While it is certain that the leather industry in China will grow, it is now expected to see a decrease in its growth rate; it is also expected that exports will level out or even fall in some respects as domestic demand grows.

Table 15: Leather production and trade in 2006

Unit: million sq ft

Country	Output	Export	Import	Available
China	2,262	5,336	8,715	5,641
Republic of Korea	1,072	545	533	1,060
Italy	1,750	2,066	1,078	762
USA	350	550	422	222
Mexico	547	144	168	571
India	647	120	55	582
Spain	310	137	197	370
Germany	258	245	233	246
Japan	199	42	43	200
Argentina	621	497	19	143
Thailand	210	184	103	129
Brazil	1,600	1,554	78	124
Indonesia	98	48	58	108
Pakistan	172	85	20	107
Turkey	78	40	28	66
Egypt	120	49	0	71
Developing countries	8,830	9,104	10,609	10,335
World	14,041	13,456	13,552	14,137

Source: FAO (bovine, sheep and goat leather only).

China's size and its large population combined with the growing disposable income per capita suggest that this country will be dominant for some decades to come in most areas of leather manufacture. The Chinese industry is highly integrated and tanneries often work closely with shoe or garment factories. Examining the leather industry in China requires an understanding of this aspect.

Despite the leather industry's size and rapid growth in China, the China Leather Industry Association (CLIA) rated it as being in a declining mode as a result of increasing costs of labour and raw material as well as of government policy adjustments over the last two years, which have reduced tax rebates and other benefits extended to the industry. Two fundamental factors influence the government's approach. These are: a) the need to reduce the environmental load from the leather industry by encouraging a slowdown in raw material processing; and b) the intention to stimulate a move toward exports of products with higher value added. Labour cost rises reflect the steady development of the country and a new social contract that gives workers greater employment security and payment rights. Labour costs are expected to rise by 20% as a result, on top of what have been annual rises of between 25% and 40% in some of the export-oriented coastal regions.

The Chinese leather sector comprises well over 20,000 enterprises with about 5.5 million employees; of these companies, over 2,900 are leather-making enterprises. The numbers are currently changing dramatically, with hundreds of tanneries and shoe factories closing in 2008 as a result of higher costs and decreasing overseas demand.

According to CLIA figures, which indicate larger outputs than those suggested by FAO, in 2007, China produced about 680 million square metres of light leather (7.75 billion sq ft), over 9 billion pairs of shoes, and over 65 million leather garments. The total value of exports of main leather commodities was US$39 billion, which represented 4% of the total value of commodity exports, while the value of imports of main leather commodities was US$7.67 billion, an increase of 14% over the previous year.

Increasingly, China has been importing not just raw material, now mostly in wet blue form, but also finished leather, footwear and other leather goods. The Indian and the Italian leather industries have a good record of exporting to China in recent years.

It is also expected that imports of raw hides, finished leather, footwear accessories and environmentally friendly chemicals, all intended to help raise product quality, will further increase in the next five years. Chinese tanneries need technology and equipment for environmental protection. As the demand for vehicle and house furnishings is now steadily increasing in Chinese cities, processing technologies for upholstery leather are also in demand.

Domestic demand for quality and fashionable shoes will continue to increase at a steady pace as the middle class grows. Other key factors are increased urbanization and the policy of stimulating domestic consumption. More and more rural people move to work in the cities and they will also contribute to consumption growth, including consumption of shoes.

India has a strong domestic raw material base; it is currently doubling its production capacity in finished leather, footwear and leather goods and it will play a leading role in years to come. Given the advantages that India had in terms of raw material, international leather industry connections, and command of the English language, it was a surprise to see how quickly China was able to surpass India in production volume in nearly every sector of the industry. Over the last few years, India has been trying hard to catch up with China.

The large domestic raw material supply and a large and growing population mean that the future of the Indian leather sector should be assured. In recent years, tanners and several shoemakers have made

a significant move toward investing in new, rather than second-hand, manufacturing equipment. The emergence of plants with cutting-edge technology, large-scale capacities, and close links with other actors in the supply chain is a spectacular change from the world of reconditioned machinery and small makeshift improvements. The larger companies are investing in sophisticated equipment, focusing on automation, energy saving and reduced water consumption. There is also increasing investment in equipment for environmental management.

In recent years, India has been fighting hard to attract investment to its leather and footwear sector, one strategy being the establishment of "leather parks." Asian investment has largely failed to arrive, but a recent US$127 million investment by Taiwan indicates that a more global strategy is beginning to pay off. There is also evidence that more of the major shoe brand manufacturers will move some footwear outsourcing from China to India as Chinese labour costs rise; this will stimulate more growth in the tanning sector.

Indian tanners have been quite efficient in selling to Chinese manufacturers and generally in gaining access to foreign markets. Technology and quality have improved to world-class levels. India has the potential to fill any gap left by the Chinese, although infrastructure issues, bureaucracy, and limited investment held it back in this respect in the past.

India is expected to continue to expand its leather business in order to meet growing domestic demand generated by an expanding middle class, and to increase its share of the global market. There is strong government support for the sector.

At the same time, the Indian government is now expecting all tanneries to meet environmental standards that are laid down on the basis of being a "prerequisite for sustainable exports." This reflects the growing pressure from brand manufacturers and retailers around the world for the entire supply chain to behave responsibly. As in China, this will lead to the emergence of larger companies that would, nevertheless, still fit into the SME category.

Pakistan will also play an important role in the future supply of leather goods, but its leather sector is currently suffering due to high utility and labour costs, a scarcity of skilled labour, and the need to upgrade machinery and infrastructure. Like India, it has a strong raw material supply and its cattle and buffalo production feeds an important meat and dairy sector that the government is keen to support. Goatskin quality is excellent. The country has a number of tanneries with a high world standing for quality in three main clusters around Karachi, Lahore (including Kasur) and Sialkot. Sialkot is better known for its history in the manufacture of footballs, but its tanning as well as sports gloving and clothing sector are important export players.

The country has had some difficulty in establishing an image for its finished goods that would allow them to achieve the high selling prices that the quality of raw material warrants. Considerable quantities of lower-grade raw and wet blue are being imported from other parts of Asia and from Africa to meet the demand for pigmented black garments. If Pakistan can solve its financial and image problems, its domestic raw material supply, strategic location, highly competent tanners, and low-cost labour can ensure considerable growth in the leather sector. The management of environmental issues is patchy and it will have to be improved and enforced across the whole sector for the Pakistani leather industry to achieve its full potential.

Viet Nam's leather industry is competing aggressively and it confidently predicts growth of 12% to 15% per annum. It lost some ground in the EU as a result of high duties, but has compensated for it by a large increase in its exports to the US. The Vietnamese government will invest US$572 million in the industry in the next three years and is spending US$37.8 million on tanning facilities. Viet Nam has certainly delighted many of its customers for gloves and footwear over the last decade, and many EU importers have been willing to live with the EU duties.

Indonesia has certainly benefited from the anti-dumping tariffs in the EU, and there has been some repatriation of production from China. Hide quality from domestic cattle has been deteriorating because some of the tick issues occurring in north Australia appear to have spread to Indonesia, but it remains an interesting lightweight bovine article. The value of local sheepskins will increase as other countries follow Ethiopia's lead to reduce or stop exports of raw or partly processed material.

Thailand is currently having a difficult time, but the country has just signed a free trade agreement with Japan that raises the prospect of diminishing import duties and eventually removing them after six years. Thailand has important supplies of buffalo hides, and it is a major producer of dog chews and of industrial gloves. It also has the world's largest factory manufacturing golf gloves and a sizeable automotive industry. In addition, several manufacturers of shoe brands are investing in Thailand.

The African continent suffered a reduction of its share of the world leather trade in the last twenty-five years of the 20th century. Africa faces problems related to animal husbandry, raw material quality, technical knowledge, and market access. These problems persist in spite of significant technical assistance programmes implemented by several UN specialized agencies (most notably UNIDO, UNDP, ITC, ILO) and bilateral aid (e.g., through GTZ, DANIDA). Political changes and civil unrest have often had an adverse impact on development.

Sub-Saharan Africa Observers of the leather industry have mixed opinions about the future of the Sub-Saharan leather industry. Major brand manufacturers show little enthusiasm about doing business in the region, but Ethiopia has made some successful moves which indicate that strong action may be able to build up a significant manufacturing sector using locally made leather.

The development of BRIC economies and globalization are relevant here. While Asian workers started to earn more in the last 25 years, their counterparts in Africa saw their earnings drop. This could provide opportunities for companies seeking low-cost labour. However, large countries like India and China have captured most of the textile and leather jobs, which leaves African countries searching for a niche position in the world market, with the local industry not yet being able to export and having to compete with Chinese imports. This is a generalization, but one that is well supported by key industry figures.

Figure 1 (opposite) shows that, although wages are rising in China, productivity is growing faster. In order for Africa to be able to compete, efficiency needs to be considered in terms of scale, plant lay-out, labour and management training, and the utilization of modern equipment.

For those optimistically minded, there is some indication of self-generated progress in the Sub-Saharan region and a realization that large raw material resources are available domestically. These abundant resources should lead to a substantial leather industry suited to generate both import substitution and exports.

Source: The Economist, September 29th, 2007. Reproduced with permission.

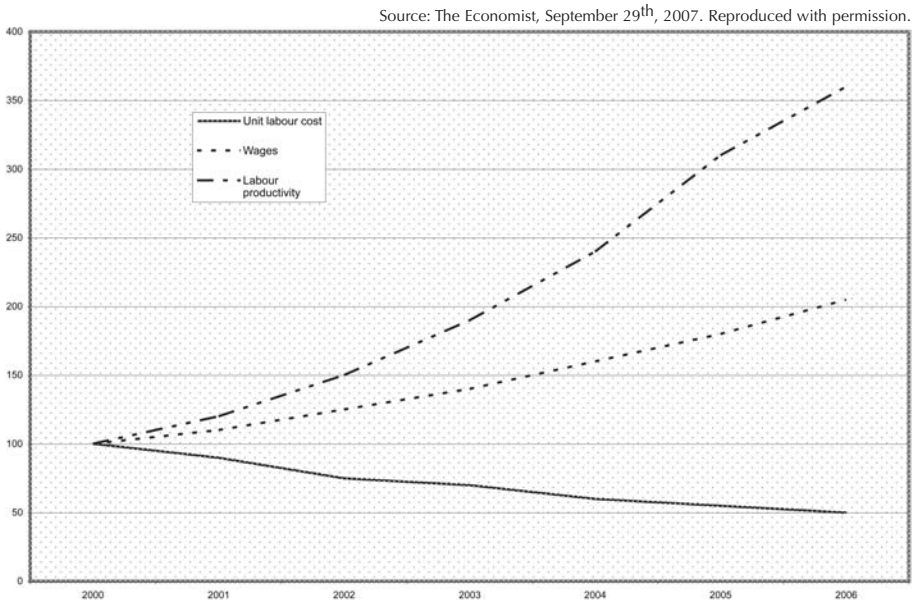


Figure 1: Labour cost and productivity in China

Africa will have to find solutions to the issues of second-hand footwear imports and counterfeit footwear, both of which are undermining potential growth of fledgling industries. An additional issue is infrastructure and transportation. Moving raw materials, chemicals and components from one African country to another, and often even within a given country, is very difficult due to bad roads and frequent police controls. Within a particular country, this raises the cost of hide and skin collection as well as the cost of moving goods to and from ports.

To date, Africa has not done well in terms of foreign direct investment (FDI) in the leather industry; this will have to change if growth is to be achieved. At the moment, the most likely country to lead such a change is China; wealthy African expatriates may also play a role. Again, Ethiopia is the country that has begun to attract some FDI, and it may lead the way for other African countries.

If Africa is to develop its leather industry, environmental issues will have to be dealt with; tanneries are already being inspected as part of the supply chain. Generally speaking, awareness is much higher than a decade ago, and primary treatment is more common. In many countries, such as Ethiopia and Morocco, tanneries still tend to be located close to town centres where treatment is difficult and costly. The 2008 floods in Ethiopia highlighted the fact that tanners are not adequately prepared and that considerable investment will be required to deal with the situation. One solution would be to relocate tanneries out of towns, where land is more available and cheaper; however, far from towns there are often bigger problems with infrastructure, labour and salinity of effluents so that this solution is not always feasible. This also applies to tannery efficiency because in some African countries there is a preference to have mixed productions in tightly packed facilities with second-hand or reconditioned machinery.

Ethiopia During 2007 and 2008, Ethiopia started to develop its leather and derived products sector more effectively. A mix of export duties and incentives has led to the use of a larger proportion of domestic raw material for the manufacture of finished leather and finished leather products. In the 2006-07 budget year, Ethiopia exported leather and leather products worth US$89.5 million. Italy was the leading recipient with 44%. The government expects the value of leather exports to increase to US$500 million within five years, and is has imposed increasing duties on exports of semi-processed material to support this goal.

North Africa While the future of Sub-Saharan economies lies in developing light industries with high employment levels and based on indigenous raw materials, North Africa is already much more advanced. The region from Morocco to Egypt has good raw materials and well developed industries. Proximity to Southern Europe, historic links to France and Italy, and a tradition of good craftsmanship have helped these countries to become a low-cost offshore manufacturing centre for some European brands. Each of the countries in this region has a long history of leather making from Fez to Marrakesh in Morocco, from Bougie in Tunisia to Ghadames in Libya, not to mention the Egyptian Mathematical Leather Roll (EMLR) of 1850 BC.

Egypt has a significant production of leather, mostly bovine, while the other countries are better known for their sheepskin production and their progress in footwear and leather goods manufacture. Tunisia is perhaps the most important of them all, but all countries are likely to gain from rising Chinese labour costs and a preference for shorter supply lines. The latter permit faster product turnover and also respond to some environmental issues related to transportation costs.

Tunisia and Morocco These two countries have long been among the top ten textile clothing suppliers to the EU and their leather industries can benefit from this. Tunisia has attracted a branch of CTC, the French quality assurance firm, which is indicative of its importance as a producer of finished goods. Tunisian industry has mostly been pulled forward by footwear exports, 90% of which go to the EU; these exports have shown strong growth in the last decade, with Germany, France and Italy being the main recipients. Leather, leather garments and other leather products are also important, but footwear is by far the leader.

Morocco also has a quality testing facility, but it is subsidized through the EU and government grants and it is not used significantly. This is because a high proportion of Moroccan business in finished leather products is cut-measure-trim (CMT) business, meaning that all materials and specifications are supplied by customers. This is starting to change as Morocco is now seeking to gain a foothold in the US market after the removal of all US tariffs on leather and leather products and the opening of a new container port in Marocco. Moroccan footwear producers also have the opportunity to sell to other African countries, and some footwear companies do quite well in this regard. As mentioned earlier, poor transportation infrastructure continues to make the development of such business quite difficult.

South Africa's leather industry has long been one of the strongest on the continent; for many years, it has been supported by a substantial automotive sector. Lately, there has been some decline in this market, and it looks like specialist areas such as ostrich leather will become the mainstay of the South African leather industry in the years to come. South Africa has good-quality sheepskin and significant tanning capacities for sheepskin and bovine hides.

Brazil has been greatly affected by the rise in value of its currency over the last few years. This has caused large drops in its footwear exports to the USA, where many major customers moved purchasing to China. Brazilian footwear exports to the USA declined by 20% due to the strength of the real against the US dollar.

However, the fundamentals of a large raw material supply and a large pool of skilled labour suggest that the future of the industry is secured. The industry is also becoming increasingly entrepreneurial seeking to invest overseas as well as to improve its design quality.

Table 16: Brazilian leather exports

	Wet salted bovine hide		Finished bovine leather		Wet blue bovine hide	
	Volume	Value	Volume	Value	Volume	Value
	t	US$	sq ft	US$	pc	US$
2005	280,862	5,250,718	8,312,932	649,036,350	16,000,484	427,083,015
2006	258,542	2,693,441	11,268,591	920,272,468	21,008,236	639,639,158

Source: CICB.

The growth in Brazilian leather exports, as opposed to footwear, continued in 2007. In the first nine months of the year, preliminary figures show leather exports worth US$1.62 billion, an increase of 21% year-on-year. The total value of leather exports was half of that of beef exports (US$3.29 billion) and more than the value of footwear exports (US$1.44 billion).

About 60% of Brazilian leather is produced for vehicle and furniture upholstery, while the rest is turned into handicraft items, garments and shoes. The main importers of Brazilian leather are Italy and China.

Some experts predict that, as Chinese exports start to level out, Brazilian exports will come close to matching them by 2015.

Table 17: Brazil's leather sector trade balance

Unit: '000 US$ (FOB value)

	2004			2005		
	Export	Import	Balance	Export	Import	Balance
Total	1,293,146	162,591	1,130,554	1,401,128	128,719	1,272,409

European Union In the past few years, EU leather producers have done better than expected and, although the current strength of the Euro is creating problems for exporters into dollar areas, the long-term prospects for many of the remaining EU tanneries, mostly in southern Europe, inspire optimism. Italian tanners in particular showed a remarkable increase in turnover in 2006 and 2007.

It was thought that REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) would do great harm to the EU leather industry in terms of creativity and innovation as specialist chemicals would not be used or become too expensive. So far, this has not happened, and the view of European tanners is that the playing field will level out as more countries adopt the EU or a similar approach. The ultimate impact of REACH on chemicals, leather and finished products is still, however, largely difficult to predict.

In the European countries that were part of the former Council for Mutual Economic Assistance (COMECON) bloc, the changes over the last two decades have not been beneficial to the leather industry. These markets opened up to cheaper leather products from China, which damaged their footwear industries in particular before they could modernize to compete. Changes in the abattoirs affected the pigskin supply (which was of high quality in some of these countries). Some stabilization is taking place and the long-term prospects for the leather sector of the region seem to be reasonably good.

Nevertheless, it should be said that margins are generally low for EU tanneries and many of these firms are not well positioned to withstand further shocks from environmental costs such as REACH and from exchange rate volatility. Consequently, a steady attrition of the industry in the EU seems likely.

As mentioned before, EU tanneries used to be mostly family-owned and ill-structured to deal with globalization. Those remaining in Italy have now reached very high levels of efficiency and process skills. Combined with their innovation capability, these features can yield high-quality fashion-oriented leathers at very affordable prices. Italian tanneries have been able to sell into difficult and price-conscious markets such as China.

Four types of European tanneries are likely to survive:

- those able to internationalize via joint ventures and partnerships;
- very large and highly automated facilities primarily for the manufacture of upholstery leather (there is one such enterprise in Austria that processes 100 t of wet salted hides a day);
- enterprises moving towards smaller, creative boutique operations serving local high-end users of leather, and which may also be making use of partnerships with companies in the newer EU member states and/or North Africa;
- niche producers such as manufacturers of chamois and heavy leather for industrial users.

Italy's leather sector is expected to remain strong and, if the luxury market continues to develop as expected, to thrive. Vegetable tanning is trying to emulate certain advantages of chromium, and it is likely to gain ground based on a mix of its own appeal and continued anti-chromium marketing.

Over the years, tanners in Southern Europe have been subject to a great deal of pressure to become very efficient and some can now offer prices similar to those of Brazil and India – and for higher-grade, more fashionable leather.

Germany's leather industry has lately depended on automobile upholstery. The industry is aware that its margins are shrinking in Germany and that production is increasingly moving to Eastern Europe and the Far East.

Russia The leather industry in Russia has had a very disruptive last 15 years, but it is now growing back to some strength, in large part on the basis of increasing consumer wealth. Output has more than doubled over the last decade, although there is some doubt about the accuracy of the figures. The actual total figure provided by the Russian industry for 2007 is a very large increase over the total for the previous year, which is closer to the FAO figure.

Table 18: Russian leather production

Unit: million sq ft

	1991	1995	1998	2000	2003	2007
Soft (Cr)	45.2	9.7	4.2	8.7	15.7	26.6
Waterproof*	5.9	0.6	0.5	1.4	1.4	1.0

* This Russian waterproof leather is also known as *juft* and is used in winter boots, especially for the military.

Unique to the Russian leather industry is the *juft* leather, a term that refers to a heavy type of leather for work and military footwear featuring high substance, heavy fat liquoring, hard wear and a low cost. Traditionally popular with local shoemakers, it is now manufactured by a small number of tanneries, and output fell by 20% in 2005. The largest producers are located in the Kirov, Yaroslav and Nizhniy Novgorod areas.

Turkey currently sees its leather industry as stable after a number of years of steady growth based on a strong domestic sheepskin supply and an associated high-quality export-oriented leather clothing industry. 2008 figures were only marginally higher than 2007 numbers, but this occurred against a backdrop of declines in output in most other Turkish industral sectors. In 2005, there were 1,462 tanneries employing 22,616 workers. The industry continues to modernize, primarily within the complex process of relocation to specialized leather industry zones like Tuzla, Menemen and Bursa with an emphasis on reducing water and energy consumption along with more automation. The quality of Turkish leather products and their ability to command better prices perhaps insulates the Turkish industry to some degree against the economic downturn.

2.3 End uses of leather

History books tell us about leather boats called coracles (still in use in Tibet), about leather bottles and leather armour. End uses of leather have been changing considerably over the centuries, and the industry has had to concede end uses many times over the last 1,000 years or more, although demand for leather has increased.

All mechanisms that drive the market for leather and leather products relate to population growth and per capita disposable income. Footwear is a more basic purchase, while most of the other items have to do with growing wealth allied with job and income security. Footwear economics change when individual consumers buy large numbers of pairs every year. For example, US consumers buy about seven pairs a year and the purchase of some of those pairs are impulse purchases.

Table 19: Leather end uses in percentages based on square feet consumed

	Footwear (M)	Clothing (M)	Gloves	Leather goods	Upholstery	Automobile
1970	50-70	3-5.0	3-5.0	15-20	no data	no data
1990	67.9	12.4	4.3	8.8	5	1.6
1995	62.6	17.8	4.2	8.7	4.8	1.9
2000	58.0	14.6	4.3	9.4	8.8	4.9
2005	55.0	11.4	4.4	9.2	13.0	7.0
2010	53.3	11.4	4.3	9.1	13.5	8.2

Sources: ITC and industry.

What all this means is that an increase in consumer wealth leads to a rise in the demand for leather for premium goods. In turn, this means an increase in sales of luxury goods, leather furniture, and upholstery leather for automobiles. Increasingly important in this calculation is the fact that, in much of Asia, growing wealth combined with the specific local demographics (one-child families, multiple generations sharing housing) produces a rapid increase in disposable income. Add to this the traditional Asian preference for premium brands, and the conclusion is that purchasing of high-quality leather goods is likely to continue rising at a higher rate in Asia than in the rest of the world for many years to come. The percentage of leather-upholstered automobiles sold in China is near 100 in the high-value segments. Only 70% of European luxury cars sold worldwide have leather upholstery, while just about every such automobile sold in China has its interior done in leather.

Still, beyond these important patterns, there are other major considerations that have been discussed before:

• for the first time, agricultural land is becoming limited for the keeping of animals, especially for cattle, the biggest users of land;
• there is a shift in meat-eating habits toward white meat, and where red meat is still preferred, hides will mostly be smaller and poorer in quality.

The implication of all this is that demand for leather could increase faster than supply. As mentioned before, historically, the industry has done well adjusting to imbalances, but it will need to consider what defines quality throughout the value chain, from raw materials to final consumer products. In doing so, it will have to keep a close eye on the definition given to quality by the final user, since there is a lot of evidence that, at the tannery level, the industry remains product-oriented, rather than consumer-oriented.

It is expected that the percentage of leather used in footwear will decline, and the fact that some of the most recent footwear "fads" – such as Crocs – do not use leather at all may be symptomatic of trends to come.

Leather goods, while still selling the concept of quality, have shown that the combination of leather and textiles/synthetics can work with some consumers; some automobile companies use leather on key areas of the interior and plastics elsewhere. It can be expected therefore that where and how leather is used will depend on a price/value mechanism. Ultimately, price and quality related to alternative or substitute materials will be the deciding factor.

Making low-grade heavily coated leathers does not appear to be the right solution. Instead, natural leathers with natural defects need to be designed into goods that are more sympathetic to the nature of the raw material.

Questions will be asked as to whether automobile upholstery has to be made out of best-quality hides, and about the dangers of using leather or coated splits that are hard to tell apart from plastic for the consumer. Aeroplanes are already starting to use smaller pieces and goatskin – perhaps another sign of future trends.

The leather industry does remain dependent on consumer spending; the patterns of how that spending affects the different sectors depends in turn on how consumers feel about their employment and job security. Items such as footwear are essential, while others, such as premium leather goods, are more of a luxury; without question, the next five to ten years in the evolution of the leather industry will depend on how serious and prolonged the current recession is, and how it affects different categories of consumers and different regions.

Technical advancement and innovation related to consumer benefits and to process efficiency will be essential if the industry is to prosper.

2.4 Tanning chemicals

Over the last 100 years, the tanning chemical industry has become very significant in the leather supply network, mostly achieving profit margins much higher than those to be reaped in the tanning sector itself. Chemical companies have carried out major research and product development – both long-term and seasonal – over decades, and the ownership of technology in the industry generally slipped from tanneries, research institutes and educational institutions into the hands of these companies. The German and Italian leather chemical industries have been very innovative.

Over the last fifteen years, this structure has begun to change. The shift of much of the leather industry to Asia has increased the cost of technical support supplied by chemical companies, which led to substantial reductions in their profit margins. At the same time, a significant process of reorganization and consolidation in the global chemical industry generated more competition.

In Asia, and in China in particular, the domestic market has been much more competitive than in the rest of the world as a whole; international chemical companies have found this sector difficult to penetrate, as achievable prices are lower and qualities are different. Initially at least, international companies tried to focus on joint-venture tanneries in China, leaving the domestic Chinese tanners to the domestic chemical companies.

The confusion created in the industry worldwide by the new EU legislation on chemical registration (REACH) has been great. This process requires expensive registration of all chemicals in use and it was expected to raise the cost of chemicals and at the same time reduce the level of innovation in European chemical companies, especially the smaller German companies. Until now however, it appears that, while complying with these new regulations entails costs, chemical companies were well prepared and the impact on tanneries has been minimal.

The general view is that any initial disadvantage suffered by Europe will level itself out as the rest of the world adopts a similar standard affecting materials and finished products imported into the EU. Both Europe and the US will become more particular about the chemical content of materials used in imported goods. Issues between the US and China over toys, pet foods and foodstuffs during 2007 and 2008 make this development more likely.

Overall, however, there is no doubt that margins have diminished and will continue to do so in the leather chemical sector, and the outcome is likely to be a reduction in innovation and new chemicals. Fundamentally, this means that we are likely to see only incremental changes in the technology being used over the next few years. The view of many experts was expressed by John Basford (2007) and dr. Peter Germann (2008) who believe that, over the next two decades or longer, chrome tanning will remain the basis for the majority of tanning carried out in the world. While chrome-free leather has made inroads in the automotive sector, chrome is still present in 80% to 85% of all manufactured leather. The advantages of most chrome-free leathers are the absence of heavy metals, diminished solid waste disposal issues, and improvements in dry-shrinking behaviour. However, they produce higher COD in the effluent, reduce the fixation of dyestuffs, are harder to be made waterproof, involve more complex production processes, and entail more mould issues when wet. They also require two or three times the weight of tanning chemicals per kilogram of raw hide. We can expect more work to be done to ensure that leather processing does not generate Cr^{VI} .

There will certainly continue to be interest in new techniques and there will be greater use of vegetable tanning and other non-chrome approaches. This trend gained momentum as it became obvious that only a small number of leathers need to pass the boil test.

We can expect new approaches to vegetable tanning that combine traditional methods with new technologies to produce effective outcomes with a reduced extract offer. It is anticipated that the industry will continue to look on new ways to cut down the environmental impact, and this is likely to involve looking for further replacement by bio-chemicals of materials such as lime and sulphides. Fungicides and mould treatments are also likely to see further use in order to minimize utilization of undesirable chemical agents.

New machinery also plays an important role. We have had many developments in vessels for liming, tanning and re-tanning, from concrete mixers to Y-shaped vessels, and in numerous materials, from stainless steel to polypropylene along with chemical additions. Through-feed systems for setting out, drying, conditioning and staking, and dry drums for chemical addition are now also important. Obviously, new machinery developments go now beyond automation and process efficiency. They increasingly require process and even chemical adaptation.

This need for leather chemicals and process technology to work hand in hand with machinery developments is very obvious in finishing. New systems of roller-coating and digital techniques require the development of new materials for the industry.

Overall, a good deal of development work will focus on the handling of raw material with more surface defects that can ensure a natural leather look.

2.5 Environmental issues for tanners

Environmental issues have been at the top of tanners' agenda for the last few decades, since dealing properly with tannery wastes is expensive. This has caused concerns about the fairness and appropriateness of demands made by governments, and about whether it will be possible for tanneries to operate on a level global playing field.

Most of the main issues of solid and liquid waste are now well understood, but the industry does have a number of evolving areas of concern:

- common salt (NaCl) and some other water-soluble salts getting into water recipients – rivers, lakes and/or ground water – and making the water unsuitable for drinking and other uses;
- the lack of environmentally acceptable and cost-effective solutions for solid waste disposal; landfill for solid wastes in some European countries and the associated trend to increase the cost of landfill via tax or other methods;
- growing consumer pressure and associated regulations regarding an increasing number of chemicals now deemed harmful for various reasons;
- high levels of water consumption.

In dealing with these challenges, the tanning industry does not speak with a unified voice, and although the International Union of Leather Technologists and Chemists (IULTC) started to spearhead an improved coordination of the potentially relevant bodies with its Paris meeting in September 2007, there is no clear evidence that concerted action is to be expected in the future. This means that the power to decide on these matters has been left in the hands of regulating authorities, pressure groups, and major brand manufacturers.

It is also the case that only 50% of raw hides and skins actually make a successful transition to leather and, in many instances, all the rest go to waste. Research projects such as the EU-funded Radical Environmentally Sustainable Tannery Operation by Resource Management (RESTORM) have aimed at reducing waste and creating more of a closed loop. This would involve changing some of the chemicals used, extracting more material for which economic uses can be found, recycling the liquids back into the tannery, and using the solids to generate gas and power in a variety of ways.

The industry can be expected to put more effort into making better use of solid wastes such as fleshings and shavings from tanneries, and to look for new possibilities.

Common salt has become a considerable problem as it is not removed easily and the best method, reverse osmosis (RO), is costly in terms of energy consumption. The need for fresh water in the world is advancing the technology for the removal of salt from seawater and this has helped reduce costs, but now another technological leap is needed for further reductions to become possible. Meanwhile, tanneries are often being built within pipeline distance to the sea.

At the same time, processing is being scrutinized for ways of reducing the use of salt in conservation and in pickling.

As pointed out in the 2007 Arthur Wilson Memorial Lecture by R. Daniels titled "Effluent Treatment in the Root Zone: Working with Nature," tanneries with sufficient land for reed beds are increasingly being considered a good solution, not just for polishing as a final process, but also for replacing sections of chemical treatment and for drying sludge. These highly resilient and very capable plants are now extensively used outside the leather industry to handle difficult situations such as airport and highway run-offs, which are heavily laden with petrochemicals. Setup and management costs are much lower than those of other methods, and reed beds are now an important potential element in the environmental treatment mix.

Burning and gasification technology is developing quickly. Burning solid wastes at a variety of temperatures is currently being examined, such as moving to high-temperature burning if chrome is present in order to avoid toxins. High-temperature burning acts effectively as a chrome smelter and generates ash that contains the chrome, and chrome produced in this way could be reused. This is still a fledgling technology, and there have been some false starts. It does, however, seem that it can be made to work, and while cost may make it uneconomic for a single tannery to build a stand-alone plant, more than one tannery or other businesses could join resources and build such a facility for common use. This technology can be expected to develop as it becomes increasingly difficult to find additional space for landfill.

Water consumption has been a major issue for a long time and great strides have been made over the last three decades to control and reduce the amount of water needed. Metered water addition into drums and controlled drainage rather than the old lattice doors have been a major part of this effort, which can also be said about low-float processes in general. More recently, work has been done with drum configurations and materials that reduce both water and energy consumption in tanneries. This is an area where considerable progress can be expected in future years. Increased recycling and work on higher exhaustion continue to be important and will keep being so in the future.

Overall, the leather industry should be able to reposition itself as a solution to environmental problems rather than a contributor, as there is no other industry that can make use of the total volume of hides and skins yielded by the livestock and meat industries. When pressure groups stopped the tanning of sealskins in Greenland, the outcome was that the skins were thrown into the sea untreated. The basic argument that the tanning industry needs to promote is that hides and skins are a renewable resource that would become an environmental hazard if it were not converted into something beautiful and useful. Leather substitutes, more often than not, require the use of material obtained from non-renewable resources such as petrochemicals. To date, the industry has failed to present this position as the different sectors of its fragmented structure have not been able to develop a common platform.

In this regard, we can expect the industry to work more closely with its customers in footwear and leather goods in order to determine what is the appropriate lifespan for a leather product and what, other than landfill, would be a suitable way to deal with used leather articles.

2.6 Research and education

Historical background Work to improve leather processes has gone on for many years and a great deal was done as new chemicals and processes were introduced in the 18th and 19th centuries, accompanied by the shift from the cottage industry structure to large factories in the mid-19th century.

Structured industry research and education only began toward the end of the 19th century as chrome tanning came into prominence. This required tanneries to employ trained chemists and held the promise that further research could lead to significant savings and much better leather.

Thus, by the end of the first quarter of the 20th century, all of the major leather producing countries had established research associations funded by large payments, linked to turnover and number of employees, from their tanner membership. Over time, the industry in these countries has declined, with tanning being transferred to a great extent to developing countries, and these research associations suffered from a steady decline of their funding. The US, Australia, France, Germany, South Africa and the UK have all seen their leather industry research associations decline considerably, change into commercial organizations largely engaged in testing, or disappear altogether.

India, Brazil and China are exceptions; these three countries have long-standing combined research and teaching institutions. Brazil in particular has managed to build up a well integrated structure of research, education and industry.

The expanding research done in institutions in India and China has increasingly provided the material that has allowed the journals of the American Leather Chemists (JALCA) and the UK Society of Leather Chemists and Technologists (JSLTC) to survive. It has been argued that the research done in these newer institutions tends to focus on short-term gains, which is to be expected considering the growth of their domestic industries.

In addition, a number of bodies have been established in the emerging leather producing countries to assist in the implementation of best practises as well as to provide training. Examples of these would be the Centre National de Cuir et de la Chaussure (CNCC) in Tunisia, the Leather and Leather Products Institute (LLTPI) in Ethiopia, and the National Institute of Leather Technology (NILT) and the Leather Products Development Institute (LPDI) in Pakistan. While most of their current activities have to do with quality improvement and technology transfer, it can be expected that, over time, they will play a bigger role in research.

The large amount of research carried out by chemical companies has been of major importance in the last hundred years. However, loss of margin and the cost of environmental issues related to leather chemicals has slowed down these activities. The adoption of REACH in Europe, along with other environmental concerns, has pushed the research expenditure of chemical companies much more toward compliance. The cost of REACH has also caused concern regarding smaller chemical companies in Germany and Italy, which would probably be able to fund only the development of potential "big winners." Today, evidence is mixed on this matter, although it appears that less damage has been done to creativity than it was believed initially.

All the evidence suggests that chemical companies will spend most of their research budgets on compliance and application technology, which is more about new process formulations with some product adaptation. Chemical companies argue that putting more money into research is difficult because selling new products to tanneries hardly yields a profit. There is an ongoing dialogue regarding the reason for this, some arguing that tanners are too cautious and others saying that tanners themselves have margins that are too small to pay a premium for new developments.

Current problems and future challenges With increasing pressures regarding chemicals, water usage, and landfill issues, researchers are called upon to ensure the stability of the industry. In addition to the issues already discussed, there is pressure to get the industry to match the technology improvements achieved in textile, faux leather and plastic alternatives. Consumer expectations rise year by year and, to maintain its position, the leather and leather products industries require ongoing research at all levels. Considering that after thousands of years of development, the leather industry is still using almost exclusively only two tanning methods – chrome and vegetable – and that chemists still argue about the precise mechanisms involved in both, it is clear that the industry has been short of fundamental research.

It is not disputed that there is a positive link between research, training and industry development that needs to be maintained. However, it is clear that there has been a definite decline in the number of academic papers being published as well as in the amount of fundamental research being done.

There is a general agreement in the industry on the need to find a way to support more basic/strategic research. While a number of institutions – e.g., the British School of Leather Technology (BSLT) at the University of North Hampton, the Central Leather Research Institute (CLRI) in Chennai, India, the Eastern Regional Research Center (ERRC) in Pennsylvania, USA, and the Consejo Superior de Investigaciones Científicas (CSIC) in Spain – have been able to make advances in this area, one of the problems of recent years has been the difficulty of getting sufficient financial support to carry out a sustained basic/strategic research effort. The need to demonstrate useful results in a short time frame means that mainly applied research is being funded (as has been the case with much research supported by the EU). The fact that there has been no recent major innovation within the industry is very likely related to this short-term approach that does not favour the generation of new and durable knowledge that can support thinking about what may be possible in the future.

The recent work on collagen biomaterials under the EU RESTORM project is a case in point. It brought together a number of commercial and educational organizations from many EU countries in a large project related to the "closed loop" concept of making leather. It was a mix of short-term and medium-term research looking at ways of reducing the use of inorganic chemicals such as lime and sulphide and replacing them with enzymes and other biomaterials. This would allow the re-using of chemicals and liquids in the leather industry and other areas after membrane filtration and a number of other techniques. It did not involve new fundamental research, but mostly the transfer of knowledge from other sectors and its application to the leather industry. The same can be said about much of the work that has been done on various chrome-free leather options.

Nevertheless, the potential for collaboration should not be ignored. Sometimes this requires mixing organizations from industrialized and developing countries. This concept of combined research using the skills of various organizations across the world seems more likely to attract funding in the future and brings into the equation academic institutions with skills in related areas – collagen, medical treatments, stem-cell work, and membranes. If the leather industry embraces this approach, many experts think that it could benefit considerably from developments in other areas, such as:

- pharmaceuticals;
- collagen science;
- smart textiles and materials;

- nanotechnology;
- medical industry;
- waste treatment;
- food industry (sausage skins and gelatine);
- digital technologies (finishing).

Nowadays, there is also more collaboration among machinery manufacturers, chemical suppliers and tanneries. New drum types and materials for wet and dry drums, drying and conditioning systems, and finishing processes often require the development of new chemicals or new formulations/processes, and some of the development focus has swung towards machinery manufacturers.

Among the research organizations that are fully committed to leather while retaining a strong link to teaching are Lederinstitut Gerberschule Reutlingen in Germany, the above-mentioned BSLT at the University of North Hampton, the CLRI in Chennai, and the Sichuan University in China. Many other European institutes in Spain, Holland, Italy, Germany, the Czech Republic, and Turkey have the competence to do research work, but it all depends on funding and opportunities. The trend in recent years is one of increased cooperation in research. Older institutions such as the BATA University, although much smaller than they were a few decades ago, still retain their relevance for the future.

Over the past ten years, BSLT has steadily expanded its research programme and has produced studies on leather-use psychology, collagen regeneration, and enzyme utilization, all this work being the result of collaboration with other institutions in the UK and abroad. A programme called "Knowledge Transfer Partnership" allows the university to access funding for research projects in collaboration with small and medium-size businesses. Such creative ways of expanding research in leather are likely to become more common in the future.

In New Zealand, the Leather and Shoe Research Association (LASRA) is one of the few such institutions that have survived in their initial form. LASRA's success has been to "critically analyze real research and development needs in terms that reflect national demand on the one hand and deliver real commercial benefits on the other." They argue that, because of national needs, research can be structured with a longer-term horizon, and that it is possible to build on basic research to underpin the applied work that attracts industry funding. This perspective opens up different funding pathways. The mix also makes it easier to attract and retain good people. This approach is the successful continuation of research supported by the domestic industry, which was the formula for stand-alone research institutes through most of the 20th century. In nearly all other countries this business model has failed.

Another survival approach, taken by SATRA in the UK and the Centre Technique Cuir Chaussure Maroquinerie (CTC) in France, is to become something closer to a global testing house with consultancy arms. To a lesser degree, the Leather Technology Centre (BLC) in the UK has followed the same route. These are now strictly commercial organizations in which the role of research is considerably diminished, albeit not totally ignored. Testing is a logical income earner for a research and teaching institution and should not be overlooked by organizations in the developing countries. If more testing could be done in their institutes, it would reduce the issues of compliance as barriers to entry into some markets, and it would also generate revenue.

For institutes in Northern Europe, actual tannery access can be limited, especially in the north of Europe, where tanneries no longer constitute a large industrial sector. Therefore, it would make sense for the older institutes in developed countries to work closely with institutes in the developing world that are based amidst large conglomerates of tanneries; the result would be a strong mix of theoretical and practical aspects of research. The funding systems would have to evolve somewhat to support such activities. Much of the ongoing research has moved from specialist leather research facilities and from the chemical supply trade back towards educational institutions.

Fundamentally, collaborative research is increasing and needs to be further encouraged. It could be very useful if it managed to link top research work in the developed countries with locations in the developing world where the leather industry is expanding.

New sources of funding for long-term research are urgently needed.

Training and research are closely linked, but while the area of fundamental research has suffered as the industry realigned itself globally, teaching facilities have actually expanded. The widespread use of chromium tanning requires careful management of pH and temperature regulating machinery; additionally, automation, water and waste management, and the increasing use of biological materials such as enzymes mean a steadily increasing need for skilled technical staff. While modern production systems may reduce the workforce in general and the number of skilled staff needed, the technical demands on those who remain employed will increase. As more factories open in developing countries, the need for training will persist. This means that the industry will need a constant flow of basic skills, leather technicians and other staff trained in leather science and technology, biochemistry and environmental sciences, plus some highly skilled engineers.

Most countries have introduced training at various levels, from skilled worker to supervisor and above. Some countries also have "model factories" or "shared facilities," where a mix of operational training and contracted production can be carried out.

As mentioned before, in some instances, educational institutions have become highly important in technology transfer and in the introduction of quality control. Increasingly, the older schools have become dependent on foreign students and this has lead to a number of actual and potential changes. At the same time, the industry is less willing to release staff for study over long periods; consequently, shorter courses are becoming more common. Some future trends are apparent:

- older institutes will expand collaboration with developing world institutes in offering joint courses taught partly in each country;
- older institutes will help with "training the trainers" and will offer further education leading to PhD and Master degrees;
- teaching leather technology is increasingly being done locally (with the exception of courses for teachers and senior managers);
- distance learning and blended learning will be expanded;
- short courses will be provided more often;
- increasingly, educational institutes will deal with the whole value chain, from raw material to retail, and will adapt their courses according to the requirements of local students.

Worldwide, the commitment to education is very high, but for various institutions almost everywhere, funding has become an issue. This means that educational institutions around the world have limited interconnections and knowledge, and teaching processes that could be beneficial spread less quickly than might otherwise be the case.

While the focus of activity of both teaching and research has moved following the restructuring of the industry, Europe has retained some relevance. The importance of retail, luxury and fashion sectors of the leather industry entails specific educational and research requirements. Europe retains a significant proportion of very creative tanneries, research centres of major tanning, footwear and leather goods companies, a sizeable automobile industry, and many of the world's most innovative manufacturers of leather chemicals. Leather research and education will maintain its significance in this region.

2.7 Expected future trends

The tanning industry, with its wide range of raw materials from all over the globe and its extensive variety of end-user clientele, is very complex. It is an industry that over centuries has given up end uses as better materials emerged. Its major outlet, footwear, changed its course with the introduction of trainers, which leather has been unable to dominate.

Nevertheless, looking at the next fifteen years, it seems unlikely that the basic structure of the industry will change dramatically in terms of processing, end uses or raw material. Even in terms of location, which has been one of the most dynamic areas of the last fifteen years, it is expected that we will see more of the same rather than major discontinuities.

In terms of raw material, the point has clearly been made that there are issues of land use for cattle and some changes in preferences in favour of white meat, but that the overall demand for meat will continue to flatten in the developed countries while it will continue to grow in the developing world. As more raw material comes from developing countries, issues of quality will continue to be of concern to an industry that keenly wants to avoid producing a plastic-like commodity. Overall, the supply of traditional raw material should continue to be satisfactory, although it is to be expected that such material as deer and camel will be further commercialized.

While gelatine and sausage skins take out small amounts of tanning raw material and in some places skin is eaten or left on the animal, no significant alternate uses for hides and skins are likely to arise in the next fifteen years, although a lot of work will be done to find viable end uses for waste collagen and other tannery by-products.

It has been demonstrated that there is a link between tanning location and the availability of raw material, and this will continue to be important. While the overall volumes of raw material will steadily increase, different types and grades of material may be harder to obtain (especially since over 40% of leather raw material produced in the world is not freely available for purchase). At the same time, there is a link between tanning location and end uses as a result of shorter lead times and greater responsiveness to demand fluctuations.

The fact that growth in the Chinese leather industry is beginning to flatten and most other major leather producing countries are already using most of their capacities means that the next fifteen years will

not see another country match the dominance China has achieved. Even with some negative feelings on the part of the Chinese government, the country's leather industry is expected to continue to grow, albeit with some major relocation inland.

Further growth in China as well as in India, Bangladesh, Pakistan, Ethiopia and North Africa means that there will be contraction in tanning activity elsewhere. Those countries without a good hold on raw material, or with large end-user industries such as some of the European countries (especially Italy) and the Republic of Korea must therefore feel threatened. Tanners that cater to the automobile industry have always located their facilities close to automobile manufacturers and are very capable of moving their plants; therefore, their locations are expected to change as consolidation in the automobile industry appears inevitable.

Tanneries themselves are likely to develop as more machinery processes link operations, reduce labour content and improve consistency in leather quality. The industry is likely to see a split into smaller boutique tanneries and large highly mechanized ones. The latter, as seen in the automotive sector, can be built in different parts of the world with satisfactory transfer of processes and quality, which suggests that large groups of tanneries located in different parts of the world may be a beneficial approach. Such groups would have good access to raw material and would be closely linked to a number of major brand manufacturers to ensure large orders.

In terms of end uses, the steady move toward more leather in automobiles and aeroplanes will increase, although how this trend will be affected by the current financial crisis is unclear. Equally uncertain are the effects of customer pressure in favour of plastic-like leather instead of products that emphasise leather characteristics.

This underscores the point that, perhaps with the exception of horse saddles, leather is everywhere in battle with other materials and must offer value for money. The footwear industry makes it clear that it will buy leather if it is suitable in all respects, but has no fear should supplies diminish. It is expected that, until 2010, footwear will keep its share of 55% of leather used, but that after that, it will slip to 50% as upholstery and other leather goods will increase their shares.

Chrome tanning will remain the dominant tanning process, but there will be continued attempts to find good alternatives. Over the last fifteen years, chrome has slipped to between 80% to 85% as the automobile industry in particular has switched to leather produced through chrome-free processes; the share of chrome tanning could well drop to 70% as new processes are adopted. It is also foreseen that cooperative work between chemical companies and machinery suppliers will lead to further improvements in processing.

Environmental issues will become even more important as the world population grows and urbanizes, and global warming and the need for clean drinking water cause increasing concern.

3. The footwear industry

3.1 Summary

Global footwear production reached 16 billion pairs in 2007, an increase of over one third since 1995. Here are some of the major recent developments:

• it has taken China only 20 years to move from a poorly organized industry, catering predominantly to its domestic market, to the most dominant player in world footwear by a large margin – a 63.7% share of global production;
• in 2007, more than 84% of the world's footwear by volume was manufactured in Asia;
• Asian production will continue to increase over the next 10 to 15 years, to the further detriment of the "traditional" footwear manufacturing countries;
• with their respective shares of the world's production, India (12.3%), Viet Nam (4.1%), Indonesia (3.5%) and Thailand (1.6%) are the other main contributors to Asia's success;
• the leading footwear manufacturing country outside Asia is Brazil, with an estimated 4.9% of world output;
• 54% of global production of genuine leather is used in the footwear industry;
• footwear production in the developed world has, in most cases, been downsized to a level that makes this trend irreversible;
• it is estimated that 10 million people are employed in shoe manufacturing worldwide;
• 2.82 billion pairs (more than 18% of the global output) are classified as sports footwear.

This section of the report looks at the trends in footwear production and consumption in the world, and it attempts to identify changes within the main geographic regions. To begin with, here are some points of clarification:

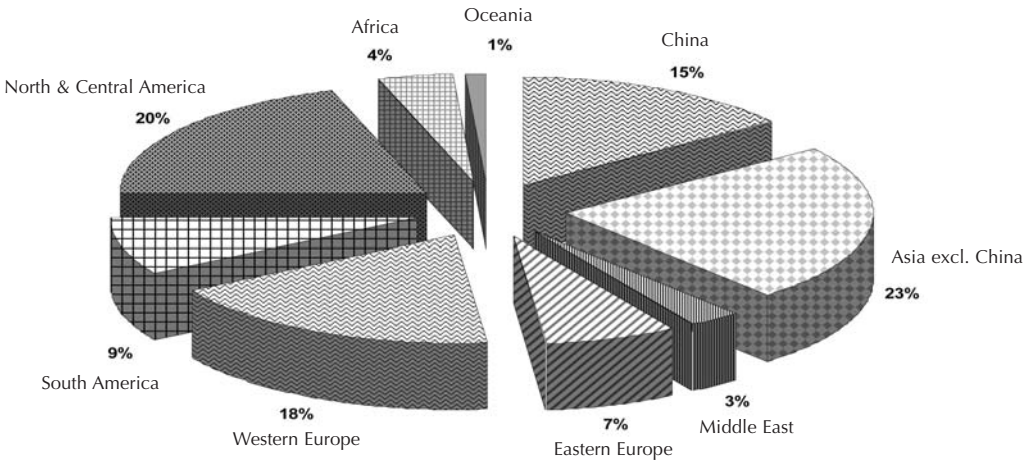
This report deals with footwear production per se. Of course, there are many industries associated with the manufacture of shoes that also need to be considered. Significant changes have occurred in the industries that supply software, machinery, components, and chemicals to the shoe industry. Many of the "traditional" suppliers have ceased to exist, some are involved in joint ventures with Asian companies, and some have downsized or moved their operations to Asia. Simultaneously, new Asia-financed suppliers have assumed dominance in some areas. While it is not within the scope of this report to survey them, the support industries of shoe manufacturing have been subject to a similar degree of change as the industry that they are supporting.

Many manufacturers in traditional footwear producing countries import partly made shoes from other less industrialized countries, predominantly from Asia, Eastern Europe, North Africa, and Brazil. Therefore, it is often the case that a significant part of the work implied by production figures quoted by industrialized countries has been carried out elsewhere. This results in a distorted view of the health of the industry in industrialized countries and an underestimation of the industry in the countries where their component suppliers operate.

It is well known that there is a very substantial illegal trade in footwear on a scale that is impossible to determine because statistics for this trade do not exist. This illegal trade may have a significant effect on the statistics quoted in this report.

3.2 The market

A regional breakdown of footwear consumption around the world is shown below.



Source: SATRA. (Note: Eastern Europe includes Turkey).

Figure 2: Footwear consumption by region

The top ten consumer countries, shown in Table 20 below, absorb approximately 70% of the world footwear production.

Table 20: Top ten footwear consumer countries in 2007

	Consumption	Population*	Est. per capita consumption
	million pairs	million	pairs
USA	2,393	299.1	8.0
EU**	2,102	501.0	4.2
China	2,080	1,311.4	1.6
India	1,895	1,121.8	1.6
Japan	650	127.8	5.1
Brazil	648	187.0	3.5
Indonesia	391	224.0	1.7
Mexico	227	109.0	2.1
Pakistan	241	168.0	1.4
Russia***	234	143.0	1.5

Sources: SATRA; * USA Census database; ** CBI.
*** Figures for Russia may be distorted because of the difficulty to define the actual imports and consumption.

Asia consumes some 40% of the world's footwear output, and this consumption is expected to rise due to the increasing wealth of the region brought about by industrial expansion. Consumption in China is already growing rapidly. It has been reported that, in 2008, footwear consumption in the USA decreased while in China it rose significantly with the result that China exceeded the USA as the world's largest consumer of footwear. It is estimated that the consumption in China will continue to grow at an anual rate of 5% to 6%, and that China is unlikely to look outside the continent of Asia in order to meet this growth in domestic demand. The EU, North America and Russia consume a further 32% of the world's output, and they no longer have a manufacturing base that is able to satisfy domestic demand. In 2007, shoe production in these regions accounted for only 15.2% of their total consumption.

Of the top ten consumers outside Asia, only Brazil and Mexico have retained a footwear manufacturing base that is capable of satisfying their domestic demand.

A very important and relative newcomer on the footwear scene is the "sports shoe," which has now developed into a fashion item. Of the 2.82 billion pairs estimated by SATRA to be made worldwide every year, only 16% are specialist sports shoes. Trainers constitute a further 57%, and brown shoes the remaining 27%.

Table 21: Top ten consumers of sports shoes

Unit: million pairs

	Domestic output	Consumption
USA	1	752
China	1,452	457
Japan	7	196
Brazil	180	187
UK	1	105
Indonesia	309	87
India	87	79
France	3	78
Italy	28	77
Germany	2	61

Source: SATRA.

3.3 Global footwear trade

The world's import and export statistics are becoming increasingly confusing due to the number of countries that are importing and re-exporting footwear.

The EU is the largest importer of footwear in the world: 3.2 billion pairs worth €26.6 billion in 2007. The USA followed the same year with 2.36 billion pairs worth nearly US$19 billion.

Table 22: Top ten footwear importers by volume in 2007

	2003	2007	Increase
	million pairs		%
USA	1,968.0	2,362.0	20.0
Japan	494.0	594.2	20.3
Germany	382.8	497.5	30.0
UK	338.0	486.0	43.8
France	309.8	394.8*	27.4
Italy	268.7	390.0	45.1
Spain	131.2	352.8	168.9
Belgium	120.7	255.3	111.5
Netherlands	152.8	207.6	35.9
Russia	145.0	191.0	31.7

Sources: SATRA; AAFA; CBI.
*2006.

Table 23: Top ten footwear exporters by volume in 2007

	2003	2007	Increase/ (decrease)
	million pairs		%
China	5,026.0	8,175.0	62.7
Viet Nam	393.0	614.6	56.4
Italy	297.6	245.3	(17.6)
Indonesia	181.0	229.0	26.5
Belgium	77.0	199.1	158.6
Brazil	189.0	177.0	(6.3)
Thailand	138.0	144.0	4.3
Germany	77.6	141.0	81.7
Netherlands	81.1	114.3	41.0
India	70.0	105.5	50.7

Source: SATRA.

The USA has virtually replaced its footwear manufacturing industry with imports. Imports in 2007 accounted for 98.7% of total US consumption, with China providing 86.4% by volume, while Viet Nam's share was 3.8%, followed by Brazil with 2.2% and by Indonesia with 1.4%. According to AAFA, per capita annual consumption of footwear in the USA dropped from 8 pairs in 2007 to 7 pairs in 2008. Current indicators for 2009 show that sales continued to decline due to the global economic downturn.

Table 24: US footwear market (wholesale)

	2003	2007	Change 2003/2007
	million pairs		%
Production	39.81	30.66	–23
Imports	1,968.10	2,362.35	+20
Consumption	2,007.90	2,393.00	+19.2
Import penetration	98%	98.7%	+0.7

Source: AAFA.

In the EU, it seems that the purchase of cheap footwear and its subsequent re-export has been identified as a business opportunity, and the EU is now a major importer of footwear from developing countries. This trade, however, is conducted largely within the EU, since shoes exported outside the EU represent only 8% of total EU imports. This is best illustrated by comparing the volume exported against the volume manufactured by selected countries in the EU. EC Enterprise & Industry figures show that EU imports fell by 3% between 2007 and 2008, and they suggest that the economic downturn will lead to another decline in 2009.

Italy, with a production less than half of that of Viet Nam, is the third largest exporter by value of footwear in the world. Italy's footwear output declined to 242 million pairs in 2007. In the same year, imports amounted to 390 million pairs, exports totalled 245.3 million pairs, and the domestic consumption was 386.6 million pairs.

The situation in Belgium is even more extreme. A country producing approximately 2,000 pairs per week and with an annual domestic consumption of only 56.3 million pairs is the world's fifth biggest exporter of footwear by volume.

Table 25: EU footwear production and exports in 2007

	Production	Exports	Exports as % of production
	million pairs		
Austria	2.6	26,7	1,026.9
Belgium	0.1	199.1	199,100.0
Denmark	1.2	18.2	1,516.7
Eire	0.2	2.5	1,250.0
France	37.6	65.7	174.7
Germany	26.8	141.0	526.1
Italy	241.9	245.3	101.4
Netherlands	1.1	114.3	10,390.9
Portugal	74.5	70.5	94.6
Spain	108.4	101.6	93.7
Sweden	0.4	9.5	2,375.0
UK	5.0	40.1	802.0
Bulgaria	14.0	12.0	85.7
Czech Republic	5.1	34.2	670.6
Hungary	14.8	15.9	107.4
Poland	47.2	28.7	60.8
Romania	68.4	68.1	99.6
Slovakia	14.0	22.7	162.1
Slovenia	3.2	4.5	140.6

Source: CBI Database.

In the EU, between 2001 and 2005, there was an average annual increase in volume of imports of 10.6%, but only a 2.5% average annual increase in value, as shown in Table 26 (overleaf).

Table 26: EU imports of footwear

	2001		2003		2005		Average annual change in value
	million €	million pairs	million €	million pairs	million €	million pairs	%
Total EU	21,960	1,858	21,681	2,074	24,166	2,648	2.5
Intra-EU	11,366	698	11,362	653	12,298	733	2.1
Extra-EU	10,594	1,159	10,319	1,421	11,868	1,915	3.0
Developing countries	7,411	940	7,819	1,186	9,992	1,792	8.7

Source: Eurostat 2006.

This table illustrates both the increasing importance of imports in the overall market and the downward pressure on prices, and these trends have continued. The main sources of import growth in 2005 were developing countries, which supplied 41.3% of total EU imports by value, but captured 67.7% of the market by volume. Here are two key aspects:

• footwear with leather uppers represented nearly 60% by value (37% by volume) of all EU imports;
• the next largest category was footwear with plastic or rubber uppers, which accounted for 15% by value (32% by volume), followed by footwear with textile uppers at 14% by value. Other footwear, including shoe uppers, made up the remaining 11% by value.

Apart from the EU and the USA, other major footwear importers are listed in Table 27 below.

Table 27: Major footwear importers in 2007

Region	Total imports	Major importers	Volume	From China	From China
	million pairs	country	million pairs	million pairs	%
Asia	1,440	Japan	594	545	91.7
		Republic of Korea	131	120	91.6
		Taiwan	76	68	89.5
		Philippines	61	52	85.2
		Indonesia	55	40	72.7
North & Central America	225	Canada	163	137	83.9
East Europe	203	Russia	191	170	89.0
Africa	372	South Africa	158	143	90.7
		Egypt	50	28	56.0
South America	326	Venezuela	51	24	47.3
		Chile	50	39	78.5
Middle East	326	Saudi Arabia	93	79	84.9
Oceania	142	Australia	94	70	74.3

Source: SATRA.

3.4 Footwear production

The world's top ten footwear manufacturing countries are shown below. These ten countries supply more than 95% of the global footwear output.

Table 28: Top ten manufacturing countries in 2007

	Volume	Share of global production
	million pairs	%
China	10,209	63.7
India	2,000*	12.5
Brazil	796	5.0
Indonesia	665	4.1
Viet Nam	565	3.5
Thailand	268	1.7
Pakistan	246**	1.5
Italy	242	1.5
Mexico	170	1.1
Turkey	172	1.1

Source: SATRA.

* includes 1.02 billion pairs of non-leather footwear, and excludes 100 million pairs of shoe uppers.

** includes at least 150 million pairs of sandals/thongs.

To understand recent developments in global footwear manufacturing, it is necessary to examine each geographic area in some detail.

Asia As previously stated, shoe production in Asia accounts for more than 84% of the world output, and the numbers are still growing at a significant rate. The growth of the industry in Asia was phenomenal until the world economic downturn of 2008/2009. China in particular has become the world's dominant footwear manufacturer and accounts for over 63% of all footwear produced worldwide. India, with 12%, is in second place. However, unlike China, India has failed until now to fully capitalize on the export market. 2008 reports appear to confirm the intention of some major sports and brown-shoe brand manufacturers to move some production from China to India over the period 2009-2011.

Viet Nam's output grew rapidly from 2000 to 2007, and in 2007 represented 4.1% of global production. Indonesia (3.5% of world production), Thailand (1.7%), and Pakistan (1.5%) are also significant producers.

The success of the Asian footwear industry should be no surprise. In an industry that is labour-intensive, these countries enjoy the advantage of having labour costs that are significantly lower than those in the rest of the world, except Africa. China benefited from its proximity to Taiwan, whose shoe manufacturers relocated to China when their products were becoming less and less competitive in an increasingly competitive market. Hong Kong producers also contributed significantly to China's success.

Table 29: Typical wages in selected countries in 2006

Country	Wages
	US$/hour
India	0.43
Viet Nam	0.46
Indonesia	0.67
China *	0.70
Thailand	0.92
Philippines	1.15
Mexico	2.59
Brazil	2.98
Republic of Korea	6.30
USA**	12.00
Italy	13.16
Japan	21.95

Sources: SATRA, 2007; ** AAFA.
* Wages in China increased by 20% to 25% in 2008.

Of the estimated 2.82 billion pairs of sports shoes manufactured worldwide, 2.4 billion, or 85%, are made in Asia, and of these, China manufactures almost 52%.

China Since the mid-1980's, Chinese shoe production has grown from just below 2 billion pairs to an estimated 10.2 billion pairs in 2007, over 60% of the global footwear output. The importance of China's position in the world market is such that it supplies almost 86% of all footwear sold in America and 50% of sales in Western Europe. The entire current footwear production of North, Central and South America is the equivalent of only 16% of China's footwear exports. The total production of Europe (including Turkey) equals only 12% of China's exports, and the total output of the rest of Asia is the equivalent of 51% of Chinese exports. China's amazing growth is best illustrated by its dramatic effect on the US and EU footwear markets.

Table 30: Chinese exports to the USA

million pairs

	1980	1990	2000	2007
US consumption	1,012,200	1,305,230	1,851,545	2,393,008
Chinese imports	10,775	395,230	1,368,344	2,041,614
Import penetration	1.1%	30.3%	73.9%	85.3%

Source: AAFA.

In 1986, China was manufacturing around 1.8 billion pairs, the vast majority of which were for the domestic market. From 1983 onwards, Taiwanese, Hong Kong and South Korean shoemakers transferred most of their production facilities to China, mainly to the Guangdong and Fujian provinces. This growth of foreign investment in footwear production continued throughout the late 1980's and the 1990's.

Table 31: Chinese exports to the EU

	2002	2005	2006	2007	2008	Growth 2005-2008	Growth 2002-2008
	million pairs					%	
Total EU imports	1,232,914	1,939,813	2,163,356	2,508,834	2,443,522	26.0	98.2
From China	461,364	1,250,802	1,476,034	1,841,556	1,767,192	41.3	283.0

Source: Eurostat.

Surprisingly, the traditional Chinese footwear industry was apparently not interested in the booming export trade of the foreign-financed companies until 1993, when recession reduced domestic demand by 25% and forced the industry to consider export production.

In 2007, China exported 80% of its production. Obviously, with its disproportionate share of the world's footwear manufacturing capacity, China has made few friends among other traditional shoe making countries, and many of them have imposed anti-dumping duties on footwear made in China.

In the EU, an anti-dumping duty was imposed in 2006 on leather shoes. Despite this, total exports to the EU increased by 25% in 2007, although 2008 showed a 5% drop. It seems possible that this duty will not be extended beyond 2010.

2007 was the first year in a decade when exports of leather footwear to Europe declined, although exports of all types of footwear continued to grow.

China has four main shoe making areas: Dongguan, Wenzhou, Chengdu and Quanzhou. Much has been written about the merits and disadvantages of these industrial zones, so they are described briefly below.

Dongguan, in the province of Guangdong, has a shoemaking history of only about 20 years. It has more than 2,000 manufacturing sites (mostly of Taiwanese ownership) producing approximately 1.5 billion pairs annually, of which about 75% are leather shoes. This zone is the largest Chinese exporter, and it is also the world's largest distribution centre for footwear and footwear-related products (machinery, chemicals, etc.).

According to the Brazilian financial newspaper Valor Economico, there are 1,700 Brazilians, mainly from Rio Grande do Sul, working in the footwear industry in Dongguan.

Wenzhou, in the province of Zhejiang, is the traditional home of Chinese shoemaking with a history that goes back many years. It has become the largest footwear manufacturing area in China generating about 25% of the country's output in some 1,900 factories. Many of the well-known Chinese footwear brands are made here. The area has integrated tanneries, footwear component suppliers, and machinery suppliers. Indeed, it has the third largest shoemaking machinery base in the world after Italy and Taiwan. Many of the Wenzhou companies are now moving some or all of their production to western China.

Chengdu, in Sichuan province, is also a traditional shoemaking area. It ranks third in terms of output with 1,500 shoe factories. It is the research and training base of China's leather industry, and there are 100 tanneries in the area. It is now one of the world's largest producers of women's footwear. The surroundings of Chongqing are also becoming a major footwear manufacturing zone.

Quanzhou, in Fujian province, is – like Dongguan – a relative newcomer to the Chinese footwear industry. It has been a shoemaking centre for about 20 years. Quanzhou's sports shoe production accounts for one-fifth of the world's total. It is China's second largest exporting area, after Dongguan, and it has around 3,000 factories. Quanzhou also supplies about 60% of the domestic market. In 2005, the world's largest (USA-based) retailer, invested US$12.34 million in a logistics centre in Quanzhou to process the US$1 billion worth of footwear that it is reported to buy from China each year.

In order to support this growth in China's footwear industry, many western suppliers of machinery and materials have also invested heavily in China in order to capitalize on new opportunities. A German chemical company, for example, announced in December 2006 that it was to establish its Global Footwear Competence Centre within its existing Polymer R&D Centre in Shanghai.

The phenomenal growth of the Chinese footwear industry has given rise to several socio-economic problems. The majority of China's export industries (including footwear) are located in the country's south-eastern coastal provinces. Millions of workers have been required to leave their homes inland to provide labour to these industries. This migration of labour has created significant differences in living standards between people living inland and those earning their livelihoods in the coastal regions. Also, this continuous flow of younger people, particularly women, from inland China has resulted in a severe imbalance, with the elderly and men outnumbering the young and women inland. This rapid increase in the working population of south-eastern provinces has also placed severe strains on provincial governments to provide adequate housing, transportation, power, health care and education. There is also evidence that footwear manufacturers are finding it increasingly difficult to recruit and, more importantly, retain labour in the face of increasing competition from other industries.

The Chinese government has implemented new policies in an attempt to move labour-intensive industries away from the coastal regions by encouraging them to establish production facilities inland. These measures include:

- progressive increases of minimum wages in major manufacturing regions (wages in the Chinese footwear industry increased by 20% to 25% in 2008);
- higher taxes on companies in the coastal regions, and a higher degree of scrutiny directed at industries, such as leather tanning, which are harmful to the environment;
- incentives to shoe manufacturers in the coastal regions to relocate inland (Sichuan and Jiangxi provincial governments are offering generous incentives).

Obviously, relocation is not easy. One of the major problems is the shortage of trained labour. It is reported that some of the larger manufacturers are already setting up footwear training schools in inland areas.

In addition to these problems, the Chinese manufacturing base faces other drawbacks:

• exporters are finding that profit margins shrink drastically due to the increasing yuan (RMB) exchange rate and growing energy and labour costs (social contract);
• much of the high-volume export business is based on design and marketing carried out by the customer; this means that the development of design and marketing skills has not kept pace with the development of the manufacturing base;
• in factories where very high volumes are produced for a few major customers, it is very difficult, if not impossible, for manufacturers to pass on cost increases to their customers;
• because of decreasing margins, many of these factories are applying increasing pressure on raw material suppliers in an attempt to recoup some lost ground by demanding discounts or increasing the number of claims for poor quality or short delivery.

It would be unrealistic to expect anything other than the difficulties outlined above given the rapid expansion of the Chinese footwear industry, or indeed of Chinese manufacturing in general, in such a short time. The effects of currency appreciation and higher raw material and labour costs have been compounded by the impact of the global financial crisis. All footwear manufacturing countries have been adversely affected, and the fact that China has been affected to the greatest extent is no surprise. According to China's General Administration of Customs, exports in the first five months of 2009 were down 6% in volume and 3.3% in value compared to the same period of 2008. The number of shoe exporting companies was reduced by 17.4% from 9,856 to 8,137 between 2007 and 2008. The majority of these companies were small-scale operations. Domestic sales are helping reduce the effect of the economic crisis. It is reported that domestic sales are increasing by 5% to 6% per annum, and growth at this rate is expected to continue at least until 2015.

Nevertheless, the Chinese industry has changed the concept of footwear re-sourcing and has developed into much more than just a low-cost production source. The larger companies are able to offer complete packages to their customers, including sophisticated product engineering, planning, and inventory systems and distribution. At least one large footwear producer has its own software company and it even builds its factories with its own construction company. Many leading footwear companies have also entered the retail sector with considerable success.

It is almost certain that China will remain the world's leading footwear supplier in the foreseeable future for the following reasons:

• although exports have suffered a significant setback in 2008 and 2009, there are reports that many companies are seeing improvements in business in the last quarter of 2009 as the world recession eases; as the world's biggest supplier by far, China is able, with its spare capacity, to respond to increases in demand;
• the size of the industry is such that it would take many years if it were to decline; the increasing domestic consumption demands a large manufacturing base; since the current per capita consumption is only 2 pairs/annum, there is much room for expansion as the wealth of the Chinese population increases;
• growth is more likely to feed the domestic market rather than to increase exports;

• in 2008, export volumes declined, but export value increased;
• China has built up this dominance of the global footwear industry without investment from the EU or the USA; the initial investments came from Asian entrepeneurs;
• subsequently, China attracted significant investments by western companies keen to "piggy-back" on China's success and to gain a share of the rapidly expanding market for materials and machinery; these large investments will help support Chinese shoe production;
• China's projected population growth of 0.61% will add 8 million people annually to its workforce and consumers;
• no other country can provide the volume and especially the service provided currently by China;
• costs are certainly increasing, but China is still a relatively low-cost country;
• the effects of the global recession have resulted in a much greater concentration of China's footwear industry, and manufacturers are being forced to focus much more than in the past on improving operating efficiency and reducing production costs;
• it is possible that the anti-dumping duty imposed on Chinese leather footwear will not be extended beyond 2010;
• relocation will be difficult for many Chinese footwear companies (some have relocated and some are in the process of doing so), but it is not the only option; China is a large country, and it is likely that cut/stitch operations will be set up in less developed parts of the country or even in other Asian countries; it was, after all, the imports of shoe uppers that prolonged the life of western shoemaking, and this is still an important factor for those companies that are surviving;
• probably the crucial question is, not whether China will remain a dominant force in global shoemaking, but where in China will the shoes be made?

India has a long-established footwear industry with its own significant raw material source producing an estimated 2 billion sq ft of leather annually. Of this, 23% is exported, 41% is used in footwear production, 23% for leather goods, 10% for garments, and 3% for saddles and harness. It produced 2.06 billion pairs of footwear in the fiscal year ending March 2008 according to the Indian Shoe Federation (ISF). This breaks down as follows:

Table 32: India's footwear production in 2007-2008

	million pairs
Leather footwear	909
Leather shoe uppers	100
Non-leather footwear	1,056

Source: CLE India.

The main production centres are Chennai, Ranipet and Ambur in Tamil Nadu, Mumbai in Maharashtra, Kanpur, Agra and Noida in Uttar Pradesh, Jallandhar in Punjab, and Delhi, and India's production base includes:

Table 33: India's shoe manfacturing facilities

	Companies
Factories producing 20,000 pairs/day	5
Factories producing 5,000 pairs/day	30
Factories producing <5,000 pairs/day	300
Households/artisans (units)	2,500*

Source: CLE India (* official CLE figure).

Table 34: Indian exports by value

Unit: US$ million

Product	2002-03	2003-04	2004-05	2005-06	2006-07	2008-09
Leather footwear	423.30	553.04	657.78	807.81	950.90	n/a
Shoe Uppers	175.07	161.27	179.21	182.58	212.65	n/a
Total	598.37	714.31	836.99	990.39	1,163.55	1,533.6

Source: CLE India (note: fiscal year is April to March).

Table 35: Indian exports by volume

Unit: million pairs

Product	2003-04	2004-05	2005-06	2008-09
Leather footwear	53,638	60,244	66,579	n/a
Non-leather footwear	6,865	4,840	6,464	n/a
Shoe uppers	33,735	33,817	34,762	n/a
Total	94,238	98,901	107,805	115,000

Source: CLE India (note: fiscal year is April to March).

India's top customer is the EU, where 79% of its exports go, mostly to Germany, the UK and Italy. The USA buys 10% of India's exports.

Although exports to the EU and the USA have risen in the period from 2002 to 2007, India's share of total imports by both markets has remained virtually the same. Men's footwear dominates exports with a 58% share, while women's footwear (casual shoes and sandals) represent 34%.

India's imports have increased from 2.75 million pairs in 2003 to 19.54 million pairs in 2006. India has an enormous domestic market. It has a population of 1.322 billion, which is increasing at an annual rate of 1.61% – a staggering 21 million additional people every year.

The domestic market is currently dominated by chappals but, as wealth increases, so will the consumption of conventional shoes. Here are some key features of India's footwear industry:

• India is the only country of sufficient size, with a sufficiently large population, and with low labour costs that could eventually replace China as the leading global footwear supplier;
• while China has forged ahead during the past 20 years, India has been content to see a relatively modest growth in its footwear market; India provides the EU and US markets with only 20% of the amount provided by Viet Nam, a relative newcomer on the global scene;
• India has lacked the foreign investment in the footwear industry enjoyed by China over the past two decades; however, it is reported that Taiwan has invested US$127 million in India's footwear production during 2006-2007, and this could be the beginning of a more aggressive stance by India's industry (it is nevertheless anticipated that Taiwanese investors will find that cultural differences will generate more difficulties than the ones they encountered when setting up business in China and Viet Nam);

• the National Manufacturing Competitiveness Council (NMCC) of India has designated the leather and footwear sector as one of the "twelve focus manufacturing sectors" in terms of competitiveness and untapped potential;
• to attract foreign investment, 100% foreign direct investment is now permitted along with 100% repatriation of profits and dividends, provided that investments are made in a convertible foreign currency; additionally, raw materials may be imported free of duty;
• India has a large and growing consumer class (estimated at nearly 90 million households in 2006-2007);
• if it is to succeed, India must concentrate its activities; currently, the industry is spread over a large area and is generally unorganized, unlike China with its large footwear manufacturing zones; however, India has started to promote industrial zones – it has planned a Leather Park in Andhra Pradesh, a Leather Goods Park in West Bengal, a Footwear Park in Tamil Nadu (with 25 production facilities and a total capacity of 250,000 pairs/day), and a Footwear Components Park (for shoe uppers) in Chennai;
• with its IT zone in the Bangalore area, India has demonstrated what can be achieved by concentration.

Viet Nam's footwear industry has grown rapidly from a total production of 445 million pairs in 2004 to an estimated 700 million pairs in 2008.

Table 36: Viet Nam's footwear production

Unit: million pairs

	2001	2002	2003	2004	2005	2006	2007	2008
Production	320	260	416	445	534	629	665	700*

Sources: SATRA; * LEFASO.

The country has more than 750 production facilities. Viet Nam's main export market is the EU, despite the imposition of the 10% anti-dumping duty. As a result, exports to the EU fell by 5% by volume in 2006, but by 2008 had grown again by nearly 8%. Viet Nam is the second largest exporter of footwear to the EU after China, accounting for nearly 12% by volume of all EU imports in 2008.

To compensate for the effect of the EU anti-dumping duty, the Vietnamese footwear exporters have targeted other markets, especially North America, Japan, Taiwan, and Eastern Europe. This move has been successful, with exports to North America alone increasing by 39% between 2005 and 2007; a further 20% growth was estimated for 2008. By 2006, Viet Nam had overtaken Brazil to become the second largest supplier of footwear to the US market.

Table 37: Viet Nam's exports to the EU and the USA

Unit: million pairs

	2002	2003	2004	2005	2006	2007	2008
EU*	284.03	285.70	297.00	265.30	256.00	278.10	290.70
USA**	17.50	30.50	43.70	64.50	83.90	89.50	n/a

Sources: * EUROSTAT; ** AAFA.

Footwear export earnings in 2008 were US$4.767 billion, up 13.3% over 2007. However, due to the effects of the global recession, LEFASO reports that January – August exports in 2009 were 11% down in value over the same period of 2008.

In August 2007, the Ministry of Trade and Industry approved a plan to increase footwear export earnings to US$6.3 billion by 2010. In order to achieve this objective, it is estimated that an investment of US$572 million will be required. In addition, the industry anticipates that it will attract more than US$348 million in investment capital from foreign firms during this period. Expansion will be concentrated in Hanoi in the north, Da Nang in the country's centre and Ho Chi Min City in the south. Additionally, US$37.8 million is to be spent on developing tanning facilities.

With a population of 85 million (growing at 1% p/a) and average wages of US$3.7/day, Viet Nam has a strong competitive edge. However, due to the country's rapidly growing economy, there are already signs that labour availability is limited in the fastest growing sectors, and it is likely that footwear manufacturers will have to increase wages if they are to attract and retain suitable labour.

The following are key features of the Vietnamese footwear industry:

• there seems to be little doubt that, as the world comes out of recession, the Vietnamese footwear industry will continue to grow at a significant rate; it is following the Chinese model by setting up industrial zones specialized in leather, footwear, and footwear supplies;
• although it is able to, and probably will capture some of China's share of the footwear market (especially in sports shoes), Viet Nam does not have the size and scale to replace China's dominance in the global market;
• some Chinese manufacturers are likely to move part of their production to Viet Nam, and it is expected that these companies will continue to expand in both countries, with Viet Nam being the priority;
• in following the Chinese model, Viet Nam is already encountering similar problems of labour recruitment and retention;
• new tanneries will be opened in Viet Nam in order to support growth in the footwear industry.

Indonesia has the fourth largest population in the world, 234 million, that is growing at an annual rate of 1.21%, or 2.83 million per year.

The country has a well-established footwear industry located in Java around the cities of Jakarta and Surabaya. There are over 350 production facilities with more than 390,000 employees. The industry has shown steady growth and it exports approximately 27% of its production – mainly sports shoes.

Table 38: Indonesia's footwear production, exports and consumption

Unit: million pairs

	2002	2003	2004	2005	2006	2007	2008
Production	400.00	507.00	533.00	552.00	560.00	565.00	n/a
Exports	126.00	181.00	165.00	221.00	225.00	229.00	n/a
Exports to EU*	62.55	55.00	60.19	52.77	54.42	64.13	75.2
Exports to USA**	73.10	56.95	46.73	46.29	42.12	33.61	n/a
Consumption	291.00	356.00	n/a	386.00	392.00	391.00	n/a

Sources: SATRA; * EUROSTAT; ** AAFA.

Domestic consumption during this period increased from 1.3 pairs/capita in 2001 to 2.05 pairs/capita in 2005.

According to Aprisindo, the EU was Indonesia's main export market in 2008 with 37% of all exports. Table 38 shows that the annual decline in exports to the EU from 2002 to 2005 was reversed from 2006 onward, and there was a 38% increase in exports between 2006 and 2008. It would appear that Indonesia benefited significantly, at China's expense, from the anti-dumping duty imposed by the EU.

Exports to the USA show a different picture. They have been dropping annually since 2000 and suffered a 20% decrease between 2006 and 2007.

The domestic footwear market has been affected severely as a result of increased imports. Imports in 2007 were estimated to be 55 million pairs. In addition, there is a highly significant but unquantified market in illegal shoe imports. Such was the scale of the effect of this illegal trade on Indonesian shoe manufacturers that, in 2008, the government took action to prevent the influx of illegal imports. Aprisindo claims that illegal shoe imports fell by 30% in the first quarter of 2009.

Two key aspects of the Indonesian footwear industry stand out:

• Indonesia is currently utilizing about 70% of its footwear manufacturing capacity of 720 million pairs; given the current competition from other Asian suppliers, it will be difficult to use the remaining capacity, unless imports from China can be reduced significantly;
• the country is regarded as a valuable location by manufacturers of sports shoe brands due to its labour availability and low labour cost.

Thailand has a population of 65 million, which is growing at a rate of 0.66%/year. 576 firms employ around 84,000 people in the country. The industry has been stable from 2001 to 2007, and exports have been increasing gradually.

Table 39: Thailand's footwear production, imports and exports

Unit: million pairs

	2002	2003	2004	2005	2006	2007
Production	270.0	268.0	260.0	264.0	275.0	268.0
Imports	10.4	14.7	15.0	17.0	17.0	19.0
Exports	136.0	138.0	140.0	143.0	148.0	144.0

Source: SATRA.

Despite the overall increase since 2002, exports to the EU and the USA have been declining:

Table 40: Thailand's exports to the EU and the USA

Unit: million pairs

	2002	2003	2004	2005	2006	2007	2008
EU*	37.48	36.06	33.68	28.06	27.50	29.00	23.27
USA**	27.08	25.33	25.30	24.45	23.58	20.00	n/a

Sources: * EUROSTAT; ** AAFA.

Like all other footwear manufacturing countries, Thailand has been affected by the global economic crisis. The government news service reported that footwear exports during 2009 will contract by 10% year on year with total sales expected to be US$800 million to US$900 million. The domestic market is growing steadily as Thai manufacturers develop their own brands. Wages are significantly higher in Thailand than in China, Viet Nam and India, but factory efficiencies are high. Much of the sports shoe business that was key to Thailand's success in footwear in the 1980's and 1990's has been transferred to China and Viet Nam. Employment is high in the Bangkok area, where most shoe manufacturing takes place, and the footwear industry is experiencing difficulty in competing with other industries in recruiting and retaining labour. The larger companies have set up cut/stitch factories in the north of the country to help solve these labour problems.

In April 2007, Japan and Thailand signed a free trade agreement that will progressively phase out duties on Japanese imports of leather footwear from Thailand over five years.

Some key aspects of the Thai footwear industry are the following:

- Thailand was a major supplier of sports shoes to the world market in the 1980's and 1990's; although it is still a significant player in top-brand manufacturing, its position has been eroded by China and Viet Nam;
- the country is struggling to maintain its footwear industry at its current output level;
- it is possible that increased trade with Japan will lead to increased volume within the next five years, but it is also possible that this will be offset by the transfer of some sports shoe production to China or Viet Nam.

Other Asian countries also contribute, although to a lesser extent, to the continent's prominence in shoe manufacturing.

Table 41: Production, imports and exports of selected Asian countries

Unit: million pairs

	Production	Imports	Exports
China	10,209.0	46.1	8,175.0
India	2,065.0	21.0	105.5
Viet Nam	665.0	5.6	614.6
Indonesia	565.0	55.0	229.0
Thailand	268.0	19.0	144.0
Pakistan	246.0	13.0	18.0
Philippines	112.0	61.0	6.0
Republic of Korea	88.0	131.0	12.0
Japan	114.2	594.0	1.7
Malaysia	58.0	35.0	22.0
Taiwan	9.0	76.0	15.0
Others	96.0	228.0	36.0

Source: SATRA, 2007.

The Republic of Korea and the Philippines were large exporters of sports footwear before cheaper prices offered by other Asian countries led major buyers elsewhere.

Pakistan has a large shoe manufacturing base (the eighth largest in the world), but it serves mainly its domestic market of 166 million people (mostly with chappals). A new government strategy is being put in place in Pakistan for the leather sector; it will seek to stimulate growth in footwear manufacture based on Pakistan's domestic raw material and low-cost labour.

Cambodia's footwear industry is not significant at present, but could develop a meaningful role within the next ten years. Geographically, it is ideally situated to take some overspill business from Viet Nam and China. Labour rates are very low; however, with a population of only 14 million and a poor infrastructure, Cambodia is not likely to become a major world player in the footwear industry.

The European Union's share of global production was 4.3% in 2007, with Italy, Spain and Portugal contributing more than 67% of that share. As previously mentioned, the EU is becoming a market for Far Eastern exporters and is rapidly losing its manufacturing base. Italy, Spain and Portugal are losing ground to imports every year. The trends are obvious in Table 42 (opposite).

Table 42: Footwear production in EU countries

Unit: million pairs

	2003	2005	2007	% change 03-07
Italy	330	260	242	–26.7
Spain	171	126	108	–36.8
Germany	27	25	23	–14.8
Portugal	91	86	79	–13.2
France	52	39	36	–30.8
Romania	33	35	29	–12.1
Austria	10	7	6	–40.0
Poland	43	45	41	–4.7
UK	20	12	11	–45.0
Slovakia	13	13	16	+23.1
Finland	5	3	3	–40.0
Greece	7	7	6	–14.3
Bulgaria	7	7	9	+28.6
Hungary	17	13	12	–29.4
Netherlands	4	4	3	–25.0
Denmark	3	2	2	–33.3
Slovenia	2	2	2	0
Sweden	1	1	1	0
Czech Republic	8	6	5	–37.5
Belgium	1	1	1	0
Ireland	1	1	1	0
Estonia	1	1	1	0
Lithuania	1	1	1	0
Latvia	0.4	0.5	0.4	0
Cyprus	1	0.5	0.4	–60.0
Total	849	698	639	–24.7

Source: CBI Market Information Database.

Traditional footwear producers continue to be in decline. The three largest manufacturing countries, Italy, Spain and Portugal, all showed dramatic declines in output between 2003 and 2007. Exports of Italian shoes to the USA, an important part of the Italian footwear business, showed a 39% decrease between 2003 and 2007, according to AAFA.

The main footwear producers in the Eastern EU appear to be holding up better than their western counterparts. Romania in particular has a strong footwear industry and for several years it has been a recipient of outsourcing from established Western EU manufacturers, most notably Italy.

According to the Market Information Database of the EU (CBI), profit margins in the European footwear manufacturing industry since 2001 have fluctuated between 0% and 2%, and the EU production of leather footwear fell 30% between 2001 and 2005. During the same period, imports of leather shoes from China and Viet Nam trebled. Key aspects of the EU footwear industry include:

- production has shown a severe decline, and it is forecasted that this decline will continue;
- due to this decline, the EU has lost (and continues to loose) many of its shoemaking skills; even under more favourable conditions, it would be impossible for most EU countries to respond to a significant increase in demand for domestic products;

• the new EU member states, particularly Romania, will hope to make further inroads into other EU markets, having already developed good relationships in leather and footwear with countries such as Italy and Germany, partly in preparation for EU membership.

Eastern Europe Since many countries of the old Council for Mutual Economic Assistance (COMECON) bloc in Eastern Europe have now joined the EU, there are only three significant footwear producers in Eastern Europe: Turkey, Russia and Croatia.

Turkey is the largest producer, manufacturing approximately 170 million pairs per annum in about 18,000 factories. The industry is fragmented – more than 90% of these factories employ less than 20 people. Annual imports rose from 8 million pairs to more than 37 million pairs in the period 2001-2007.

Russia produces just over 50 million pairs per annum in about 190 factories. This output has grown from 32.9 million pairs in 2000, but is significantly down from the 336 million pairs recorded in 1991. Imports in 2007 were 191 million pairs, almost 170 million of these from China. In 2007, Russia's Economic and Trade Ministry announced that, in 2011, customs duties on footwear imports would be halved and completely scrapped for some categories. This will place even greater pressure on the remaining Russian manufacturers.

Croatia manufactures around 9 million pairs per annum and imports 11.2 million pairs. The rest of the Eastern European countries produce approximately 70 million pairs annually.

It is unlikely that Eastern Europe will show significant developments in its footwear manufacturing industry in the years to come.

South America provides more than 6% of the global footwear production. Brazil is by far the largest contributor, with a 76% share of production and a 90% share of exports in the region.

Table 43: South America's footwear market in 2007

Unit: million pairs

	Production	Imports	Exports
Argentina	87.1	24.9	2.1
Brazil	796.3	28.7	177.0
Chile	8.5	49.8	1.1
Colombia	53.6	38.5	5.3
Ecuador	15.5	19.0	2.9
Paraguay	3.6	19.3	0.0
Peru	44.8	24.6	1.9
Uruguay	3.3	9.4	1.9
Venezuela	17.4	51.1	0.0
Others	26.0	60.0	4.0

Source: SATRA.

With the exception of Brazil, South American manufacturers cater mainly to their domestic markets, and supply is supplemented by proportionately high levels of imports.

Brazil is a very important supplier of footwear to the world market. In 2007, it was the fourth largest producer of footwear in the world: 8,000 companies with 300,000 employees. It also has the fifth largest population in the world, just above 190 million, which is growing at a rate of 1.01% annually.

Brazil has had to deal with increasing competition from Asia, but it has managed to do so better than most other countries.

Table 44: Brazil's footwear production and trade

Unit: million pairs

	2003	2004	2005	2006	2007
Production	665.0	750.0	762.0	796.0	796.3
Imports	5.0	9.0	10.0	19.1	28.7
Exports	189.0	212.0	189.3	179.7	177.0

Source: SATRA.

Brazil protects its domestic market with a 35% import duty (increased from 20% in 2007) on Chinese imports, but it has to struggle to retain the level of its important exports that constitute almost 25% of its total production. 53% of its exports are leather shoes and 20% are rubber/plastic footwear. Almost 25% of Brazil's total footwear production is sports shoes. By far its largest customer is the USA – almost 42% of all Brazilian exports (10% of its production by volume) in 2005. Exports to the USA fell slightly over the period from 2002 to 2004. The period from 2004 to 2007 showed a more dramatic decrease in Brazil's share of the US market. AAFA reports that imports from Brazil fell by 22.5% between 2006 and 2007. In this same period, US imports from China declined by 0.1% and Viet Nam's exports to the US increased by 3.9%.

Table 45: Brazil's exports to the USA

Unit: million pairs

	2002	2003	2004	2005	2006	2007
Pairs (millions)	101.6	103.3	98.8	79.3	66.7	51.7
Value (US$ millions)	1,078	1,038	1,079	1,017	893	755

Source: AAFA.

Brazil's exports to the USA dropped by half between 2003 and 2007, while its exports to the EU increased from 31.4 million pairs in 2005 to 35.1 million pairs in 2007.

Key features of the Brazilian footwear industry include:

• Brazil has the raw materials, footwear expertise and population to continue to be a major player in the global footwear market;

• however, in the last two years there have been signs of strain on Brazil's industry as Asia's dominance continues to threaten Brazilian exports;
• labour costs, although low, are significantly higher than those in Asia;
• the production of women's leather shoes has been of particular interest to Brazil's foreign customers; with China's growing expertise in this area, Brazilian exports will increasingly be under pressure.

Canada and the USA are insignificant in terms of global production. In 2007, total production in Canada was 7.8 million pairs, with work boots accounting for 34%; Canadian imports in 2007 were almost 163 million pairs. US footwear production dropped by 61% to 31 million pairs between 2001 and 2007; the current US production is split almost equally between leather and non-leather footwear.

Mexico is by far the largest footwear producer in this region with 3,200 firms and around 72,000 employees. Since 2003, its annual production has dropped by 11%. Imports during the period from 2001 to 2007 increased significantly, from 9.5 million to 62 million pairs.

Mexico has the eleventh largest population in the world (108 million) and, therefore, a significant domestic demand for footwear. However, it is not sufficiently competitive to contend with Asia on the world stage and its products do not have the appeal of those of Brazil. Despite its proximity to the USA, Mexico has only a 0.5% share of US imports and its exports to the USA dropped by more than 34% between 2004 and 2005.

Mexico will continue to have a significant footwear industry due to a strong domestic demand, but it is not in a position to compete successfully in the global market.

Africa provides 14% of the world's supply of hides and skins and, with a population of over 900 million, should be a significant contributor to the global footwear production. Instead, more than 74% of its footwear requirements are covered by cheap footwear from Asia and by used footwear from industrialized countries.

It is the continent with the highest birth rate and, by 2050, its population is projected to reach 2 billion.

In total, Africa's footwear production is estimated at 170 million pairs per annum, while yearly imports, predominantly cheap shoes from China, average 350 million pairs.

One of the largest international companies has been manufacturing and retailing shoes in Africa for many years. The firm has operations in Sudan, Egypt, Tunisia, Botswana, the Democratic Republic of Congo, Kenya, Malawi, Mauritius, South Africa, Uganda, Zambia and Zimbabwe.

Egypt is the largest shoe manufacturer in Africa, producing 57 million pairs in 2,500 factories, which are mostly small enterprises that employ artisans. These producers, together with imports of 50 million pairs, cover the needs of its population of 80.3 million, which is increasing at a rate of 1.38 million per annum. Between 2005 and 2007, production declined by 8% while imports showed a similar increase.

South Africa had a diminishing shoe production until 2006 when there was a sharp increase of 136% to 36.1 million pairs. In 2007, it manufactured 40.2 million pairs in 233 factories and imported 157.8 million pairs (an increase of 30% over 2005), mainly from Asia.

Morocco has 242 shoe manufacturers and produces around 23.6 million pairs/year mainly for domestic consumption, although an export sector linked to European brands has grown strongly on a CMT basis over the last decade. Overall, exports of leather footwear in 2006 were worth US$153 million out of total earnings of US$275 million from footwear-related exports, up 11% from 2005. Currently, the industry is testing its capability to go beyond this level and to gain a position in the US market. In the first half of 2008, footwear exports to the USA grew by 12% to US$5 million.

Tunisia has built up a meaningful export business with Italy and France, amounting to 16 million pairs in 2005. It produces 50 million pairs/year in 134 firms. Tunisia imported only 5.5 million pairs in 2007. The country's population is 10.2 million and it is growing by 0.99% per annum. In 2007, exports of all footwear types were 20.1 million pairs, which represented a growth of 25% over 2005.

With their natural resources, high availability of very cheap labour and their need to increase their GDP, other African countries should be in a position to develop into suppliers of footwear to the world. Unfortunately, the current patterns are not likely to change, especially in Sub-Saharan Africa, in the near future. While some exceptions such as Ethiopia may be found, the overall infrastructure, business environment and labour skills are still plagued by shortcomings.

3.5 Leather footwear

The demand for leather footwear has doubled over the past 30 years and there is no reason to assume that this demand will not continue to rise as world population and consumer demand increase.

The 1975 UNIDO study on the leather and leather products industries showed that global leather footwear production was 3.2 billion pairs, with industrialized countries having a manufacturing share of 65.4%.

By 2002, the global leather footwear production had increased to 4.45 billion pairs, and by 2007, to an estimated 7.1 billion pairs. SATRA estimates that, in 2007, 12.16 billion sq ft of leather (54% of the 22.6 billion sq ft of leather used worldwide in all industries) was used for the manufacture of leather footwear. This amounts to an average consumption of 1.7 sq ft per pair of shoes. Of course, the definition of a leather shoe has become increasingly blurred over the years. Many shoes now use leather in conjunction with synthetic materials, but an average figure of 1.7 sq ft/pair for all types of footwear incorporating leather seems realistic, given that children's shoes typically consume 1.2 to 1.4 sq ft/pair, many sandals, less than 1 sq ft/pair, and women's court shoes, around 2 sq ft/pair.

In 1975, India produced 224 million pairs of leather shoes and China 219 million pairs according to the UNIDO study. In 2008, India manufactured 909 million pairs of leather shoes and 100 million pairs of leather uppers. According to CBI, Chinese exports of leather shoes to the EU increased from 75 million pairs to 174 million pairs between 2003 and 2007. It is estimated that China's production of leather shoes has increased to 3.12 billion pairs. Statistics from the Chinese Council for Leather Exports indicate a drop of 24% in exports of leather footwear in 2009, a reflection of the global recession.

Viet Nam's production of leather footwear has increased significantly since 2002, but statistics are not available. Viet Nam's exports to the USA have surged since 2002 and the effect of this is indicated by the fact that Brazil's exports of leather footwear to the USA fell by 50 million pairs between 2005 and 2007. CBI reports that, in 2007, Viet Nam exported 95 million pairs of leather shoes to the EU.

Leather footwear production in the USA dropped from 250.2 million pairs in 1987 to 15 million pairs in 2007. According to CBI, leather footwear production within the EU represented a constant 22% of all shoe production between 2003 and 2007. This figure constitutes a decline in leather footwear manufactured in the EU as the overall footwear output dropped significantly in this period.

The growing demand for leather footwear, as well as the fact that this demand competes for raw material with other products, appears to be a significant business opportunity for Africa, which, as mentioned before, has 14% of the world's hides and skins, but contributes only 2% of world leather supply.

3.6 Employment

The footwear industry is a valuable source of employment for developing countries. It is estimated that 10 million people are employed worldwide in the direct production of footwear (and there are significant additional numbers employed in the support industries). This figure is the equivalent of the entire population of Belgium, the Czech Republic or Sweden, and double the entire population of Denmark.

Despite the value of the industry in improving the living standards of so many people in the developing world, there is little coordinated information on the industry as a whole, particularly in the developing countries. While most industrialized countries have good databases on footwear production, their contribution to the global footwear output is becoming almost insignificant.

The establishment of a global database for the footwear industry, detailing employment, wages, output, imports, exports, etc., could be of immense value to developing countries in assessing their performance and identifying areas that require improvements in manufacture, trade and investment. UNIDO could play a leading role in setting up and maintaining such a database, or in coordinating this undertaking.

3.7 Second-hand footwear

The second-hand footwear business is large and global. Although mostly considered an African matter, it is routinely mentioned in places as far apart as Poland, Ukraine and Japan. Those wishing to understand all the issues involved should also examine the second-hand market for clothing, which works in parallel with that for footwear and shares the same issues.

In the industrialized world, the second-hand trade offers access to very expensive designer footwear and clothing and has become an increasingly important market in recent years. In the developing world, the practice started as charity to provide footwear free of charge to impoverished communities. Steadily, the practice of charitable giving of second-hand footwear has evolved into a business that employs very large numbers of people in most countries in Sub-Saharan Africa and has a number of major companies involved worldwide in sourcing and distribution.

Second-hand footwear is moved around the world by weight, and the three leading countries involved in supply are the USA, the UK and Germany. It is almost impossible to put numbers on this business. There is some evidence that footwear represents 15% to 20% of the value of the bigger second-hand clothing industry. The value of the worldwide trade in both second-hand shoes and second-hand clothing has been estimated as having risen from US$207 million in 1996 to US$1.5 billion in 2003. It is known as a fact that one company collects annually between 5 t and 10 t of worn footwear in the UK alone.

This is an area of footwear business with many unexpected consequences and one where it is not possible to find a solution that will satisfy all those involved. The benefits of this business include:

- providing footwear for those in poor countries that do not have access to footwear because of poverty;
- providing significant employment (logistics and sales) in poor countries;
- extending the life of footwear instead of sending it prematurely to a landfill.

There are, however, many negative aspects, such as:

- free or low-cost imports compete with local manufacture and have reportedly led to the closure of many shoe factories;
- loss of duty revenue to governments as low-price new goods (sometimes counterfeit) are often imported under the "used" classification;
- transfer of the landfill problem to countries less able to manage it;
- fit and hygienic problems cause foot illnesses (especially in the case of children).

Detailed reports on most African countries can be obtained fairly easily and are being regularly updated; many of these reports are referred to in the useful 2005 Oxfam study *The Impact of Second-Hand Clothing Trade on Developing Countries*.

Typical comments from many countries in Africa match those of Theo van der Loop on the Ethiopian footwear business: "There are, however, serious drawbacks of globalization and the resulting liberalization. The flooding of the previously protected domestic markets, such as in countries like Kenya and Ethiopia, with imported new and second-hand goods has resulted in the closure of many firms and the reorientation of many others."

To understand the magnitude of the problem, one needs to be aware of the fact that, while the worldwide trade in new footwear is huge compared to that in second-hand footwear, in many African countries, second-hand footwear surpasses by far in volume both domestic manufacture and imports of new shoes. Staikos (2007) points out that, in "Uganda alone, 7 million pairs of second-hand shoes are imported annually, while only 240,000 pairs are made by the local footwear industry." Moreover, it is reported that, in some countries, government officials have become involved in the business, which makes it less likely to be subjected to controls or limitations.

There is also considerable smuggling of footwear, improper declaration of imports and straight falsification of customs documents. These factors, along with the widespread involvement of the informal sector in footwear, mean that there are significant inaccuracies in any statistics.

It is easy to see that cheap second-hand footwear from prestigious manufacturers can be very attractive in developing countries. Some experts consider weak management of shoe factories to be more damaging to the local footwear production than cheap imports. Other issues may also be relevant, such as:

- exchange rate instability;
- infrastructure inadequacies and deficiencies;

- high tariffs on raw materials;
- increases in taxes and levies by various tiers of government;
- high cost of funds;
- unstable government policies.

The most outspoken position against second-hand footwear is that of the International Textile, Garment and Leather Workers Federation (ITGLWF). This is a Brussels-based international trade secretariat that brings together 217 affiliated organizations in 110 countries. Their position has three distinct components:

- campaign to ensure that used clothing donated for the poor is used for that purpose, and that it is distributed free of charge;
- campaign for recycling through means other than re-sale;
- campaign for poverty alleviation through sustainable economic development.

The recycling issue is a relevant one as landfill issues in the EU in particular are getting increasingly stringent for footwear. Article 5 of the EU Landfill Directive is important to the footwear industry as it deals with bio-degradable waste and its suitability for landfill. It would appear that genuine leather, natural rubber and natural textiles will have to be reused or recycled rather than disposed of in a landfill. This could well mean that more footwear will end up in second-hand trade channels in the future.

Oxfam offers some simple suggestions to charities, which include trying to work scrupulously with countries that have well-administered customs, ensuring that goods go primarily to outlying villages where access to products of any kind is unavailable, and using any profits for the benefit of domestic producers through advocacy and support to livelihoods programmes.

This is an area where UNIDO has done significant work and where further supportive action would be very beneficial.

3.8 Expected future trends

Before considering the future, it is necessary to review the changes in the footwear industry over the past 40 years and the dynamics that brought about these changes.

In the 1960s and 1970s, the world footwear industry was dominated by large brand manufacturers with their own production facilities. For example, in 1968, the USA were producing enough to cover 80% of their domestic footwear requirements, and the countries of the current EU also had thriving footwear companies.

The 1960s saw the advent of the training shoe and, as demand for these products grew in subsequent decades, their production bases changed as companies constantly searched for cheaper sources of supply in developing countries. The production of mass-marketed sports shoes started in Japan, but its development took it through the Philippines, the Republic of Korea, Taiwan, Indonesia and Thailand to China. As the sports shoe production developed in these countries, so did local shoemaking capacity and expertise. Then, when the sports shoe marketing companies moved on to regions with lower costs, these countries looked to the western world as a market for their significantly lower-priced products.

This placed increasing strain on European and North American shoemakers, who responded aggressively with improvements in efficiency and technology that were impressive. As a means of keeping their prices competitive, in the 1970s, western shoemakers started to import shoe uppers from countries with low labour costs. Price pressures kept growing, more and more shoe uppers were imported and, inevitably, imports of shoe uppers were progressively replaced by imports of whole shoes as competition from Asia increased.

The decline of western shoemaking accelerated as many of the newly acquired western technologies and production systems were rapidly introduced in Asia by the western shoemakers themselves (wishing to safe-guard their brands in overseas factories), or by western machinery and material suppliers keen to recover their lost business in the western markets.

In a relatively short time, therefore, we arrived at a situation in the global footwear industry where some of the biggest brands had never been shoemakers (or had been involved in shoemaking only to a limited degree) and where the majority of top-brand producers of the 1970s, particularly in the EU and the USA, ceased production to become marketing and wholesaling businesses.

In pursuing cheaper and cheaper sources for their footwear, the industry now faces a dilemma. In China it found a country with what seemed to be a limitless supply of low-cost labour as well as entrepreneurs from other Asian countries – especially from Taiwan, where people have the advantage of knowing the local culture and speaking the language – who were already familiar with the industry, were prepared to make the necessary investments, and had the machinery and shoemaking skills. Thus, over the last two decades, most of the world's leading brands have capitalized on the inroads made by the large sports shoe brands and have also made China their preferred source of products.

China has reached such a dominant position in global footwear manufacturing that it has become an indispensable source. It is hard to envisage where the next major source of footwear production is going to be located. Most areas of the world have retreated from this Asian advance and have downsized their production of footwear, many to a point from which recovery is virtually impossible. The extent of this erosion of footwear manufacturing outside Asia is illustrated in Table 46 below.

Table 46: Global footwear market in 2007

	Production	Consumption	Production as percentage of consumption
	million pairs	million pairs	
USA & Canada	40	2,557	1.5
Oceania	9	149	6.0
EU	676	2,922	23.1
Africa	209	526	40.0
Middle East	159	394	40.0
East Europe*	309	563	54.0
Central America	182	263	69.0
South America	1,056	1,186	112.0
Asia	13,435	5,364	399.0

Source: SATRA.
* Including Turkey.

Of all the traditional shoe making regions, only South America has retained a footwear industry of sufficient size to meet the demands of its domestic market. Africa is the only region with labour costs that could compete with those of Asia, but, apart from some North African countries, its footwear industry is not sufficiently developed. According to SATRA, world footwear consumption in 2007 (excluding China) was 11.8 billion pairs. China exported 8.175 billion pairs, which represents more than 69% of the world's footwear consumption (excluding China).

Recent history has shown that sports shoe companies have constantly moved geographically chasing new major sources of supply at lower labour costs and leaving behind greatly improved footwear industries. But the sheer magnitude of the Chinese footwear business means that there are few areas in the world that can seriously threaten the Chinese supremacy. Certainly, Viet Nam will continue to grow its footwear business, but it has a population that is only one twentieth of that of China. It may be argued that Viet Nam is becoming an extension of the Chinese footwear industry, since many of the established Chinese companies are setting up production units there. The dominance of China is such that it seems that the world has seen an irreversible geographic shift in the footwear industry.

The world of business is becoming increasingly volatile, and fluctuations in currency exchange rates and political affiliations, rapid economic growth in some developing countries, and increasing competition for energy resources make predictions extremely difficult. However, short of any major unforeseen crises, the most likely scenarios for the future of the footwear industry are the ones discussed below.

Scenario One China will remain the dominant source of world footwear for the next 10 to 15 years due to its technical capabilities, infrastructure, and the strength of the well-established factory groups.

Along with the rest of the world's major shoe manufacturing countries, China has suffered a severe setback during the economic recession, and many factories have closed. However, the recession in China was not as severe as in the other large industrialized countries and, as the rest of the world gradually climbs out of recession, growth will be restored. The loss of a significant part of its export business during 2008 and 2009, increasing labour costs and the strengthening of its currency have led to a concentration trend in the manufacturing sector.

During the very rapid expansion of exports, up to 2007, manufacturing costs and production efficiency seemed to be low priorities. Now, most manufacturers are making great efforts to reduce costs. Production units are also being relocated, with manufacturers in Wenzhou investing US$30 million in an industrial zone in Uzbekistan. They have also established a leather manufacturing zone in Russia, and discussions are under way on six other industrial zones on foreign soil.

China's share of exports may decrease, but increasing domestic consumption will partly compensate for this. Also, as footwear design and marketing skills develop in the country, China will progressively

become less dependent on manufacturing major international brands, and it is likely that it will develop global brands of its own.

Every region of the world, with the exception of South America and Asia, has reduced its production capacity to a great extent. In 2007, the footwear production of the rest of the world was the equivalent of 71% of China's exports.

Any major competition to China must come from countries with low labour costs since major companies are very satisfied with the level of expertise and service currently available in China. In the medium term, the only apparent reason to change would be cost advantage. It is significant that many of the new footwear businesses opening in Viet Nam have the same owners as the Chinese companies.

Scenario Two (5 to 15 years) As mentioned earlier, India is the only country with the size, population, raw materials and a meaningful existing footwear industry that could challenge China's dominance. It has the advantage of lower labour rates than China and the projected increase in population is likely to ensure that this will continue for some time. Indeed, with increasing labour costs in China, the differential in labour rates between the two countries is likely to widen.

In February 2007, the Taiwan-India Cooperation Council (TICC) was inaugurated. Taiwanese companies are reported to have invested US$127 million in Indian shoemaking during 2006-2007 in Tamil Nadu. The Taiwanese have proven their ability by setting up manufacturing centres in two Chinese regions with little or no previous shoemaking experience and turning them into world leaders within just 20 years. It is possible that they perform a similar feat in India if their initial investments are seen to yield satisfactory returns. However, the challenges of cultural differences in India would be greater. Easy access to ports could also be seen as an advantage of manufacturing in Southern India.

The Indian footwear industry, although large, is not well organized, and it has failed to react to growth in global footwear consumption and the dramatic industry growth in China. Some radical reorganization of the industry would be required if India is to challenge China for dominance in world markets. Perhaps large foreign investments with subsequent pressure for returns would produce the impetus that Indian footwear manufacturers require.

Scenario Three (5 to 10 years) The purchasing patterns of top-brand footwear companies may change.

Many footwear products are now global items. With the consumer boom in China and, increasingly, in India, brand manufacturers may segment their manufacturing bases. For example, a situation can be envisaged where the same product would be made for the Asian, American and European markets in, say, Asia, Brazil and Eastern Europe respectively. Tooling costs and technical knowledge would make this option difficult for sports shoe brands, but it would work with major conventional shoe brands. This would involve higher average labour costs for the product, but should result in reduced logistics costs and lead times.

The outcome of this scenario would be a more even distribution of footwear manufacturing across the world and a somewhat lesser dependence on China. Much depends on the future relationship between China and the rest of the world and, of course, on currency exchange rates. Should the competition between China and the USA for resources, particularly oil, result in a deterioration of their relationship, then this would appear to be a feasible scenario, at least in the short term.

Longer-term scenarios (15 to 25 years) At the start of the 20th century, the world had a population of 1.6 billion people. This had grown to 6.1 billion by the beginning of the 21st century; in 2007, world population was 6.6 billion. Almost all this growth is occurring in the less developed countries. Currently, 80 million people are being added every year in the less developed countries, compared to about 1.6 million in the more developed countries.

It is projected that, by 2020, world population will be 7.8 billion. Labour-intensive industries must be established to provide this increased population in the developing countries with a means to survive, since agricultural employment is expected to diminish. There is a significant global move from rural to urban areas, which will put further strain upon the economies of poorer nations.

The resulting socio-economic changes could affect the footwear industry significantly in the long term. South and Central America have a combined population of almost 517 million. Brazil's population is increasing at an annual rate of 1.9 million, while that of Mexico is expected to grow by 1.2 million per year. Both of these countries have established large footwear industries with a plentiful supply of leather and they could expand significantly in the longer term. However, market forces and labour cost differentials against Asian countries would have to change dramatically for South American countries to challenge Asia's dominance in footwear manufacturing.

Africa has a population of more than 933 million, which is estimated to become around 2 billion by 2050. China has had a good relationship with many African countries for more than 50 years, and Chinese investment in Africa has grown rapidly in recent years. In 2006, China agreed to double its aid to Africa by 2009, to set up a US$5 billion investment fund, and to provide US$3 billion in loans over the next 3 years.

Direct investment in Africa by China more than quadrupled between 2001 and 2005. The driving force of this development is oil and minerals supply; the result of increased competition for oil has substantially helped the African economy by enabling oil producing African countries to obtain higher prices.

At the moment, large imports of cheap Chinese footwear are flowing into Africa. It is reported that discussions between China and the World Bank are underway to establish the feasibility of setting up industrial parks in some Sub-Saharan countries. These industrial parks may well include footwear manufacturing facilities. As the Chinese economy surges ahead, the wealth of China's population increases, and competition for labour becomes more severe, it is just possible that global footwear companies realize the potential of the last

Table 47: Leather and shoe market in selected African countries

	Leather production*	Shoe production	Shoe imports from China	Population
	million sq ft	million pairs	million pairs	million
Nigeria	114.2	n/a	22.0	135
Kenya	73.2	8.0	0.5	37
Sudan	72.9	n/a	n/a	39
Ethiopia	68.0	n/a	1.9	76
Tanzania	22.6	n/a	n/a	31
Zimbabwe	14.0	3.0	1.3	11

Sources: FAO; Cipriani, 2002.
* Hides and skins.

remaining continent to have a significant source of leather and a plentiful supply of low-cost labour. Average economic growth on the African continent in 2007 was estimated by the African Development Bank (ADB) to be 5.9%, with Ethiopia, Ghana, Kenya, Niger, Rwanda, Senegal, Tanzania, Uganda, and Zambia showing growth of approximatey 7%. North Africa has an established and significant footwear industry. With the exception of South Africa, the rest of the continent's shoe production is insignificant.

Of course, unlike China and India, Africa is a continent of very different countries. But with stability, investment and training, the potential for footwear manufacturing in the countries mentioned above as well as in others could have long-term significance. However, given the present conditions, if it is to occur, it will be in the long term.

Scenario One appears to be the most likely. In previous decades, footwear outsourcing was merely a route chosen by footwear companies to ensure a low-cost manufacturing base for their products. The Chinese industry has developed a strategy that regards manufacturing as only part of the service, the result being a complete outsourcing package, including sophisticated product development, production planning, and logistics. This means that labour cost, although still of great importance, is by no means the only consideration. Significant savings are possible to the customers when they make use of these additional services.

This has proven to be of considerable value to all major global brands, and the benefits are such, that it is very unlikely that former large, western brand manufacturers will be tempted to re-enter the manufacturing arena.

The manufacturers that remain outside Asia, with the possible exception of Brazil, are either smaller, specialist companies or significant companies catering to their domestic demand. Many of the smaller, specialist companies in the EU depend upon imports of shoe components for their survival.

The current expansion in Viet Nam is also driven partly by the Chinese industry and many of the Vietnamese operations are owned or controlled by China-based companies. Mention has been made in the report of possible expansion of the industry in other countries, but, again, this may often occur with Chinese involvement.

While Asia has been developing its footwear technology skills at a rate that is impressive, the western manufacturing industry has been losing its skills just as rapidly. Only South America has retained its manufacturing base, but it is not likely to be able to compete with Asia on price or service in the foreseeable future.

Considering the billions of pairs involved, India is the only country that, in the medium term (10 to 15 years), could compete with China for dominance, but it will need large foreign investments and changes in the attitude and structure of its footwear industry in order to achieve this.

Africa has great potential for a footwear industry, but this will not be realized for many years unless the issues of infrastructure and business environment are addressed. At the moment, major brands have little confidence in the potential of Sub-Saharan Africa.

It seems that no western country is able to compete with Asia on cost or service, or that it will be able to do so in the foreseeable future. Those footwear manufacturers that survive in industrialized countries generally supply products to niche markets. With Asia's rapidly growing consumer classes, they could find a ready market for their products. CLIA reports that, in 2008, China imported 17.9 million pairs of leather shoes valued at US$508 million. There is also an almost insatiable demand for leather in China and Viet Nam. Many of the traditional footwear producing countries are large suppliers of leather. Again, CLIA reports that 1.01 milion tons of raw hides and skins and 964,000 tons of finished leather, with a combined value of US$5.57 billion, were imported in 2008. India imported raw hides and skins to the tune of US$358.48 million during the fiscal year ending in March 2007.

Asia is no longer a threat to the traditional shoemaking nations. It has already gained a degree of supremacy that is almost impregnable and should now be regarded as an attractive emerging market.

Despite the dominance of China, which is most likely to continue, opportunities to meet new growth in domestic and international markets still require sizeable employment in many countries throughout the world, and these countries will continue to fight for their share in the steadily growing world footwear market for many years to come.

4. Leather goods and other leather products

4.1 Leather goods

4.1.1 Introduction

In the professional jargon of the leather industries, the term "leather goods" covers a wide range of items such as all kinds of handbags, attaché cases, luggage and other travel goods, flat or small items (e.g., purses, wallets), belts, etc., but excludes other leather products, such as leather upholstery and leather clothing.

In most languages, this term simply means "items made of leather", e.g., in German, "Lederwaren," in Arabic, "mawed min jeld," and in Indonesian, "barang kulit." The French term "maroquinerie" is an exception, but only in appearance, since it comes from the word "Maroc" (Morocco), where people used to produce a particular quality of goatskin leather called "le maroquin."

The leather goods industry has a history with very distinct shifts in end uses and materials, from the age of horse and foot transport to the automobile era, from the use of leather products for specific functional purposes to the current market of luxury goods.

Large amounts of leather goods have been and are still made in small craft shops. Therefore, statistics are scarce, not always reliable, or based on informal communications. Due to the wide variety of products, with different functions, sizes, constructions, and material structures, available production and trade statistics are expressed in value rather than in natural (volume) terms.

4.1.2 Recent developments

During the last 25 to 30 years, the leather goods industry has undergone major changes due to factors such as:

- the rise of living standards and labour costs in most countries that produce leather goods;
- the emergence of marketing and brand strategies at national and international level, mainly due to new advertising instruments (e.g., television) ;
- the breaking down of activities through production outsourcing and transfer of know-how to developing countries;

- the development of tourism and air travel;
- significant progress in process technology;
- improvements in productivity;
- the development of the automotive industry.

Within this context, it was necessary to look for lower production costs in labour-intensive industries such as textiles, footwear and leather goods. Furthermore, and because of competition, a great number of companies started to make themselves better known directly to customers, which required heavy spending on marketing and for lower production costs. Many companies decided to move part or the whole of their production abroad. Countries of destination were selected according to several criteria: proximity, political and financial stability, quality and costs of labour, availability of raw materials (genuine leather), language, quality of life (for expatriate production supervisors). European countries chose North Africa while North Americans preferred nearby countries in Latin America (Mexico, Brazil, Nicaragua, Colombia, etc.). Others did not hesitate to go farther – to Mauritius, for example, where a big French company moved its production line of wrist-watch straps even before 1980. Prior to this, early in the 20th century, the US glove business had moved first to Puerto Rico and later to the Philippines.

Key features of this transition include:

- in the beginning, these operations were not always successful, but the relocation trend continued and kept expanding due to faster transportation at lower costs for raw materials as well as finished products;
- more and more efficient communications led to lower costs;
- industrial cooperation (e.g., through UNIDO, ILO, and bilateral technical assistance programmes) made possible the transfer of know-how to developing countries;
- incentives granted by some countries to foreign investors in the form of bonded warehouses, tax exemptions, and the export of profits in foreign currencies achieved their objectives.

Within twenty years, the production of most volume leather goods companies moved out of industrialized countries, resulting in the closing down of a great number of factories, loss of jobs, disappearance of know-how, and the diminishing significance or shutting down of some vocational training centres.

4.1.3 Product groups

The history of leather goods explains the underlining diversity that characterizes this activity. That is why it is perhaps better to use the term “leather goods industries,” since products and related manufacturing techniques are very diverse and production volumes have increased massively. Table 48 highlights this diversity. Sports equipment and bookbindings may also be considered leather goods, but they are sometimes excluded. Industrial-use products began to disappear with the introduction of synthetic materials. Industrial leathers are now produced in such small volumes that they fit with parchments in a micro-niche and are difficult to classify. Nevertheless, they should not be ignored.

Table 48: Overview of product groups

Product group	Description	Trade
Handbags	Handbags with or without shoulder strap	Leather goods
Pocket or small leather goods	Wallets, purses, coin purses, billfolds, key pouches, credit-card cases, pen cases, and other small articles	
Travel goods	Trunks, suitcases, travel bags, beauty cases, toilet kits, and other travel articles	
Sports bags	Sports bags, casual travel bags, rucksacks	
Briefcases and portfolios	Portfolios, document bags, briefcases, attaché cases	
School articles	School bags, rucksacks, and other school cases	
Saddles	Saddles and harness	
Cat and dog articles	Leashes, collars, etc	
Hunting and fishing	Gun cases, cutlery cases, etc.	
Stationary articles and special cases	Writing pads, book covers, camera cases, spectacles cases, cigarette cases, jewel cases, mobile phone holsters, etc.	
Military equipment	Various holsters for fire arms	
Belts	Women's and men's belts, men's suspenders	
Watch straps	Watch straps made of leather or synthetics	
Sports articles	Balls for football, rugby, American football	
Bookbindings	Book covers	
Belts, washers, etc.	Various leather products for industrial use	Industrial leather products

Handbags Women's handbags represent a huge leather goods market. Bags are not only a useful accessory; they are also a sign of social rank. The use of bags is very much influenced by fashion and culture, which themselves vary from one country to another. There are many price segments in the market and a wide variety of styles and designs. Consequently, the market for handbags retailing at US$1,000 and above has been growing quite rapidly in the past five years.

Small leather goods are less dependent on fashion. Pocket leather goods, which are mainly made of genuine leather, follow societal trends and utilizations, such as size of banknotes or credit cards. The last ten years have seen the rise in importance of holsters for mobile phones, MP3 players, and iPods. The super-luxury leather goods related to electronic equipment is a segment that is expected to grow.

Travel goods constitute a large market that has developed in step with travelling and tourism. The emphasis is basically on usefulness and ergonomics. The major trends over the last years have been the introduction of wheels to all kinds of luggage and the search for lightness. This has worked against leather. There have been considerable changes in the last decade with the arrival of budget airlines and continuously changing security rules. Short-haul passengers not wishing to check in luggage have created a market for maximum-size hand/cabin luggage of high quality.

Briefcases and portfolios This market is linked to travel and business. Laptops have created a great need for cases with a specific design – they are mostly made from high-performance textiles and synthetic materials. Similarly, women's and men's briefcases made of genuine leather and synthetic materials hold an important place in the market. Changes in travel are affecting this market in the same way as they do travel goods.

School articles This category corresponds to that of the old "leather satchels." Trends changed in 1980 with the appearance of new and fashionable lines of school bags in France and Germany. Today, the trend is the rucksack made of canvas and printed with various logos and brand names. A number of the better-known brands today were initially military packs and evolved into school bags made of materials such as corduroy.

Saddlery This is a specialized market with a very specific clientele. Saddles and harness items belong to the luxury segment due to their time-consuming manufacturing process. They are hardly affected by fashion, so they can easily be made in countries with low labour costs. There is still a premium market for superior-quality saddles, especially the "English" saddle; most manufacturers of high-quality saddles are in France, Germany and the UK. Argentina, Pakistan and Morocco are now important suppliers of saddles, and India is also making efforts to get a share of this specialty market.

Cat and dog articles A fast growing market in industrialized countries (USA, Europe), where people are increasingly fond of pets. Many of these products (e.g., collars, leashes, muzzles) are made predominantly in developing countries. The pet-food sector, which uses raw hides, is a separate, but important market.

Hunting and fishing articles This is a specific market that is not really influenced by fashion. These products are generally purchased by well-to-do people with a wide variety of backgrounds.

Stationery articles and special cases Articles such as desk pads and note-pad covers are today in decline due to the use of computers. But other articles, such as mobile-phone holsters, are booming. The fountain pen has made a comeback and, with it, the demand for protective carrying cases has re-emerged. Some evolution at the luxury end of this market can be expected, as the balance between paper and the computer continues to change.

Military equipment Historically, leather and the military have been of great importance to each other in terms of saddles, harness, belting, holsters, footwear, and at one time armour. Today, this is a very specific market, which has been growing considerably in the last ten years. The main products are footwear and gloves (as personal protective equipment), which are now usually made of highly technical leathers.

Belts This is a steady and relatively large market especially in the traditional men's belts segment. Belts are not much influenced by fashion, since changes occur mostly in buckle designs. The manufacturing process of such items has become highly mechanized.

Watch straps also constitute a relatively large market that has only been slightly threatened by metal or synthetic straps since it stabilized some years ago. The manufacturing process, as in the case of belts, is highly mechanized, except for top luxury products (hand-stitched straps made of exotic skins). Leather for watch straps has to be anti-allergic and to have good levels of sweat resistance.

Overall, the leather goods industry is characterised by the diversity of its products. These items are constantly developing according to consumer needs and, for certain articles, to fashion trends.

4.1.4 Raw materials and accessories

Raw materials used in the leather goods industry are as diverse as the products. Leather remains important, but the use of materials such as nylon, textiles, artificial (faux) leather and even polypropylene is growing.

Hides and skins Leather is still the most appreciated material. Leather cost and particularly the cost of "grain" leather is such that this material is used for articles that meet two categories of criteria:

- "luxury" criteria – leather products are generally much more expensive than articles made of synthetic materials;
- "body proximity" criteria – the closer to the human body a product is used, the better appreciated leather is.

Therefore, products such as small leather goods, which are often touched by hands and kept in pockets, are made of leather most of the time. All saddles are also made of genuine leather, because horses do not tolerate substitute materials.

Over the last half century, the use of exotic skins has been in decline due to laws on the protection of species, the moral influence of pressure groups, and also because precious skins have lost much of their appeal as a sign of wealth and social rank. Today, a luxury brand is perhaps more important than the type of leather it is made of.

However, the use of exotic skins in luxury leather goods should not be underestimated and could represent interesting markets for countries where breeding exotic animals is possible thanks to favourable environmental conditions and a reliable (international and/or legal) image. Most of these skins have to come from farming, since the Washington Convention is meant to protect wild species. Lately, the market of exotic skins has stabilized and is growing.

Crocodile, ostrich, lizard and snake skins in particular are highly appreciated by the luxury leather goods industry. The most difficult aspect is that these skins demand a high level of know-how (from treatment in tanneries to manufacturing of leather products) without which the required high quality of the articles cannot be ensured.

As long as tanners can police processing in order to ensure that no endangered species are involved, and that the animals are properly kept and slaughtered, this is a relatively profitable segment of the industry. It would be appropriate for the industry to support this sector against pressure groups with proper public relations and marketing campaigns.

Table 49 below shows the approximate proportion of leather used worldwide in each main product sector.

Table 49: Leather use by product group in 2005

Leather product	%
Footwear	55.0
Furniture upholstery	13.0
Clothing	11.4
Leather goods	9.2
Vehicle upholstery	7.0
Gloves	4.4

Sources: ITC; industry.

Synthetic materials The range of synthetic materials used in the leather goods industry is very wide. There are no leather goods that could not be manufactured out of textile, synthetic or other materials instead of genuine leather. Increasingly, materials are being used in combination to achieve a certain look or price range.

Synthetic materials can be found in all types of leather goods, in luxury items as well as in cheap casual articles. As a rule, the quality of non-leather materials follows the trends of the respective market segments. Synthetic materials are especially used in the manufacture of large-size articles: travel bags, suitcases, computer cases, etc.

The development of polypropylene and polycarbonate injection has resulted in the manufacture of completely new articles such as hard luggage for air travel.

Accessories Today, important progress makes it possible to manufacture accessories at more competitive prices. Articles such as locks, buckles, rings, etc., which were previously made from brass and steel, are now made from injected "zamac" in numberless finishes.

4.1.5 Manufacturing

The leather goods industry has traditionally been an activity involving a great deal of manual work – even more than in the case of footwear. This is still true, and it will probably remain so in the future, particularly in the luxury segment. Many operations, especially cutting and assembling, require assessment or particular skills. Since the beginning of industrialization, and for most products, basic manufacturing techniques have not undergone significant changes. It should be noted that some fashion changes that have taken place since 1980 – for example, the preference for shoulder-strap bags and the gradual abandonment of framed hand-bags – have nearly resulted in the loss of certain established manufacturing techniques.

Important manufacturing changes include:

- the abandonment of lacing techniques that were used in assembling bags and small leather goods;
- the near disappearance of the art of bag framing due to the closure of framed-bag manufacturers between 1980 and 1990;
- the abandonment of riveting techniques because they were considered very time consuming;
- the technique of hand stitching has been maintained, but only for top-notch luxury articles and for horse saddles (which cannot be machine-stitched).

The manufacture of the main categories of leather goods continue to follow the traditional sequence of operations:

- cutting;
- splitting;
- skiving;
- assembling;
- sewing;
- fixing accessories;
- finishing.

The basic machinery types remain the following:

- hydraulic cutting press;
- splitting machine;
- skiving machine;
- sewing machines of three main types: flat-bed, post-bed, cylinder/arm-bed.

While manufacturing operations have not undergone major changes, productivity has considerably increased due to advances made in various fields. Improvements in machinery (more specialized and with better performance), the development of new types of adhesives, CAD and CAM systems, new cutting techniques (laser, water jet), and automation (when possible) have led to significant improvements in quality, operation speed/performance, and the operator's comfort.

The luxury leather goods sector has spurred the development of new tools and small machines specialized in operations that were performed by hand in the past (e.g., glue spraying, edge heating and smoothing). High productivity gains are also achieved thanks to improvements in work organization and plant management.

Work optimization is facilitated today by computers and video techniques, and these productivity factors do not apply only to large-volume manufacturing.

The "productivity-quality" ratio is a modern feature that is making its way through the whole range of product sectors, whatever the price level of products. It is noteworthy that the luxury leather goods industry is paying as much attention to mastering production costs and productivity as do manufacturers of cheap products.

4.1.6 Today's leather goods market

Leather goods consumption is linked to living standards; therefore, currently, most consumers of leather goods are in the industrialized countries.

In general, the leather goods market is gradually splitting into two major segments: luxury articles and casual products. Big and prestigious brands share the luxury segment. The products are generally of high quality, whether they are manufactured in industrial countries or elsewhere. The design, development and manufacture of such products require large investments, excellent technological control, a high level of know-how (especially in product development and marketing) along with the ability to create and set trends, the availability of a highly skilled workforce, high-performance machinery and raw materials of top quality.

Unlike jewellery, luxury leather goods always entail a utilitarian aspect (e.g., briefcases carry documents, wallets hold banknotes and credit cards). Beside their basic functions, these products, with their design qualities, sophisticated workmanship and precious materials used, also imply social status for the owner/user. This aspect partly explains the success of the luxury sector of leather goods. Another reason is that luxury leather goods are often gift items by excellence. During the month of December, leather goods retailers achieve about 25% of their annual earnings due to Christmas sales (in Islamic countries, sales are very substantial at the end of Ramadan and during Aid-El-Fitr).

Beside these luxury products, there is a wide range of cheap and medium-price articles. They also involve research in design motivated by competition and fashion. Medium-price and cheap items are mostly made of synthetic materials or sometimes from split leather, or cheap, heavily pigmented nappa.

Countries that have been significant leather goods consumers in recent years include the USA, European countries (most notably Italy, the UK, Germany and France) and Japan.

Elsewhere, leather goods consumption is closely linked to living standards. Obviously, luxury leather goods are purchased by wealthy people all over the world, and they have also been increasingly successful in developing countries, especially after the economic downturn of the 1990's. Large amounts of luxury articles are bought by Japanese, Chinese, and Indian tourists from luxury shops in European cities. These can be considered as indirect exports linked to tourism, although currently the "domestic" sales of European stores constitute one of the fastest growing segments of the luxury leather goods market. It is expected that, once the current recession ends, this growth will continue over the next five to ten years.

Table 50: Major EU producers and consumers of leather goods in 2003

Unit: million €

	Domestic consumption	Domestic production	Total imports except from EU countries	Imports from developing countries only
Germany	837	171	1,100	803
UK	1,062	50	1,000	610
Italy	1,315	2,137	800	432
France	548	1,008	1,100	473
Spain	530	350	500	295
Belgium	65	10	500	290
Netherlands	130	20	360	241
Total	4,487	3,746	5,360	3,144

Sources: ITC; industry.

Contrary to a widely spread perception, the prosperity of most companies that market luxury items all over the world does not depend exclusively on the reputation of their brands. Given their established know-how, the sophistication of their designs, and the quality of the raw materials they use, high prices are often justified.

A current trend in the luxury market, the development of custom-made products is also significant. This trend has some history in shoes and leather garments, but now some companies offer custom-made watch straps, wallets and belts in various types of leather, such as box-calf, ostrich, crocodile, "galuchat" (ray and shark skin), lizard (iguana), etc.

4.1.7 Company structures

The industry has now become divided into distinct groupings similar to those in footwear manufacturing, but the more obvious reason here was the wide range of products and brands involved. One specific area consists of fashion powerhouses that have chosen to extend their brands into leather goods, an expansion made easier by the large number of very competent suppliers they can turn to.

Here is a brief description of four types of enterprises that operate in the leather goods industry:

• trademark companies that do not own manufacturing facilities; these companies focus on design, distribution and marketing, and they leave production to sub-contractors;
• trademark companies that have their own production units and emphasize both trademark and origin; such companies control the whole value chain from design through the production process to distribution and retail; they mostly keep production in their home countries, which allows them to maintain – and highlight – traditions of craftsmanship associated with their products; some top-brand French and Italian companies have followed this route and are consequently important customers of certain European tanneries;

• "no-name" manufacturers are companies that have specialized in manufacturing and are often sub-contractors or co-producers at the service of trademark companies or importers; some of these enterprises are very large, very competent and have good reputations; they will also work for brand manufacturers that apply a "hybrid" policy, making their flagship products in their own factories, but outsourcing the production of small leather goods made of the same leathers; as markets develop in countries such as India and China, we may expect to see one or two of these companies develop their own brands, initially for their home markets and later possibly for export as well;
• importers that only buy products from manufacturers in developing countries and resell them to distributors in industrialized countries.

4.1.8 Production markets

The labour-intensive aspects of leather goods manufacturing and increasing labour costs in industrial countries facilitated the relocation of production in developing countries. The process started in the early 1980s and it has been supported by various kinds of incentives (credits, tax exemptions and holidays, investment aid, etc.) offered by governments in target countries along with technical assistance (training, expertise, transfer of equipment) provided by partner companies in industrialized countries and through international and bilateral agencies such as UNIDO, FAO, ILO, GTZ, etc. A large number of manufacturers operating today are located in developing countries, most notably in China. Table 51 below shows the value of leather goods produced in Asia and exported to the EU in 2003.

Table 51: Asian suppliers to Europe

Supplier	Value	Share
	million €	%
China	2,800	73.0
India	260	6.7
Viet Nam	130	3.4
Others	520	13.0
Total	3,710	

Sources: ITC; industry.

However, in spite of this strong relocation wave to developing countries, there still exist some sizeable production capacities in certain industrialized countries, particularly important in terms of value addition rather than of volume. This applies mostly to the luxury leather goods segment of the industry.

For example, during 2003, Italy and France together produced leather goods worth in excess of €3 billion, while their overall consumption represented only €1.86 billion. These two countries together exported top-notch luxury articles (made locally for the most part) to industrialized countries in and outside the EU. Table 52 (opposite) shows a breakdown of main export destinations of leather goods manufactured by Italy and France in 2003:

Table 52: Main importers of Italian and French leather goods

	million €
Switzerland	289
Japan	850
Hong Kong	221
USA	480
Republic of Korea	68

Sources: ITC; industry.

The production of leather goods by the leading European countries has been in a continuous decline since 1980, but might become stable in the future thanks to the high demand in Japan that seems to be stable, or even increasing. The Japanese market absorbs 38% of all EU exports, while the US share of EU exports is 21%.

Table 53: EU exports

Unit: million €

	Total	Exports outside the EU		
		Value	Destination	Value
Germany	400	64	Japan	32.0
			Switzerland	32.0
UK	222	80	USA	18.0
			Japan	15.5
			Hong Kong	13.3
			Republic of Korea	11.1
			Others	22.1
Italy	1,700	1,071	Switzerland	289.0
			Japan	255.0
			USA	255.0
			Others	272.0
France	1,700	1,105	Japan	595.0
			USA	221.0
			Hong Kong	221.0
			Republic of Korea	68.0
Spain	246	38	Japan	22
			USA	17
Belgium	531	37		no details available
Netherlands	245			no details available
Total	5,044	2,395		

Source: derived data.

Leather goods manufacturers are very diverse. Craftsmen working alone or with their family members and using basic tools represent simple operations, whereas large factories employing hundreds of workers and using sophisticated machinery, including injection moulding equipment for heavy suitcases, are typical industrial ventures. Plants and employed labour force vary considerably according to product nature, types of raw materials and production volume. Manufacturing facilities and organizations having appropriate design capabilities, modern equipment and production know-how, quality assurance systems, market intelligence resources, and a sizeable operation volume appear to be competitive in the global market.

4.2 Vehicle upholstery

The rapid and significant growth in the manufacture of upholstery leather for furniture, aeroplanes, and especially for automobiles has been one of the main developments in the leather industry in the past 15 years. However, this sub-sector was severely affected by the economic recession. The future is quite unpredictable, and it seems that several brands may disappear or merge.

Since automobile manufacturing remained largely in industrialized countries and automobile upholstery requires good quality hides with a large surface, tanneries in industrialized countries have done better than those in developing countries. This market continues to grow, but certain changes will have an impact on the speed and direction of this growth.

The recent rapid development of the upholstery sub-sector was the consequence of increasing wealth in the world and of the desire to enjoy luxury. Leather is found in up-market automobiles and in high-quality furniture. There has been a move to what is called "affordable luxury," which means that high-quality products may spread to other market segments. Larger numbers of smaller vehicle models, especially of premium brands, are already sold with leather upholstery.

Currently, in Europe, 14% of all new automobiles have leather upholstery, and an additional 4% are done in combinations of leather, textiles, composites, and faux leathers. Over the next five years, these shares are expected to grow to 17% and 6% respectively (industry estimates). The share of cars with leather-covered seats is somewhat higher in the USA than in Europe.

In China, all cars are air-conditioned, which has affected design, in some instances requiring larger grills. Taxis and some other vehicles have specially designed white textile seat covers made in specialist workshops, while the upper echelons of society demand leather upholstery.

The United Kingdom Design Council (Clements and Porter, 2007) specified three future trends in the automobile industry:

Eco-friendly vehicles The concept applies mainly to engines, but it does have an impact on the interior. There is the EU "end-of-life directive" requiring separation and recycling of components. As for leather, less-polluting tanning and finishing techniques, and its promotion as a sustainable resource are relevant aspects. The considerable amounts of waste generated by the manufacture of leather car upholstery is the most important issue in need of an appropriate solution.

Mass customization People tend to purchase vehicles that suit their lifestyles and individuality. This is a trend that futurists argue that is set to continue.

Inclusive design Increased longevity, greater numbers of older people holding driving licenses and growing affluence are some of the factors contributing to a rise in the number of older drivers. Both the interior and the exterior of the car will be affected by the need to accommodate preferences of older users.

Leather has properties that make it a material of choice for interior designers. It is tactile, mellow (i.e., ages well), has agreeable odour, it is durable, and it has connotations of heritage and craftsmanship. It is a metaphor for quality and craftsmanship, which is important in an age of personalization.

Small cars Current examples of small cars for the European market have six trim levels with optional leather on the steering wheel, the gear stick and the handbrake lever. Some manufacturers of small cars offer even further customization, including seats in two-tone trims and different leathers. There is a buoyant after-sale and custom market that supplements the manufacturers' offerings, and there is a lively exchange on leather trim and saddlery techniques on the Web. Designers use leather trim to provide the perception and experience of quality to their customers.

Some new trends are emerging in this respect. The amount of leather per automobile is dropping, pattern sizes are getting smaller, and more corrected-grain leathers are being used. Corrected grain is easier to match with other materials. The concern of the leather industry is that the move to corrected grain will put the status of leather upholstery at great risk, as it may no longer be perceived as being an "up-market" feature.

At the same time, the location of car manufacture has begun to shift, with China and Eastern Europe being the new and fast growing key areas. Additional future growth is foreseen in India and Russia. Table 54 shows the global road vehicle production and its growth between 2000 and 2006.

Table 54: World automobile production

Region	Private cars	Commercial vehicles	Total	Private cars	Commercial vehicles	Total
	2000			2006		
South America	2,870,008	1,086,668	3,989,405	2,355,149	687,986	3,043,135
Africa	270,193	146,936	420,037	393,285	285,348	679,292
Asia	13.288,817	4.507,538	17.859,623	21,946,181	5,897,798	27.945.613
Australia	323,649	23,473	34,122	270,000	60,900	330,900
Europe	17,841,172	2,764,806	20,663,919	18,463,680	3,286,541	21,750,221

Source: OICA.

These changes in location have been accompanied by adjustments in the tanning industry, and many tanners have become sizeable international enterprises. Indeed, automobile upholstery tanners have emerged as a new elite group within the leather manufacturing community.

In addition to seats (the main application), leather is used for steering wheels and gearshift levers, doors and sometimes for instrument panels. According to Automotive Interiors Worldwide, "as well as coping with growing demand, players in the leather supply chain – including tanners, cut-and-sew operators, process chemical and coating manufacturers, and first-tier system suppliers – are facing a wide range of challenges posed by the automotive industry's current development. Chief among these is the need to accommodate vehicle manufacturers' continuing demands for lower unit costs."

Other vehicles Beside being luxurious, leather upholstery features durability and easy cleaning. Therefore, it is quite often used in trucks and other commercial vehicles where these properties are important requirements. Another growth area is airplane interiors. In this market, the performance properties of leather make it a material of choice for designers, engineers and cost controllers. Even some budget airlines had the (non-reclining) seats of their planes fitted with leather to offer luxury and comfort while maintaining practicality. These seats can easily be cleaned using liquid detergents, while textile seat covers would be out of service after a relatively small number of flights. The types of leather used for covering seats in budget-airline planes are sometimes of lower quality; the typical such material is corrected-grain leather, which may downgrade the value of genuine leather in consumers' minds. At the same time, upcoming new aviation regulations will affect specifications for materials used in airplanes; the leather industry may have difficulties to meet them, which may lead to a shrinking of the upholstery leather market.

Demand for private business jets has been growing during the past decade and this may be a considerable market for leather upholstery, although its impact is difficult to measure.

Leather for both automobiles and aeroplanes has to be made according to very strict technical specifications in terms of characteristics such as fire resistance, anti-fogging and stain resistance.

4.3 Furniture upholstery

This is a market that has scarce statistical data. Like leather goods, this business also covers a wide spectrum with regard to material combinations. Many products are manufactured in the craft sectors in various parts of the world.

The health of the housing market has a major impact on the performance of the furniture industry. The rising value of houses encourages consumers to borrow and spend on refurnishing. It also encourages people to change houses more often and to buy new furniture. Growth in the buy-to-let sector also has a positive effect on the furniture market.

Italian manufacturers have been fairly successful in supplying leather furniture to European and US customers by combining quality with good value for money. As a consequence, they have boosted the demand for such products over the last ten years.

There is increasing concern regarding the future of leather furniture in the wake of the US housing crisis and its impact in the rest of the world. Leather furniture is very much a discretionary purchase and it is strongly

linked to the housing market. Some leaders in leather furniture in Italy have already been posting warnings. Tanners are also concerned that, in a number of markets, leather furniture is now priced lower than furniture with fabric upholstery, and that this may have an impact on consumer perceptions.

The apparently continuous growth in the demand for leather upholstery in Asia may nevertheless maintain the overall demand. Indian producers of upholstery leather were successful in recent years by developing their markets in Russia, China, Malaysia, Italy and the USA.

4.4 Clothing

The leather clothing market is one of the most volatile because, just as leather furniture, leather garments are a discretionary purchase. The demand for such products depends largely on consumers' disposable income and, in many markets, on fashion trends. Over the last three decades, the percentage of leather used in garments has been somewhere between 11% and 18%.

Historically, leather garments have been less of a luxury and more of a necessity as other materials were not available as protection against the cold. In many regions of the world, leather garments became the primary cold-weather outerwear. But rising wealth and the emergence of excellent fabrics for waterproof and insulating garments at affordable cost have steadily eroded the position of leather in the traditional utilitarian outerwear market in most countries.

Some elements of this utilitarian market remain in Russia and in other parts of the former Soviet Union, but this is likely to decline steadily with time. In some parts of the world, police forces and similar organizations continue to require leather for certain uniforms. In one large niche segment, motorcycling, leather remains the most important material, as there are few alternatives that can match the durability of leather as protective material against friction when skidding on the ground. The speed and power of today's motorcycles require thick materials, and bovine leather about 1.6 mm thick is now the most widely used material. Nevertheless, leather garments have generally evolved worldwide from weather clothing to fashion products.

Technology development led to considerable market growth in the 1970s, a period when tanners began to use cow hides for manufacturing garment leather, reducing leather waste and manufacturing costs. Before this breakthrough, only small animal skins (goat, sheep and lamb) could be used with cutting yield. Soon, tanners managed to reduce the thickness of heavier wool-sheep skins from New Zealand and the UK to 0.5 mm without substantial loss of tear strength. This development gave the market for extremely soft lightweight garments a further boost.

The growth in leather garment production in China led to a considerable development of pigskin tanning based on China's large supply of raw material. However, it is not yet possible to achieve the same degree of softness with pigskin as with fine sheepskin nappa. The volume currently used annually is close to 2 billion sq ft.

Over the past decade, Turkey, India and China have become the dominant forces in garment leather and leather garment production, although the latter is widely scattered in the world.

4.5 Gloves

The glove market is consistently measured as using about 4% of all leather produced. Most data indicates that some 50 billion pairs of gloves are produced annually. This estimated figure includes huge numbers of industrial gloves, which are a useful outlet for large amounts of suede splits, pigskin suede and other grades that tanners find hard to commercialize otherwise.

The dress-glove market is much smaller and it had been declining until around the early 1990s, when there was a revival. These gloves are usually made of skins from sheep grown in arid areas of Africa and the Middle East. Small-scale skin production is found in Brazil, Indonesia and India, while Spanish and French tanners are experts with certain grades of Spanish lamb material. Glove production is concentrated mostly in China, India, the Philippines and Eastern Europe. This market is currently undergoing changes, as Ethiopia has moved from the export of pickled sheepskin to crust and finished leather, and it is likely that other African countries will soon follow Ethiopia in this respect. There is currently a wide search for materials suited to making leather for golf gloves and fine dress gloves, should African material become less and less available. Deerskin, pigskin suede, peccaries, goatskin and some very lightweight bovine hides are also used.

Leather gloves are often gift items. This is supported by the combination of cold weather (winter season) and Christmas. 60% of dress gloves are sold on the four Saturdays before Christmas in the USA. Another interesting aspect of the dress-glove market is the fact that, in the USA, the UK and Japan, unsold gloves are often returned to producers at the end of the season.

Leather products, in particular footwear and gloves, are important military items. The volumes of such footwear are small within the context of total footwear production, but they are important and of high quality. The volumes of military gloves are much larger than they might have been historically anticipated, as soldiers are now wearing gloves routinely in all climates. While this is a micro-niche in the world leather sector, it is a significant sector for the glove industry. Fire, chemical, UV, and water resistance of glove leather plays a key role, and further technology advances will be needed if the replacement of leather in a wide variety of professional performance gloves is to be avoided.

4.6 Expected future trends

It is expected that the leather goods industry will continue to be divided into two major categories. On the one side, there is the luxury leather goods market that will continue to use mainly genuine leather and exotic skins (from animal farming), often combined with other expensive raw materials and accessories. High-quality articles by well-known international and national brand manufacturers will continue to be sold at high prices to wealthy customers throughout the world in industrialized as well as developing countries. There will be luxury brands that will integrate the whole product cycle, from design to distribution through retail outlets. Some brands will be able to claim higher prices by providing custom-made articles. Wealthy consumers will buy from specialized shops, but also through the Internet, which is becoming a relevant sales network as luxury brand manufacturers are steadily refining their Web presence and are becoming more comfortable with Internet sales.

Trade rules should enable the tracking of manufactured articles by providing consumers with adequate information on product origin and by assisting in counterfeit control. The struggle against counterfeiting should be fostered since developing countries will want to launch their own luxury brands and thus will face similar counterfeiting issues. The notions of quality and guarantee will keep fuel the issue of traceability, which by itself involves ethical aspects. Radio Frequency Identification Technology (RFID), tagging, and other security measures will be used to help provide answers to the following questions:

- where and by whom has the product been manufactured?
- from which raw materials (what type of leather) has the product been manufactured?
- are these materials friendly to the environment and suitable to be recycled?

These questions are already being raised by top brands and they will become commonplace.

The second main category of leather goods will be less expensive articles, largely a reflection of the raw materials used.

With the exception of the handbag, which will remain a fashion accessory with social symbolism similar to that of clothing, all other leather goods will be designed for more durability and better functionality. Suitcases, travel bags, rucksacks, briefcases, and even small leather goods, whether made of genuine leather or synthetics, will increasingly carry guarantees from manufacturers and distributors. Such guarantees are already a common practice in luggage and furniture.

The speed at which China has been able to conquer the leather goods markets and to produce articles of a relatively high quality proves that leather goods manufacturing may be set up anywhere, particularly in regions where large quantities of leather are available such as Africa, Latin America and India.

The leather goods industry may provide employment in many countries. Considerable traditional skills exist in this industry in some African countries. In Morocco, for example, the trade association has indicated that there are over 100,000 people working in the informal leather goods business. Ethiopia has an equally long history of making parchment for religious books and of using leather for elaborate "lunch boxes." As countries become richer, the small leather goods business is likely to prosper – more people will purchase wallets and purses, as they do in industrialised countries, to hold their money, rather than keeping notes and coins in their pockets.

Generally speaking, efforts should be made so that all leather products comply with international quality standards. Quality is a notion that should become an inherent part of any product, regardless of its price. Consumers will become more difficult to please and every manufacturer will have to pay more attention to the use of basic materials. At the same time, in certain areas of the industry, it could be helpful to unify and/or standardize the taxonomy of leather products (especially those different from footwear). This could be instrumental in generating more uniform and meaningful statistics, and could therefore help the industry to identify potential trends and solutions.

Tomorrow's world should make sensible use of available natural resources, be it ore, wood, water, or raw hides and skins. These responsibilities fall to politicians as well as to companies and consumers. It is well understood that meeting these responsibilities would benefit not only the general public, but also the manufacturers of leather products.

It is likely that criteria such as robustness and reliability, which were crucial in the early development of the industry, will reappear, at least for articles that are less influenced by fashion: travel goods, small leather goods, etc.

One likely issue for manufacturers of automobile upholstery has to do with the availability of high-quality hides. If it is dealt with by an acceptance of material of lesser quality, it may lead to a consumer backlash. Leather quality, both aesthetic and technical, may have to be redefined in the auto/aerospace and furniture sectors. Smaller patterns will be used in automobiles, which will reduce waste, allow combinations of colours and material types, and open opportunities for using smaller skins in this market. It is safe to predict that all these changes will occur. Overall, the use of leather in automobiles will continue to grow, but these changes will slow the growth in volumes.

Unless there is a consumer reaction to leather that looks too much like plastic material, which is quite likely, it is expected that corrected-grain leathers will continue to increase their share in both automobiles and aeroplanes at the lower end of the market. It is possible that the use of corrected-grain will start to diminish the pressure on the supply of large high-quality hides, and it is also anticipated that seat design will adjust to better accommodate the use of smaller hides.

Since so many low-price pigmented leathers are already used in this sector, the industry is currently worried about the damage being done to the premium-quality image that leather has with the public. As a consequence, the growth of the furniture sector will require tanners to find a way to keep the quality and image high, or the consumers will not continue to regard leather as good value for money.

In leather goods in particular, but also in some of these other areas, design training will be needed to make use of leather that has surface and other defects, but that is still intrinsically of high quality. This should also work to make better use of locally available materials.

Using sheepskins and goatskins for end uses such as upholstery and leather goods will require technological adjustments and new skills.

Over the next fifteen years, we should expect the transfer of leather goods production to lower-cost countries to continue; at the same time, the emergence of a number of local brands in countries like China and India is also likely. Despite rising costs, it is unlikely that the most prestigious companies will start to outsource their production.

5. The role and impact of duties and tariffs

The value of the world trade in leather and leather products is estimated at around US$100 billion, and the industry has been growing rapidly with manufacturing moving to developing countries. This growth has been accompanied by the use of various barriers to trade, which have sparked considerable controversy within the industry.

From the beginning of trading, thousands of years ago, governments have always tried to gain economic benefits in one way or another. They have also sought to protect items that were considered "strategic" such as food and products needed for warfare. With leather being essential to warfare – boots, saddlery, armour, etc – and hides and skins a by-product of the food industries, leather itself and the industries that use it as raw material have always been susceptible to government involvement.

An examination of the leather value chain is useful in understanding government approaches to the industry. The labour content in the leather chain is much larger in manufacturing finished products than at the initial tanning stages, while it is these initial stages that generate the greatest environmental load. As a consequence, some countries with large amounts of raw material are not willing to accept the load of early processing without the employment benefits of making finished products. On the other hand, in the case of the USA and much of the EU, for example, which have well-established wet blue operations, often associated with abattoirs, and are capable to manage more or less satisfactorily the environmental aspects, the imperative of protecting further stages of value addition is not apparent.

The use of tariffs and duties, and lately of other less obvious barriers to trade, has been increasing and has caused disagreement among leading leather industry bodies such as COTANCE and the ICT. This relates in particular to free access to raw materials. Most of the countries in the EU hold the view that raw material should be traded freely worldwide, and that only the poorest countries should try, on a temporary basis, to stop exports of raw material while their industry develops. Therefore, they are displeased by the actions undertaken by some countries to control the exports of raw or partly processed material. On the other hand, the countries that decide to control exports do so because they are concerned that exports of wet blue or other semi-processed material entail losses of employment and value added, while they are left having to pay for the heavy environmental load generated by early processing. They are also increasingly concerned about direct or hidden barriers being applied by the developed world.

WTO rules define a subsidy as either a "financial contribution by government entities that confers benefits on the recipient, whether through direct payments or tax breaks," or "any form of income or price support" that promotes exports or reduces imports. Industrial subsidies directly linked to export performance and import use are prohibited. This also applies to taxes on exports, which may be intended to encourage goods to stay at home for further processing, or may just be another source of revenue for the government, since export taxes are more difficult to evade than many other forms of taxation. Given the numerous arguments unfolding at the WTO regarding other economic sectors, from agriculture to aviation, it is clear that an agreed solution is some way off and that no easy outcome can be expected in the leather industry dispute.

The recent high price levels and scarcity in the food and energy sectors have focused most of the attention on these sectors. The leather industry is entangled in these debates due to the fact that its raw material is a by-product of food producing agro-industries. In some cases, this even extends to a concern about the export of live animals, which is an issue in such countries as Pakistan.

5.1 Types of duties and their utilization

The types of trade barriers are numerous and they go far beyond simple duties. Non-tariff barriers have become more common in the leather trade in recent years. These include compulsory marking, or labelling requirements, or testing and certification. The latter tend to originate in developed countries aiming at protecting consumer health and safety and/or the environment.

International trade can be restricted in a great number of ways. Some relate to both imports and exports while some are specific to one or the other. The most common seek to control the export of raw materials in order to help the development of domestic industries, or to impede the importation of finished products in order to protect existing or nascent domestic industries. During most of the leather sector's history, raw material moved from the developing world to industrialized countries for tanning and use in leather products. Given that this flow has been reversed in the last three decades or so, it is inevitable that problems should arise.

Potential restrictions and impediments to free trade include:

- import and export duties;
- import and export licenses;
- import and export quotas;
- domestic taxes;
- anti-dumping duties;
- countervailing duties;
- sanitary certificates;
- labour conditions;
- temporary imports (and drawback);
- eco-labelling;
- traceability;
- restrictions on chemical products;
- cost of testing and certification;
- custom-imposed index values;
- custom clearance barriers;
- state trading and exclusive franchising;
- government procurement policies;
- export embargoes;
- export rebates;
- tax incentives;
- financial aid programs;
- sales tax (VAT) rebate;
- industrial and/or free zones;
- environmental considerations;
- monetary/fiscal and exchange rate benefits;

- foreign investment policies;
- immigration policies;
- intellectual property issues.

The success of many Asian countries, starting with the Republic of Korea and leading up more recently to the spectacular growth in China, has created a template of job creation via exports, which others want to follow. Many countries with good resources that are exported raw or after minimal processing are now often the most determined to find ways of moving on to finished products based on their domestic supply of hides and skins.

India is the most frequently quoted example of country that developed its industry using tariffs and non-tariff support at different stages of industrial development. It used duties and support of various types to encourage and accelerate the movement toward the manufacture of finished products made of leather from domestic as well as imported raw material. Many industry experts argue that government action in India had positive outcomes for the industry.

More recently, the changes in duty and VAT payments related to exports in China have shown again how shifts in trade legislation can have a very great impact. When combined with "dumping duties" on leather footwear imposed by the EU on imports from China and Viet Nam, the impact of those changes was quite significant in terms of the leather industry changing location within China or moving overseas.

The difficulty of trying to fully comprehend the role of such barriers was well documented by US economists emphasizing the following issues:

- subsidies, tax preferences, and other WTO violations;
- currency manipulation;
- lax health and safety standards;
- counterfeiting and piracy;
- lax environmental standards and enforcement;
- foreign direct investment (including "round-tripping" of Chinese capital, and attraction of capital that would go elsewhere if the attraction – incentives – were absent).

Many of these issues are currently being eliminated very effectively in China as a result of changes implemented between 2006 and 2008. But other important factors have also been vital to China's competitiveness. These include low labour costs and a workforce that is well educated and highly disciplined, good infrastructure and logistics when it comes to exporting, and very large cost savings that come from having many suppliers located in the same geographic areas. Supplier proximity reduces lead times and inventory holdings, and speeds up the development of new products and processes. Thus, it is not always easy to explain away competitiveness as a result of tariff and non-tariff barriers alone.

On the other hand, there are strong complaints about the EU duties on certain types of leather footwear from China and Viet Nam, although they may have been introduced after analysis and legal process. On this issue, the tanning and footwear industries in Europe are far from united. The USA and the EU are also seen as using traceability and restrictions on chemical products (involving complex and expensive testing) as barriers to access to their markets.

The following are some important points noted by Koppany (2007) about barriers that are currently in place:

• most countries do not tax raw material imports, but they tend to do so as the level of processing rises (India, for example, does not tax imported hides, but does tax imported footwear); one departure from this strategy was China's action in 2006, as it wished to reduce pollution caused by processing from raw to wet blue;
• sales tax (or VAT) at the point of entry into a country is a form of import duty, especially when local goods are given exemption;
• anti-dumping duties have been quite frequently applied to footwear by Brazil, the EU, Mexico, and the USA, but are not used much for leather or raw hides;
• sanitary certificates have been regularly demanded as animal diseases have escalated, and are mostly used for raw and occasionally wet blue products; Brazil, Paraguay, Uruguay and Chile have asked for health certificates for crust and finished leather;
• traceability is increasingly important as animal health issues arise; in the leather industry, traceability has been pushed forward mostly by the automotive industry;
• chemical-product restrictions – increasingly, brands and retailers are introducing lists of banned chemicals that must not be found in any articles they sell; testing for these chemical products is costly and, for some locations without "approved" laboratories, complex and time consuming; the new EU REACH legislation is now in force and it has created great confusion and cost in different sectors of the industry; the final impact of REACH for the world leather industries remains very unclear, but many countries are suspicious that the primary intention was to set up a barrier to trade, rather than improve public health protection;
• certification implies testing for banned substances and is seen by many as a barrier to exports; while the cost of certification has fallen, it is still significant and is often resented; this includes ISO9000 and ISO14000;
• custom-imposed index values are used when a country believes false values are being applied to products, most frequently imported footwear; this has mostly been imposed on low-price footwear imports from China and other Asian countries; a minimum index value is established and the duty is charged against that value rather than the one specified in the invoice;
• custom clearance barriers often mean just extensive delays; the delay or rejection of import documents for leather chemicals, leather machinery, leather and leather products has been used by Brazil, China, India, Pakistan, and Russia;
• export rebates have been frequently used by many countries to help domestic leather industries; they have been mostly used for finished leather items such as clothing or footwear, rather than for leather; an example was the South African government's aid to exporters of leather car seats;
• financial aid programmes have been quite frequently used as countries try to accelerate development in their industries; these are often known as "soft credits" and sometimes require recipients to move to selected locations;
• sales tax (VAT) rebate – a variety of mechanisms are used to allow businesses to reclaim internal sales taxes when exporting; some governments can be very slow in making these refunds;
• free zones in a variety of countries are intended to attract export-oriented businesses that are given a variety of incentives, especially where foreign direct investment is involved; these can include labour training programmes, where wages are subsidized for a period or cash sums are given, land available at subsidized rates, fully established infrastructure, and tax holidays for a certain number of years; free zones have been common throughout the world, but are most notable in countries such as China, Tunisia, and Thailand;

• environmental considerations – most countries have some environmental legislation in place but, globally, enforcement is irregular; environmental costs thus vary considerably from one country to another; Koppany argues that, consequently, a tanner can have effluent treatment costs varying from 3-4 cents per square foot to 20 cents per square foot of leather, only depending on location; while some countries choose not to enforce or support environmental legislation, others offer subsidies to tanners to help pay for these costs.

The opening up of the EU to imports from China after a ten-year period of protection to help the industry in Europe to adjust was supposedly one of the most profound changes in the last twenty years. Yet this was only one measure in a mosaic of trade decisions that stretches across the whole industry and across the globe.

Table 55, which was taken from the ITC Business Briefing of June 2008, shows that the amount of goods subject to duties and tariffs is growing. The paper, prepared by COTANCE, indicates that "export taxes and export restrictions on these commodities have proliferated so much that actually only about 40% of global availabilities reach the free market."

Table 55: Production of raw hides and skins in countries applying export taxes or restrictions

Unit: thousand tons

	1996	2006
Argentina	262.5	249.5
Bangladesh	43.4	46.3
Byelorussia	30.5	16.7
Brazil	505.9	736.3
China	485.4	937.3
Ethiopia	36.2	36.4
India	474.2	504.7
Indonesia	37.2	37.7
Kenya	29.1	32.1
Morocco	13.2	15.5
Nepal	21.5	26.4
Nigeria	40.4	40.4
Pakistan	75.9	110.1
Paraguay	27.6	29.8
Russia	335.0	243.2
Thailand	47.6	43.2
Tunisia	6.0	6.6
Ukraine	153.0	105.5
Uruguay	46.9	43.6
% of world total restricted	34.6	48.9
World total	6,180.0	6,668.0

Source: COTANCE elaboration on FAO data.
Notes: Data refer to the sum of salted cattle/calf hides and sheep/goat skins. In 1996, there were no export restrictions in Byelorussia, Morocco, Russia and Ukraine.

Duties and tariffs change frequently, but a good snapshot is given in the following tables provided by Koppany and containing information for a number of the more important countries in terms of leather and leather products. Duties on chemicals and machinery are not included. Data on China has been updated

Table 56: Import duties (%) in January 2006

	Raw hides	Wet blue	Crust	Finished leather	Footwear
Algeria	5.00	15.00	15.00	15.00	30.00
Argentina	2.50	8.50	10.50	10.50	20.50
Australia	0.00	2.50	5.00	5.00	10.00
Bangladesh	0.00	0.00	0.00	0.00	25.00
Brazil	2.00	7.40	9.50	9.33	20.00
Chile	6.00	6.00	6.00	6.00	6.00
China	5.00-14.00	5.00-14.00	n/a	8.00-14.00	10.00-24.00
Egypt	2.00	7.00	12.00	12.00	32.00
EU	0.00	1.38	5.00	6.50	8.00
India	0.00	15.00	15.00	15.00	15.00
Japan	8.40	14.00	19.26	18.80	28.50
Kenya	10.00	10.00	10.00	10.00	25.00
Republic of Korea	2.25	5.00	5.00	5.00	13.00
Mexico	6.00	7.50	10.00	10.00	35.00
New Zealand	0.00	0.00	2.33	3.50	0.00
Nigeria	5.00	10.00	10.00	10.00	15.00
Pakistan	5.00	5.00	5.00	5.00	25.00
Paraguay	2.00	8.00	9.50	9.33	20.00
Russia	5.00	5.00	5.00	5.00	0.00
South Africa	5.00	5.00	5.00	10.00	30.00
Taiwan	0.00	0.00	1.00	1.00	5.00
Tanzania	10.00	10.00	10.00	10.00	25.00
Thailand	0.00	5.00	5.00	5.00	40.00
Turkey	0.00	1.38	4.50	6.50	8.00
USA	2.34	2.62	2.62	2.96	0.00-5.00
Uruguay	2.00	8.00	9.14	9.14	20.00
Viet Nam	0.00	3.00	5.00	10.00	50.00
Zimbabwe	5.00	15.00	15.00	15.00	0.00

Source: Koppany, 2007 (based on FAO and national trade association data).

to autumn 2008, except for crust, where information was not available. China, like many other countries, taxes imports of leather chemicals at 6.5%, machinery imports at 8%, and imports of accessories for shoes and garments at 15%. At the same time, it should be noted that the import duties imposed by Pakistan are now stated as zero except for leather chemicals, which average 12%, machinery (5%), and accessories (20%).

It should also be noted that, where domestic taxes are concerned, a domestic sales tax is normally added to the import duty. In Argentina, importers of wet blue hides in January 2006 would pay 8.5% import duty plus 25% sales tax, a total of 33.5%. In India, the 2008 import duty on footwear was a basic 10%, but effectively a total of 31.71%, and on tannery machinery a basic 7.5%, but a total duty of 28.64%.

Table 57: Domestic taxes (%) on imports in January 2006

	Raw hides	Wet blue	Crust	Finished leather	Shoes
Argentina	14.50	25.00	25.00	25.00	25.00
Brazil	27.25	27.25	27.25	27.25	27.25
Chile	17.00	17.00	17.00	17.00	17.00
EU	14.00-21.00	14.00-21.00	14.00-21.00	14.00-21.00	14.00-21.00
Mexico	15.00	15.00	15.00	15.00	15.00
Pakistan	15.00	15.00	15.00	15.00	15.00

Source: Koppany, 2007.

Table 58: Export taxes (%) in January 2007

	Hides	Wet blue	Leather crust	Finished leather	Manufactured products (leather shoes)
Argentina	15*	15*	5	5	5
Brazil	9	9	0	0	0
India	60	60	60	0	0
Kenya	15	0	0	0	0
Pakistan	20	20	0	0	0
Paraguay	12	0	0	0	0
Russia	15	10	10	0	0
Tanzania	20	0	0	0	0
Uganda	20	0	0	0	0
Uruguay	8	8	0	0	0

Source: Koppany, 2007.
* Argentine export taxes are applied on the value of USA butt branded steers as quoted in Chicago.

There are a number of reasons why we can expect these numbers to keep changing:

• the final part of the value chain, where leather goods, garments and footwear are made, is more labour-intensive than the first stages and involves small amounts of start-up capital compared to many other industries, which makes it an attractive sector in developing countries;
• the production of hides and skins is environmentally sensitive and subject to considerable legislation, which makes it a likely target for non-tariff barriers;

• the lack of linkage between hide supply and consumer demand for leather can create major price fluctuations, which may make governments more inclined to intervene;
• increasing pressure to comply with WTO rules has led to an increase in the use of non-tariff barriers.

5.2 Major issues related to duties and tariffs

Trade barriers and protectionism are major global issues in which the leather industry plays only a tiny role. In numerous sectors, from aviation through agriculture to military equipment, we have seen trade battles rage for most of the twentieth century, at the start of which most companies in Europe and the USA were heavily protected as they were seeking growth. Leather and the leather industry have often been a cause of dispute in the past as leather, footwear and saddlery were seen as having strategic value, whereas today the industry is mainly protected with the intention of creating or not loosing jobs.

Some of the most dominant views on the role of tariff barriers have come from the USA and the EU. Both argue for zero tolerance of all sorts of protectionism. EU tanners, acting through COTANCE, have been the most articulate and claim that "certain protectionist measures, such as those in Brazil, Argentina, Pakistan and India, have been implemented for much too long. This is unacceptable, and the worst part is that, in addition to damaging our competitiveness, they also slow down the development of the less advanced countries that remain in a state of permanent and forced underdevelopment."

Access to raw materials has been the main focus, and the arguments presented are that export restrictions on raw materials isolate the protected market from global competition. This decreases the supply of hides and skins to the international market, cuts off traditional trade flows and causes oversupply in the closed market and consequently a fall in prices. As a result, traditional foreign buyers are forced to reorient their purchases in a reduced open market exacerbating competition and pushing prices higher. In addition, local operators see their input costs fall (hides and skins typically represent 50% of tannery production costs), allowing them to lower prices for their processed goods in the international market or to reap extraordinary profits.

This line of reasoning further claims that the final outcome is an artificial transfer of trade gains within the WTO membership and the creation of an unfair advantage for manufacturers in some countries at the expense of their counterparts in other countries, including infant industries of developing nations.

Over the last few years, the EU has indicated possible exceptions from the commitment to eliminate export taxes in certain circumstances. The EU considers that these exceptions should be negotiated according to the following rules:

• developed countries: no export taxes, without exception;
• developing countries: export taxes of a maximum percentage value on a limited set of products to be determined on a demand-supply basis and taking into account the potential trade-distortion effects of these export taxes to the detriment of other member states;

• least developed countries: binding of existing export taxes and listing of export taxes of a maximum percentage value on a set of products on which countries currently impose no taxes, but may want to retain flexibility of doing so in the future, to be determined on the basis of development needs and possible fiscal constraints expressed by least developed countries.

While this position offers help to poorer countries with emerging leather industries, it demands that those countries whose leather sector has started to grow should fully comply. Since there is credible evidence that certain forms of protection have helped industries to grow, the countries whose industries are still not fully developed are reluctant to comply.

5.3 Expected future trends

It is hard to imagine that the disputes regarding tariffs will be resolved in the next fifteen years. The leather industry and the industries supporting it are so important in terms of exports and employment to so many countries that those countries appear certain to try to help them as much as they can. At the same time, many of the countries that have resorted to tariffs are the same ones who are the loudest critics of the protection given by both the EU and the USA to various segments of their agro-industrial sector.

Protectionism occurs in developing countries despite an argument that says that extensive protectionist policies leave the industry open to excessive price fluctuations, weaken further the very weakest, and are unfair to developed countries who have been helping poorer nations.

What all parties agree upon is that tariffs and duties have had and will continue to have a profound effect on trade and on the progress of the industry at all levels. Duties applied by the USA and the EU have, over the last two decades, greatly affected industry location.

It is also clear that duties create distortions and therefore great opportunities for those who are able to "get around" them via corruption, smuggling, misreporting or other means. Throughout the world, there is a very significant movement of raw hides and skins, and of footwear in particular, that is outside the legal systems laid down by governments.

In addition, the growing importance of brands since the 1980s and their increasingly outsourced manufacture have stimulated the proliferation of fake, or counterfeit, products.

The industry continues to trade large amounts of products at a variety of partly processed stages, from pickle and wet blue to cut uppers for footwear, and it retains as participants in the global leather trade a number of countries whose supply of raw material and/or finished leather does not come near to meeting domestic demand. The volume and characteristics of the world trade in leather and leather products are such, that it is safe to presume that the efforts to influence trade movements through protectionism of one kind or another will continue.

6. Recommendations: Further surveys and interventions

Every attempt has been made to make this report as comprehensive and accurate as possible. However, much more investigation and more resources will be required to provide a complete picture of the global leather sector. The main areas requiring additional investigation are outlined below.

The way in which leather is utilized, especially the uses of an increasing quantity of low-grade material, is of great importance. Where and how leather is used will depend on a price/value mechanism as well as on the traditional pattern of supply and demand. Making low-grade, heavily coated leathers does not appear to be the adequate way of using lower-grade raw material or of compensating for the shortage of top-quality material that is likely to occur. This is linked to questions of what types of leather should go or will go in the future into automobiles, one of the fastest growing leather consumption sectors.

There are many sides to these issues, and further study is needed because they have relevance with respect to future raw material use, technology requirements, tannery location, and end–user design skills.

For the whole sector, from raw material to finished products, this study has highlighted the ready availability of large amounts of data, but it has also shown that the form of these various data sources is not standardized, so that drawing comparisons and conclusions is difficult. Hence, in a number of areas, a considerable amount of data has been included in tables in order to allow readers to draw their own conclusions. There would be great value in developing a better pool of global data. In the case of the footwear industry alone, an industry that provides employment to at least 10 million people worldwide, the establishment of a global database would be greatly beneficial.

A survey of industries that support the leather and leather products sector should also be considered. Such a survey would investigate chemicals, software, machinery, and components.

The old debate on the respective merits of cluster production versus industrial parks for shoe production should be revisited. Navarro (2006) indicates the financial gains to be achieved from the structural organization of an industry in a region. Appendix B provides a more detailed treatment of this subject.

The extent of sourcing of shoe components by shoe manufacturers in developed countries should be determined in order to establish the true importance of footwear manufacturing in the industrialized world.

A full investigation of the extent of illegal trading in footwear in particular, but also in other leather products – and even in raw hides – would produce a much clearer global picture of the industry.

It has been assumed in the report that no new synthetic materials are likely to challenge leather in the foreseeable future. A survey of synthetic material suppliers is required in order to confirm or reject this assumption. There is some evidence in this report that the market for new materials could be considerable.

In any country, significant growth in the shoe industry requires significant investment. The phenomenal growth of the industry in China occurred with no investment capital from the USA or the EU; it has been

financed solely by Asian investors. Lessons could be learned here that would benefit other developing regions, such as Africa. Every country, however poor, has rich entrepreneurs prepared to invest if the returns appear to be satisfactory.

The potential for traditional, western manufacturers of brand footwear to develop the market for their products in the rapidly expanding Asian markets should, if possible, be quantified.

The quality imperative With foreign investment and the support of international chemical and machinery companies, technology transfer has been very effective. However, in many of the poorer countries, where the industry is evolving out of a traditional or craft base, manufacturers have not yet sufficiently adopted the quality concept.

In a responsible world, material waste and low quality are not acceptable. Due to progress in manufacturing techniques and work organization, doing things properly needs no more time than doing them poorly. Making a nice piece of stitching is not more difficult than stitching haphazardly: what is to be manufactured should be manufactured well.

At the same time, consumers and users should get more education, so that no one will consciously buy an item of bad quality. Consuming should become an intelligent and responsible act.

Local production in developing countries All aspects of the leather industry are labour-intensive light-industry activities, especially the post-tanning stages and the use of leather in the making of garments, gloves, footwear, and other leather products. This is an important reason for promoting the sector in the developing world. Also, the investment required is not very large in any of the industries that use leather and, if properly managed, these industries are not polluting.

There are many small-scale manufacturing activities based on old tanning and production techniques that are in danger of being overwhelmed by modernization and urbanization. Many of these lie in the informal sector and are not accounted for in any statistics. Nevertheless, they do offer sizeable rural employment and robust technologies based on local materials. The making of parchment and lunch boxes in Ethiopia, and of babouches (elegantly embroidered slippers) in Morocco are typical such activities. In both of these examples, there is a significant tourism element, but the poor smell of the leather due to the low-grade chemicals used and poor processing techniques considerably reduce the benefit that could be gained by the communities involved. Since labour is generally available at low cost, certain technologies in the manufacture of leather products can be re-introduced or maintained in these sectors in order to make higher-value handcraft products.

This type of approaches are important because there are limited opportunities for high-volume low-cost production for export, which is largely under the control of highly efficient well-established plants in countries such as China and India.

Local raw material and techniques One of the big advantages of the leather industry is that almost every country in the world has domestically available raw material. Other locally available raw materials must also be considered when they offer opportunities for innovation and value addition. Rattan in Indonesia, for example, is a material that can be combined with leather to manufacture bags and create a potentially valuable local differentiator.

In spite of almost continuous global growth, the gap between rich and poor people is greater today than it was in 1973. The gap may be 40 times wider between industrial and developing countries and the reality is certainly worse if such notions as working conditions were taken into account. The labour value that enters into the manufacture of a product is in itself often insignificant when compared to material components, not to mention design, advertising and marketing.

This situation is partly due to globalization, but also to the margin system in use, a system based on cumulative percentages that increase considerably the costs at each step of the chain from production to distribution. Efforts should be made to find solutions, or at least to prevent the gap from widening.

The current situation has largely arisen from the movement around the world of the "assembly" part of the production process, while the higher value-added elements of design, material choice and specification, logistics management, and marketing are being kept in the hands of globally established brands.

At this time, it is important for emergent industries, which will not be able to compete with low-cost volume production, to look for local design and development skills. By building locally available materials and traditional design elements into contemporary quality products, many countries could gain profitable niche positions in the market. Design training needs to take into consideration aspects of quality and to allow the upgrading of lower qualities of leather, rather than downgrading them into plastic look-alikes.

The means to be brought to bear in pursuit of these objectives should include:

Internet databases established and managed by UNIDO (possibly in cooperation with other organizations) Such a Web site may harness the expertise of a team of experts from various countries. Its main functions would be:

- to describe traditional as well as new production techniques through demonstration videos, scanned books and manuals, etc.;
- to create an on-line gallery of digital photographs of leather products; the gallery would be enriched continuously by interactive visitors' contributions;
- to create an on-line ads network to be used as a platform for exchanges among manufacturers, sub-contractors, distributors, clients, and suppliers of raw materials, machinery and accessories;
- to create an on-line multilingual technical dictionary covering all leather-related activities;
- to provide a better centralized global database of industry statistics.

Vocational training and information centres in selected countries These centres would be financed partly by concerned governments as well as by local companies along with international development aid programmes. The essential first step would be the identification of countries interested in the development of the leather sector.

The beneficiaries of such assistance could include countries such as Madagascar, which has a great potential for breeding crocodiles and other sources of exotic skins. If these skins could be properly tanned and finished locally, then manufacturing of luxury goods could be set up in such very poor countries.

International ethical regulations and rules of providing consumers with adequate information In large areas of the leather sector, the term "leather" is abundantly used with no distinction between "grain leather" and "split leather," in spite of the fact that these appellations refer to product categories that differ greatly in terms of quality. There exists a wide variety of coated splits, heavily corrected grain leathers through to e-leather that are ill defined. The industry needs to take charge of definitions and make sure that each grade and type of leather is correctly promoted.

On the other hand, the type of animal the leather comes from is almost never mentioned, except for exotic skins serving to justify the product's price. It should be noted that the "leather" label might confuse the consumer when it is prominently attached to items that contain synthetics as main components of the product.

As a summary, one can say that today's consumer is insufficiently informed, and that it would be useful to take steps intended to correct this situation.

As for the country of origin of the product, information does not always exist, and if it does, it is treated differently and depending on whether the country has a negative or a positive connotation. A positive connotation exists when the country of origin is regarded by the foreign company as being synonymous with quality and reliability. The opposite occurs when it is considered that mentioning the country of origin may put sales at risk. This is obviously a subjective judgment, and even entails a contradiction, since it was the foreign company itself that decided to manufacture its products in the country apparently burdened with a negative connotation.

Some rules could be established regarding the information that manufacturers of leather goods, footwear, etc. should provide to their customers:

- without being necessarily obvious on the product, information should be placed in such way that it could not be missed;
- detailed information should be put together on the same label;
- trademarks should be mentioned;
- the producer's name, the product's country of origin, and the raw materials used should also be mentioned.

Appendix A: Report preparation and sources of information

In the process of preparing this document, the authors held meetings in Vienna (Austria), Brussels (Belgium), Bologna (Italy), Street and Kettering (UK). Most of the data was collected using the Internet. A number of key individuals were interviewed by telephone. Below is a list of the most helpful sources of information published in this report:

AAFA	**American Apparel and Footwear Association** Excellent source listing US imports by country and category. It also has a good Web site detailing current trends and quarterly movements.
ABICALCADOS	**Brazilian Association of Shoe Manufacturers** Notas de Prensa provide useful and interesting information on behalf of the association.
APICCAPS	**Portuguese Footwear Manufacturers Association** Statistical data on Portuguese production, employment, imports and exports.
APRISINDO	**Association of Indonesian Shoe Manufacturers** Information is limited and may be unreliable.
CBI	**Market Information Database of the Europen Union** Good source of both general and country-specific information.
CLE	**Council for Leather Exports, India** Information on production, imports and exports.
CLRI	**Central Leather Research Institute, India** Used in conjunction with CLE; it includes employment data and more detailed information on production.
CLIA	**China Leather Industry Association** Excellent source of detailed quarterly data on imports and exports of leather and leather products. Unfortunately, there is no information on production or the domestic market.
EUROSTAT	**European Commission Statistics** A good source of data on imports/exports and production within the EU.
FAO	**Food and Agriculture Organization of the United Nations** Respected source of information on meat, livestock, raw stock, leather, and leather shoe production worldwide. Its statistical compendium is now the basis of most industry surveys.
ICT	**International Council of Tanners** Builds profiles of its member countries and other information into the FAO data.
ILO	**International Labour Office**
IMS	**Automotive Interiors Worldwide** (www.imsautomotive.com) Source of information on automobile interiors.
ITC	**International Trade Centre** http://www.intracen.org/dbms/Leather/Index.asp Very comprehensive Web site with some world statistics, trade data and many useful links. Has detailed section on selected African countries.
ISTAT	**Istituto nazionale di statistica** Data on production, imports and exports of the Italian footwear industry.

LEFASO	**Viet Nam Leather and Footwear Association** Limited information presumably due to the rapid growth of the Vietnamese industry.
OICA	**Organisation Internationale des Constructeurs d'Automobiles**, Paris Its Web site (www.oica.net) offers information on global automobile production by brand.
SATRA	**Shoe and Allied Trades Research Association** Provides probably the best general picture of the global footwear industry. However, information can be expensive and much of it is estimated and can be, on occasions, misleading.
UNCTAD/WTO	**UN Conference on Trade and Development** Useful information on world trade by sector.
US Census Database	World population statistics.
World Leather	
Business Week	Weekly subscription newsletter.
XINHUA News Agency	www.xinhuanet.com Bilingual Web site of China's official news agency.

Valuable contributions were also made by:

Adidas Group
Clarks Ltd.
Nike Inc.
Franklin Sports
The University of Northampton
Scottish Leather Group
BASF
Friedemann Schaber of the University of Northampton (on automobile upholstery)

Other sources of information:

Valor Economico
Viet Nam News Agency
People's Daily Online
The News, Pakistan
Moscow News
Chinashoeexpo
IndianShoeBazaar.com
Financial Express, India
The Economic Times, India
Confederation of Indian Industry
Macauhub
The Economist

Appendix B: Clusters

For many years, the leather industry has shown good examples of co-location, the agglomeration of various aspects of an industry in one area. For example, in Pergamum, Ancient Rome, and Venice, certain activities were agglomerated for environmental or market reasons. In the 1980s, Prof. Michael Porter of the Massachusetts Institute of Technology developed his concept on the advantages in innovation and flexibility of what he defined as "clusters," a concept that he coined after studying the Italian footwear and textile industries. This concept has undergone considerable development, and is now recognized in places such as the Silicon Valley and various other high-tech or bio-tech localities. There is significant variation in the definitions of clusters: local networks, industrial parks, industrial districts, etc. For the purpose of this study, clusters are considered to be an area with a significant number of companies operating in a certain industrial sector, including competitors, suppliers and associated service industries. Industrial parks exist where a particular area is designed to hold a large number of businesses in the same industry that are often intended to create clusters. In the case of tanneries, this would allow for one treatment plant to handle all the effluent generated in the park. The cluster model of industrial development is an area where UNIDO has accumulated a considerable amount of expertise.

Clothier's 2004 report on China's footwear industry makes a number of references to clusters. For example, on page 7, he writes: "Local authorities in more remote areas of China remain keen to assist the establishment of shoe industry clusters as they see this as a first phase in industrialization," and on page 37: "The shoemaking base of Fujian has formed a complete chain of industries and trades with superiority of groups and clusters on the basis of sports shoes and jogging shoes as main products integrated with allied trades of shoe material and shoe machinery. Now all allied products used on shoes such as metal accessories, shoe lasts, soles, heels, shoe lining materials, adhesives and packing boxes are produced in this industrial area."

The list below consists of other academic works on this important, but complex subject. The reader will notice that the leather industry features in many of these studies.

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