GOVERNMENT OF PAKISTAN

Pakistan Export Strategy Leather and Leather Goods

2023-2027

This Leather and leather goods sector strategy is part of the National Priority Sectors Export Strategy (NPSES) initiative which contributes to the implementation of Pakistan's Strategic Trade Policy Framework (STPF) 2020-2025.

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Pakistan Export Strategy

Leather and Leather Goods

2023-2027

Foreword from the Ministry of Commerce

Increasing international trade is not only a means to boost economic growth and the nation's welfare, but also to contribute to strengthening international relations. The stabilization of economic and political affairs paves the way for reinforcing friendly relations based on mutual interests with a wide range of trade partners. Trade is thus one of the most important forms of exchange between countries and fostering this will lead to connections such as foreign investments, better employment opportunities, and scientific and technical exchanges, all of which will contribute to Pakistan's growth and prosperity.

The Government of Pakistan has taken a series of initiatives to promote exports to achieve sustainable and inclusive economic growth, poverty reduction and improvement in the living standard of the Pakistani people. This is also aligned with the government's vision of the Strategic Trade Policy Framework (STPF) 2020–25 for 'Pakistan to become a dynamic and efficient domestic market as well as a globally competitive export-driven economy'. In this context, the Ministry of Commerce supported the preparation of the Leather and Leather Goods Export Strategy, a priority export sector under the STPF, which will contribute to export diversification of Pakistan. This sector export strategy has been formulated in close consultation with all the stakeholders; and the Ministry of Commerce appreciates all those involved in the process, particularly the private sector.

As a priority export product within the framework of the STPF 2020–25, the leather and leather goods sector presents a new export avenue and an opportunity for Pakistan. The strategy encompasses trade-related factors such as ensuring export quality, greater market access and product diversification. In addition, substantial investment to expand export potential and grow foreign trade requires strategic targeting. All activities in the strategy design framework have outlined a detailed five-year plan of action to tackle issues and facilitate export procedures, and is agreed on by all the stakeholders in Pakistan's leather and leather goods sector in Pakistan.

Despite challenges in the international trade scenario and the global business environment, I am confident that this initiative will serve as an action-oriented blueprint to enhance trade performance and develop a coordinated mechanism with participation from both the public and private sector, increasing its competitiveness in the international market.

To maintain the momentum sparked by the consultations, we are committed to play a constructive and facilitative role, while making it our top priority to execute the activities and reforms requested from both our ministries in the plan of action. We are particularly committed to continue keeping the private sector in the driving seat for the implementation process through the Sector Specific Council on Leather and Footwear. The Government of Pakistan is fully committed to promoting export-led economic growth and encourages all to join hands and work together in making the vision of a flourishing Leather & Leather Goods sector a reality.

Forewords from the private sector

Message from the Pakistan Tanners Association (PTA)

We are pleased to know that the Trade Development Authority of Pakistan is finalizing a strategy on the leather and leather products, which will present the plights, and provide recommendations to improve the sector in the next five years.

I, the Chairman of Pakistan Tanners Association, a recognized trade body representing a large conglomeration of leather manufacturers-cum-exporters of the country, am pleased to have been involved in the sector strategy design process since the beginning. PTA appreciates the effort put in for export promotion, which would ultimately accentuate the country image.

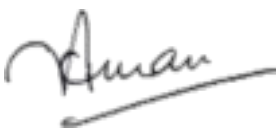
The Pakistani leather industry is a high value-added export-oriented industry, engaged in producing the finest quality of finished leather of all sorts i.e. cow/buffalo hides, goat & sheep skins with value-addition at par with international standards. Moreover, investments on modern machineries have been made by the tanneries of Pakistan, which is ranked 2nd globally after Italy.

The leather tanning industry is playing its pivotal role in earning foreign exchange for the country. In this regard, PTA appreciates the efforts made by the government to help achieve the prime objectives of higher export levels in the sector. It also urges the government to continue its focus in making the sector further sustainable and viable.

Last year (2021) was a difficult year for the leather industry in Pakistan due to several reasons but most importantly due to the COVID-19 pandemic. However, it is a matter of great satisfaction that our member exporters worked hard this year (2022) to comply with the international standards set by the WTO. The pace of exports of leather industry is growing steadily and has registered remarkable exports during the current fiscal year July-June 2021-22 at US$ 953.707 million as compared to the same period of last year at US$ 832.824 million showing increase of 14.51% year-on-year. Similarly, the finished leather exports registered 28.5% growth during July-June 2021-22 and remained at US$ 208.092 million compared to US$ 161.940 million during the same period of last year.

To boost exports and build a positive image of Pakistan world-wide, a number of member exporters are successfully participating in international leather fairs with the collaboration of TDAP & EDF/MOC in various destinations. It is now the matter of great satisfaction that most of our exporters have established Effluent Treatment Plants in their individual tanneries and already registered with the Leather Working Group (LWG), UK. Now Pakistani Tanners can produce leather meeting all the international standards.

I hope this strategy will keep playing its important role to help the industry in achieving the desired goals and I appreciate the efforts of TDAP to help the leather industry in this era of economic recession.



Amanullah Aftab
Chairman, PTA

Message from the Pakistan Leather Garments Manufacturers & Exporters Association (PLGMEA)

Pakistan's National Priority Sectors Export Strategy (NPSES) has identified leather and leather products as a priority focus export sector for growth and development for the next five years. Leather is the second-largest industry, after textile, contributing approximately 5.4% to export earnings and representing a highly dynamic value-added sector that is job oriented – the industry employs more than 500,000 people directly.

Internationally, the leather sector is undergoing a profound transformation to demonstrate its relevance in the new global sustainability paradigm. Already, our members in Pakistan have started building a response around it to harness a sustainable leather value chain. However, this also requires synchronized efforts in policymaking between the government and the private sector.

Consequently, the Pakistan Leather and Leather Goods Export Strategy has been prepared to address all issues related to the sector, specifically competitive constraints affecting the sector's performance. This strategy was completed after several months of consultation meetings and workshops with the stakeholders and is the outcome of their joint effort, reflecting public–private partnership. Its implementation equally depends on the common effort of each one of us to carve a place for Pakistan in the global economy and a niche for its leather products in the international marketplace.

Through the implementation of the actions in this NPSES, we expect to compete more effectively in the global leather and leather goods market, strengthen our presence in existing markets to which we export and enter new growing markets.

As this strategy has rightly identified, our industry must focus on aligning with sustainability standards, boosting certification requirements, improving the skills of the workforce and encouraging innovation. Meanwhile, we reiterate the need for a stable and predictable policy and regulatory regime.

The NPSES recommendations are a combined effort of public and private sector stakeholders to optimize strengths and overcome constraints. The PTA and PLGMEA believe that appropriate strategy implementation will help the industry transform itself. However, we reiterate the importance of the government's commitment to develop the necessary infrastructure and legal and regulatory framework required for the industry to propel further.

We as the private sector, being the primary beneficiary of this strategy's implementation and having been directly involved in its design process, are committed to contribute to its implementation to contribute towards furthering the great potential of this industry to reach new heights.

Finally, we would like to thank all stakeholders who in one way or another played an important role in the preparation of this strategy.

Tasawar Hussain
Chairman, PLGMEA

Acknowledgments

The Leather and Leather Goods Export Strategy forms an integral part of Pakistan's Strategic Trade Policy Framework (STPF). It was developed under the aegis of the Government of Pakistan and the leadership of the Ministry of Commerce (MoC) and the Trade Development Authority of Pakistan (TDAP), in close collaboration with the Pakistan Tanners Association and the Pakistan Leather Garments Manufacturers & Exporters Association (PLGMEA).

The document benefited particularly from the inputs and guidance provided by the sector stakeholders that steered the strategy's formulation, namely the following key sector institutions:[1]

Institutions	
Dada Enterprises	Nova Leathers
Hafiz Tannery	Pakistan Gloves Manufacturers & Exporters Association (PGMEA)
Hamid Leather Pvt Ltd	Pakistan Leather Garments Manufacturers & Exporter Association (PLGMEA)
Highway Creations	Pakistan Tanners Association (PTA)
Hub	Pelle Classics
Hundal Group	Royal Leather
Impo Expo International	Siddiq Leather Works (Pvt) Limited, Lahore
Muhammad Ashraf (Pvt) Ltd	Sustainable Leather Foundation
Nadeem Leather Industries	Syed and Sons Industries
Noor Leather	Zulfiqar Brothers

Technical support and guidance from ITC was rendered by the following people:

Name	Designation
Tauqir Shah	Revenue Mobilization, Investment and Trade project (ReMIT) project coordinator
Shoaib Zafar	Project advisor
Ebrahim Muslim	National sector consultant
Charles Roberge	Senior Officer Export Strategy
Alexandra Golovko	Advisor, Export Strategy and Competitiveness
Ralph Arbeid	International expert, leather and leather goods
Aishwarya Nahata	International consultant

1.– The full list of public-private stakeholders that participated in the consultations and their names is available in Annex II

Note for the reader

The Leather and Leather Goods Export Strategy focuses specifically on environmental, social and governance (ESG) concerns to create higher value addition. The strategy centres on the commitment to drive sustainability and corporate responsibility across the industry, outlining the ambition of creating a sustainable leather supply chain for Pakistan.

Since footwear is considered a separate priority sector under the STPF, this strategy only focuses on leather and leather articles such as bags and apparel, thus excluding footwear.

In order to boost export growth, the Ministry of Commerce (MoC) has developed the Strategic Trade Policy Framework (STPF) 2020-25, which was approved in November 2021. ITC provided technical support to MoC and the Trade Development Authority of Pakistan (TDAP) to design selected sector export strategies of the STPF priority sectors. This initiative, called the National Priority Sectors Export Strategy (NPSES), focused on 10 of the 18 STPF priority sectors through a consultative process.

The Leather and Leather Goods Export Strategy was developed on the basis of a participatory approach, during which more than 40 Pakistani industry leaders, small business owners and public sector representatives held consultations to reach consensus on key sector competitiveness issues and priority activities. These inclusive consultations were held in a hybrid model owing to the travel restrictions imposed due to the COVID-19 pandemic.

Besides in-depth qualitative and quantitative research and value chain analysis, these consultations were complemented by visits and interviews by the national consultants with domestic firms to guide the strategy with insights and market intelligence as well as buyers' requirements in terms of quality standards, packaging, distribution channels and prices, etc.

The Leather and Leather Goods Export Strategy builds on the ongoing initiatives in areas of private sector development, regional integration, investment and economic empowerment of youth. Equally importantly, the sector strategy is complemented by an effort to establish the proper implementation responsibilities among key stakeholders early on to ensure timely implementation of activities, whether by the public sector, private sector or international development agencies. This strategy's principal output is an endorsed, coherent and comprehensive document with a five-year detailed plan of action (PoA) and an implementation management framework.

This document was approved as the official export strategy for the Leather and Leather Goods Sector 2023-2027 by the Leather & Footwear Sector Specific Council and endorsed by the Ministry of Commerce of Pakistan.

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Acronyms and abbreviations

Unless otherwise specified, all references to dollars ($) are to United States dollars (USD) and all references to tons are to metric tons.

CAGR	Compound annual growth rate
ERP	Enterprise resource planning
FDI	Foreign direct investment
GILT	Government Institute of Leather Technology
H&S	Hides and skins
ITC	International Trade Centre
LWG	Leather Working Group
MoC	Ministry of Commerce
PLGMEA	Pakistan Leather Garments Manufacturers & Exporters Association
PoA	Plan of action
PTA	Pakistan Tanners Association
SDGs	Sustainable Development Goals
SLF	Sustainable Leather Foundation
STPF	Strategic Trade Policy Framework
TDAP	Trade Development Authority of Pakistan
UNIDO	United Nations Industrial Development Organization
ZDHC	Zero Discharge of Hazardous Chemicals

EXECUTIVE SUMMARY

The present strategy outlines a path for the development of a sustainable leather and leather goods industry in the Islamic Republic of Pakistan, focusing specifically on the environmental, social and governance (ESG) concerns to create higher value addition. It is a five-year endeavour that was defined through a consultative process between public and private sector stakeholders. The strategy addresses constraints in a comprehensive manner and defines concrete opportunities that can be realized through the specific steps detailed in its plan of action (PoA). The Leather and Leather Goods Export Strategy is an integral part of Pakistan's Strategic Trade Policy Framework (STPF).

GLOBAL MARKETS FOR LEATHER AND LEATHER PRODUCTS

There has been a major global shift in the leather and leather products sector, with a resetting of competitive advantage from Europe to Asia (and within Asia from East Asia to South Asia). Moreover, the sector is expected to continue to grow rapidly in the next decade, owing to improvements in quality and performance in the leather industry. However, the sector continuously faces competition from the rise in the alternative non-leather material market. There have been several ongoing and inaccurate campaigns claiming that animals are killed exclusively for their skin. Moreover, the campaigns use sustainability, environmental and social compliance as the main argument, without offering scientific evidence.

The leather industry's resilience has enabled the sector to target high-end developed market consumers – with ethical and sustainable products. Thus, while global leather demand is on the rise, consumers, especially of a younger demographic and in developed countries, are making conscious choices to gravitate towards environmentally sustainable businesses and are demanding traceability of the final products, pushing for an acceleration of the green leather industry.

Environmental concerns are being addressed through processes that use less water and use better tanning chemicals more efficiently. This results in a lower discharge of water and fewer solids in discharge effluents. Harmful chemicals are continuously replaced with environmentally friendly substitutes, or recycled through the application of new technologies. Effluent treatment plants are becoming more effective and efficient to meet desired environmental standards. Simpler and more cost-effective methods are now available. A major development is extraction technology and the manufacture of saleable products from effluent waste. These changes have led to innovations and adjustments to meet the changing demands of the fashion industry and environmentally conscious consumers.

PAKISTAN'S PERFORMANCE IN THE SECTOR

The leather and leather products sector has tremendous potential and growth scope in Pakistan. However, to become more attractive globally, the sector must adapt to the changing times to create a leather value chain that is socially and environmentally sustainable. Even though the tannery sector is more dynamic than other segments of the industry, critical constraints to source materials remain upstream, and the sector remains undeveloped in downstream activities. Despite thriving international demand for leather products, Pakistan's export performance has been lacklustre. In 2020, Pakistan's leather production accounted for 213 million square feet, with a share of 0.09% globally. In the last few years, the size of Pakistan's leather export market has shown a downward trend. According to

data from the Pakistan Bureau of Statistics (PBS), in the financial year July–May 2020/21, the country exported leather and leather articles worth $739.9 million. Although export destinations remain stable, the Republic of Italy is the largest importer of Pakistani semi-processed and finished hides and skins. The Federal Republic of Germany is the largest importer of finished leather articles from Pakistan.

This sustained decrease in exports is due to multiple reasons, both international and domestic. Some of these include a contraction in the global demand for leather, challenges posed by COVID-19 and constraints faced by the domestic industry in terms of product diversification, technological upgradation and low compliance with social, labour and environmental regulations. Consumers demand to know where their products are coming from, and the transparency and traceability of the supply chain and focus on animal welfare are increasingly driving the demand for the sector. The analysis of production and exports reveal several key underlying trends that threaten the survival of the sector in Pakistan, including:

- Limited use of full productive capacity;
- The gradual erosion of market share owing to lacklustre performance of exports in the last decade;
- Pakistani exports' weak performance in comparison to other Asian peers and considering the large livestock population;
- The narrow concentration of products exported by Pakistan within the sector;
- The unstable duration of trade relations with importers owing to supply consistency challenges;
- Limited Leather Working Group (LWG) and Sustainable Leather Foundation (SLF) audited tanneries.

VISION AND STRATEGIC OBJECTIVES

In summary, this document identifies the root causes of the key issues affecting leather and leather goods competitiveness in Pakistan. It steers to inform stakeholders of world market trends, the sector's status and its challenges at the different levels – from small businesses, tanneries and manufacturers to exporters and the trade support networks providing support services.

To achieve the development of Pakistan's leather and leather goods sector, the present strategy provides a roadmap and a plan of action (PoA) geared at achieving the following overall vision:

> **"Pakistan to be among the top exporting countries in the world for leather and leather goods, through investments in state-of-the-art technology, skilled human resources and safe environmental management practices in a socially viable environment."**

To achieve this vision, the strategy will reduce the binding constraints on trade competitiveness and capitalize on strategic options identified for the Pakistani leather and leather goods sector. The strategic orientations for the next five years aim to facilitate structural changes in the value chain, including an increase in sustainability, fostering social, environmental and labour compliance throughout the value chain, and developing key markets for exporters in the short and medium term.

The strategic options for the leather and leather goods sector in the next five years can be put into five categories, which can be pursued in roughly the following order:

1. *Animal husbandry:* Align sector inputs to sustainability standards.
2. *Production:* Implement sustainable tanning methods aligned with global trends.
3. *Technological upgradation:* Improve investment in modern technology and equipment.
4. *Certification and traceability:* Strengthen compliance on social, environment and governance across the value chain.
5. *Product design:* Development of local design capacity to target international buyers and develop unique positioning.

The five categories are streamlined in the following three strategic objectives.

1: Improve the input quality standard	•1.1. Spread awareness and stimulate good animal husbandry practices •1.2. Improve the quality of hides and skins at the field and farm level •1.3. Improve the operations of slaughterhouses
2: Build sustainable growth in the leather industry to expand access to markets	•2.1. Improve tanneries' abilities to stimulate socially compliant and green sectoral growth •2.2. Increase skills for leather and leather goods manufacturing •2.3. Reduce environmental impact through improved effluent treatment and waste reduction •2.4. Innovate through new products and processes
3: Strengthen the business climate for the development of the leather and leather goods sector	•3.1. Enhance coordination support to the industry •3.2. Reform tax systems applicable to the sector (aligned with the STPF) •3.3. Improve market development capacity

MOVING TO IMPLEMENTATION MANAGEMENT

The strategy process considered current capabilities, constraints, and future shifts and opportunities for Pakistan's leather and leather goods sector, and industry stakeholders extensively evaluated future orientations and upgrading trajectories. The strategy presents a pragmatic and forward-looking roadmap for upgrading and internationalization, and can be driven successfully through timely and appropriate resource allocation and effective public–private collaboration for implementation.

Accordingly, a public–private sector specific council for leather and leather goods is established, operationalized and empowered. The leather and leather goods sector specific council will be responsible for overall coordination, provision of rapid solutions to regulatory and procedural bottlenecks, policy guidance and monitoring industry development along the strategic orientation.

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The following key areas of intervention are priorities to facilitate the strategy's implementation:

- Preserve the quality of hides and skins through training on flaying techniques, and developing awareness on hides and skins preservation.
- Provide appropriate incentives for upgrading technology for tanneries to improve their production techniques, and for small and medium-sized enterprises to request funds to conduct pilot training modules on manufacturing and production.
- Build skills capacity of students interested in the sector through a Bachelors and Masters programme on leather technology, and orient them towards apprenticeship training.
- Reduce environmental impact through improved effluent treatment and enforced national environmental quality standards.

LEATHER VALUE CHAIN GLOSSARY

Air drying: The leathers are hung from stakes either in nature or in a controlled environment to evaporate the humidity contained therein.

Bonded leather: Known as reconstituted leather, it is made from leather leftover scraps that are shredded and then bonded together with polyurethane or latex binders into thin fibre sheets to give it the appearance of genuine leather.

Buffing: The treatment of leather by passing it over a fast-turning roller covered with sandpaper to smoothen the flesh side of the leathers, and/or to eliminate or reduce natural defects on the grain side.

Chrome tanned: Hides that are tanned solely with chromium salts or chromium salts in combination with smaller quantities of other tanning agents that are used to facilitate the chrome tanning process, but not in sufficient quantities to alter the leather's fundamental chrome tanned properties.

Corrected grain leather: Term used to describe leathers that have been sanded (buffed) first on the grain side to remove grain blemishes and scars and to obtain a uniform surface before final finishing. The grain correction improves the leather's appearance without necessarily detracting from its strength and quality. The buffed leather can be embossed with any pattern.

Crust: Leather in a partially finished state (i.e. tanned, re-tanned or fatliquored), which has then been dried for storage or sale until the end finishing requirement is known.

Curing: The process (physical and chemical) of arresting or averting microbial degradation of the hide or skin to allow for the lapse of the time between slaughter and processing by the tanner. When thoroughly cured by any one of several common methods (salting, brine curing and drying with or without salt), the hides and skins are stored until they are taken by the tanner, whose first operation is to soak the hides and skins for re-hydration and submit them to further preparatory treatment before they can be tanned into leathers.

Drum dyeing: Process where re-tanned hides are processed in a heated float of 300% water of approximately 60°C to which dyestuffs are added inside a rotating drum, generally at a speed of 12 rpm for 1–3 hours. Penetration of the dyestuff is obtained in an acid environment that is afterwards neutralized and then washed with warm water to remove soluble salts.

Dye: A dye is usually an organic compound used to impart colour to a substance. It can be used for the colouring of animal, vegetable or synthetic fibres (e.g. wool, leather, fur or cotton). Insoluble colouring matters are called pigments and are used for leather finishing of the grain.

Effluent/wastewater: Liquid waste discharged from a tannery following production processes that must be treated to remove contaminants before being discharged to rivers or seas, or recycled for further industrial usage.

Embossing: Pressing a pattern onto the processed leather surface to create uniform motifs or textures resembling the natural grain patterns or alternative patterns.

Fatliquor: The process of replenishing the natural oils that have been removed from the hide during the tanning process. The addition of oils or fatliquors to the leather is intended to make the leather soft.

Flaying: Process of removing the hide and skin from the animal carcass.

Full-grain leather: Generally, full-grain leather has undergone no buffing, snuffing or treatment in any ways to remove surface imperfections.

Hide: The outer skin covering of animals such as cattle, camels or horses.

Ironing: Leather being treated in the finishing stage after the spraying operation by high pressure on a heated table or through heated rollers. Pressure can run from 100 to up to 1,000 tons depending on the requirements.

Leather goods: Items or articles whose components or parts consist of leather; this includes bags and articles of clothing.

Leather value chain: Stages or components of the leather industry from inputs into livestock ranches to farmers, butchers/abattoirs, collectors/preservers, tanners/exporters, leather goods manufacturers and wholesalers/traders.

Liming: A part of the tanning process that uses sodium sulphide and lime to remove unwanted hair from raw hides and skins.

Measuring: The measurement of the leather's surface during the processing phases and at the final phase before packing. Measurement units are square centimetres, square decimetres, square metres or square feet. Measuring can be done manually or through a mechanical or electronic measuring machine.

Pickle: Raw hides and skins (H&S) in the tannery are processed by chemical and mechanical methods to remove the flesh and hair for longer preservation and easier presentation for sale. This process is called pickling, which is the first intermediate stage of the tanning process, where the skins are acidic in nature and can be preserved for a limited period. The leathers in pickled condition are white in colour. Pickled leather, mainly skins, is sold, but less frequently than before. The advantage of pickled skins is flexibility, as it can be processed for chrome tanning or vegetable and other chrome-free tanning processes. The pickling process can be set and controlled for different end uses. Pickled skins are sold by dozens/numbers in different size and grades.

Roll coating: The application of a layer of pigment on the leather's surface.

Sammying: The squeezing of excess liquid from hides and skins after drumming operations.

Setting out: Often combined with the sammying operation, with the purpose to increase the leather's surface.

Shaving: Hides and skins are moved over fast circularly running blades that reduce the leather thickness at the flesh side to the right and create uniform thickness.

Skin: The outer covering of a small animal such as a calf, goat or sheep, but also reptile, ostrich or fish, which have been flayed.

Flaying defects: Cuts or holes and gouges to the H&S, which reduce their value or make them unfit for subsequent use further up the value chain.

Raw hides and skins: H&S after flaying and preservation is the first stage of sale. The preservation method can vary from very preliminary (air-dried hides from villages in developing countries) to advanced (refrigerated hides from developed countries). Sale can be to a local collector who sells on to the tannery directly or via traders. The quality of preservation varies depending on awareness of, and the affordability and availability of, the chemicals required. To export in industrialized countries, the raw hides are well cleaned, trimmed and preserved by chemical and refrigeration methods. They are usually sold by weight or per piece subdivided in specific weight ranges.

Split leather: Leather created during the splitting process when the fibrous bottom half of the hide is separated (split) from the top grain of the raw hide or skin to obtain even thickness and uniform final leather for processing.

Split: Leather created after the separation process from the top layer (grain).

Splitting: Operation that runs the leather horizontally over a parallel-placed fast-running stainless steel blade that separates the top layer of the leather from the lower layer, thus obtaining a grain and a split.

Spraying: Operation that covers the leather with liquid chemicals, which could be pigment, fatliquor or lacquer.

Staking: The mechanical softening of dry/dried leathers intended to loosen the fibres.

Tanning: Tanning is the chemical process for treating animal skins to produce leather.

Traceability: A system that can be used to trace material along the value chain for origin, health, hygiene and safety reasons.

Vacuum drying: Drying of leather between two airtight stainless steel (heated) tables between which a vacuum is sucked for the quick elimination of (residual) humidity.

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Vegetable-tanned leather: Hides and skins tanned exclusively with vegetable tanning agents – tannins (polyphenols and gallic acid) and other ingredients found naturally in plant species. The leather is tanned with oak, spruce bark, birch or other organic substances to preserve, strengthen and give colour to the hides and skin. These substances are placed in a pit along with the skins and hides. The vegetable-tanning process takes approximately 30–60 days. Per skin, an estimated 30 kg of bark, 20 kg of fruit or 90 kg oak wood is needed. The tanning agent is placed together with the hides in water-filled pits, resulting in a bath containing tannic acid after a few days. The skin is regularly exposed to additional baths with higher tannin concentrations.

Wet blue: Wet blue is chrome-tanned leather. The chrome-tanning process is done after pickling. It is the next and most common method of preservation and sale around the world. The leather can be preserved for many years when appropriately treated with anti-fungus chemicals with periodic checking of the leather's humidity percentage and adjusting this with water when necessary. Wet blue's name is derived from the leather's light blue colour and the wet condition requirement. The leather is resistant to boiling temperature, very clean, and easy to grade and handle for transport and storage. Wet blue skins are sold by dozens/numbers in different sizes, or as measured in square feet or square metres in different grades.

Wet white: Chrome-free tanning technique that uses aldehydes as the tanning agent. It is considered an environmentally safer tanning technique than wet blue.

Wet salting: A curing method in which the cooled flayed fresh hide or skin is spread out flesh side up (possibly) on a (concrete) self-draining floor and covered with salt (common salt), ideally 25% of the raw hide's weight. Some professional slaughterhouses machine flesh and trim their hides before salting.

A SECTOR UNDER TRANSFORMATION TO DEMONSTRATE ITS RELEVANCE IN THE NEW GLOBAL SUSTAINABILITY PARADIGM

DEMAND FOR LEATHER AND LEATHER PRODUCTS IS GROWING FAST, THOUGH FLUCTUATING

A major global shift has taken place in the leather and leather products sector, with a resetting of competitive advantage from Europe to Asia (and within Asia from East Asia to South Asia). The first countries to emerge from the industry's global restructuring were on the Indian subcontinent in the 1970s, followed by a further shift in the 1980s to East Asia. These countries were Chinese Taipei and the Republic of Korea to start, with the People's Republic of China joining them later. The major reasons for their success were the lower cost of production and the lack of cheap skilled labour in the West. China has emerged as the global leading exporter of leather in recent years. The industry structure is now shifting towards South Asia, where the Socialist Republic of Viet Nam has become a main player due to the same factors of competitive advantage, namely the availability of trained labour, lower production costs and availability of raw materials (H&S).

Among developed countries, Italy took the lead and is still among the top leather and leather products manufacturers. However, it has now shifted to high fashion customers and sophisticated leathers and finishes, divesting from basic articles and production. The industry in developed countries focuses more on high-quality fashion products and accessories, and relies on fast fashion turnover and related fast delivery times, which fetch higher market prices. Their motto is quality, not quantity. They have design studios closely monitoring or jointly working to tap into new trends and develop new technologies. The design studios facilitate the manufacturing process to launch commercial products that are sold to the rest of the world as both new products and technologies.

In 2014, total leather production in Europe was 5 billion sq. ft, while Asian countries (e.g. China, the Republic of India, Viet Nam, Democratic People's Republic of Korea, and Japan, etc.) produced almost double that amount (11.2 billion sq. ft) (FAO, 2015). According to some estimates, of the total annual global leather production (approximately 24 billion sq. ft), the leather footwear industry uses approximately 65% of leather (or 15.6 billion sq. ft). The remaining 8.4 billion sq. ft (35% of total leather production) goes into the manufacturing of a diversity of other types of leather products. For example, furniture (14%), automobile seats and interiors (10.2%), garments (10%) and miscellaneous other leather products (8%) (Mwinyihija, 2014).

Table 1: Top exporters of leather and leather products

Exporters	Exports 2020 (USD million)	Average compound annual growth rate (CAGR) (%) 2016–20	Share
World	186 535	-1.05%	
China	59 967	-5.51%	32%
Italy	19 855	2.01%	11%
Viet Nam	19 847	4.94%	11%
France	13 076	6.60%	7%
Germany	10 267	7.20%	6%
Hong Kong, China	5 514	-8.07%	3%
Indonesia	5 456	2.35%	3%
Netherlands	5 313	2.20%	3%
Spain	3 928	-1.90%	2%
India	3 757	-7.26%	2%

Source: International Trade Centre (2020).

Recent years show a fluctuating growth in exports for leather and leather articles. The world export market for leather and leather products (excluding footwear) reached $88 billion in 2019, with an annual compound growth of 4% in 2015-19. The global leather market has nearly doubled in the last two decades and is expected to continue to grow rapidly in the next decade, owing to improvements in quality and performance within the leather industry. According to Figure 1, the first the global financial crisis of 2008-09 led to a contraction in the market for leather and leather product exports by 14.7%, when global earnings received from exports of hides and skins (H&S) fell by 30%.[1] Soon after, the exports recovered until 2019-20, when the sector witnessed a slump due to the COVID-19 pandemic. Exports during the period decreased by 18.1%.

Figure 1: Global leather export earnings (2001–20) (USD billion)

Sources: ITC calculations based on UN Comtrade and ITC statistics.

Despite the projected increase of more than 10% in the global livestock population in 2020-2030, the supply of leather will remain constant. From Table 2, it can be deduced that the gap between the increasing livestock numbers and static availability of leather is probably because the demand for leather remains stable and the excess of hides and skins available at the slaughter level are being dumped.

1.– Food and Agriculture Organization of the United Nations (2013). World Statistical Compendium for raw hides and skins, leather and leather footwear, 1993–2012. Available from http://www.fao.org/fileadmin/templates/est/COMM_MARKETS_MONITORING/Hides_Skins/Documents/COMPENDIUM2013.pdf.

Table 2: Worldwide livestock and leather production

	2005	2010	2015	2025	2030	2005–30 (P)
World livestock population ('000 tons)						
Bovine	1 544 647	1 619 431	1 674 814	1 815 950	2 036 317	31.83%
Sheep	1 117 011	1 127 552	1 170 145	1 225 806	1 332 623	19.30%
Goat	883 259	972 463	1 020 705	1 179 539	1 430 710	61.98%
Total	3 544 917	3 719 446	3 865 664	4 221 295	4 799 650	35.40%
World production ('000 tons)						
Bovine hides	334 326	353 850	366 867	402 575	458 010	37%
Sheep skins	530 852	547 733	543 544	556 539	565 487	6.52%
Goat skins	420 577	471 669	497 413	588 286	733 737	74.46%
Total	1 285 755	1 373 252	1 407 824	1 547 400	1 757 234	36.67%
Apparent availability of bovine leather (million sq. ft)	14 367	12 901	13 568	12 814	14 270	-0.68%
Apparent availability sheep/goat leather (million sq. ft)	5 187	5 564	5 454	5 735	5 347	3.08%
Total	19 554	18 465	19 022	18 549	19 617	0.41%

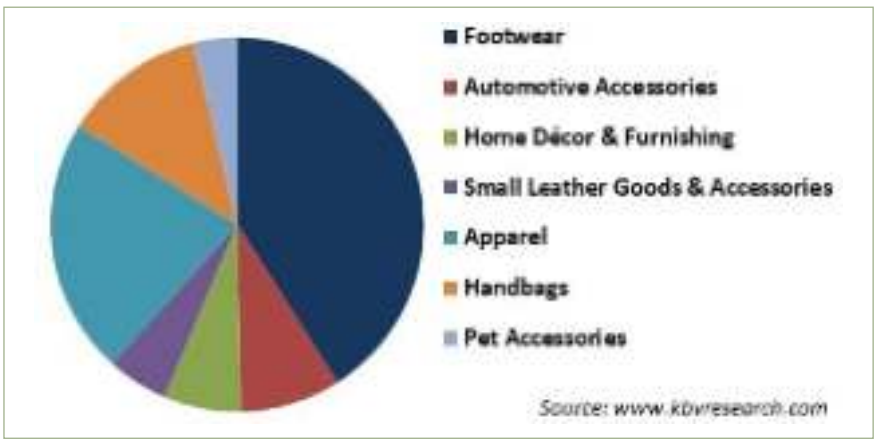
Source: Derived from FAO World Statistical Compendium for raw hides and skins, leather and leather footwear, 1993–2012.

The most important takeaway from comparisons across regions is that demand and supply for leather products is growing. The global leather market faced competition from the rise in the alternative non-leather material market, which challenged leather technology to make improvements and innovations to compete. The leather industry's resilience, however, enabled the sector to target high-end developed market consumers with products such as accessories for the fashion industry, and mid-level consumer markets in emerging nations.

The global leather goods market size was valued at $394.12 billion in 2020 and is expected to grow at a compound annual growth rate (CAGR) of 5.9% in 2021–28. The leather goods market is highly competitive. In the organized sector, few key players make up a major market share, whereas in the unorganized sector, many small players are competing to gain a market share. Major players such as Adidas, Samsonite and Kering are focusing on introducing new product offerings in the market to cater to the interests of consumers as per the ongoing fashion trends.

The leather products market is segmented into footwear, automotive accessories, home décor and furnishing, small leather goods and accessories, apparel, handbags and others (Figure 2).

Figure 2: Leather goods market share, by product (2020)



Source: KBV Research.

Drivers of continued market expansion

- Stable demand from large importing markets (Germany, the French Republic, Italy and China, etc.) that have maintained a growth rate faster than the world average (-0.6%) in 2016–20;
- Large and fast-growing demand from an expanding middle class in emerging countries (the Federative Republic of Brazil, the Russian Federation, Viet Nam and India, etc.). Long-term growth rates for leather products in developing countries are twice as high as in developed countries, due to two reasons:
- More rapid population growth, particularly within younger population cohorts;
- Rapidly increasing consumer disposable income and improved living standards;
- Increased demand for automotive leather has played an important role in the overall increase of leather demand;
- Changing fashion trends, and rising demand for comfortable, trendy and fancy leather apparel, footwear and accessories, along with growing brand awareness;
- Growing domestic and international tourism.

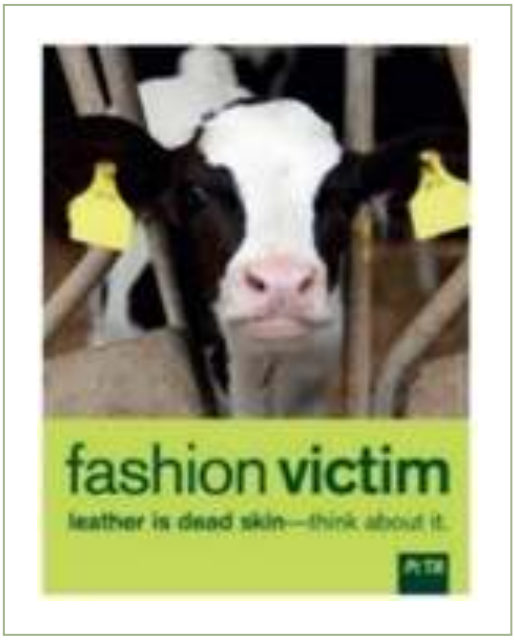
The sector faces increasing pressure from animal rights groups

Dumping H&S in landfills

Source: Ralph Arbeid.

The global leather market is increasingly under the scrutiny of a variety of action groups such as People for the Ethical Treatment of Animals (PETA), vegan food promoters, animal rights activists and anti-leather influencers. Currently, the leather opposition has little influence on the overall consumption of meat worldwide, but these groups could have an influence on potential leather consumers, particularly in Western markets, while using messaging that is well received by consumers, yet perpetuating misinformation. These campaigns use sustainability as the main argument, but using partial information targeting the consumer, which in turn has a negative impact on the sector. Compounded with excessive legislation and the exaggeration of risks associated with presence of substances of very high concern (SVHC), these campaigns could seriously undermine the leather sector's future in the long term.

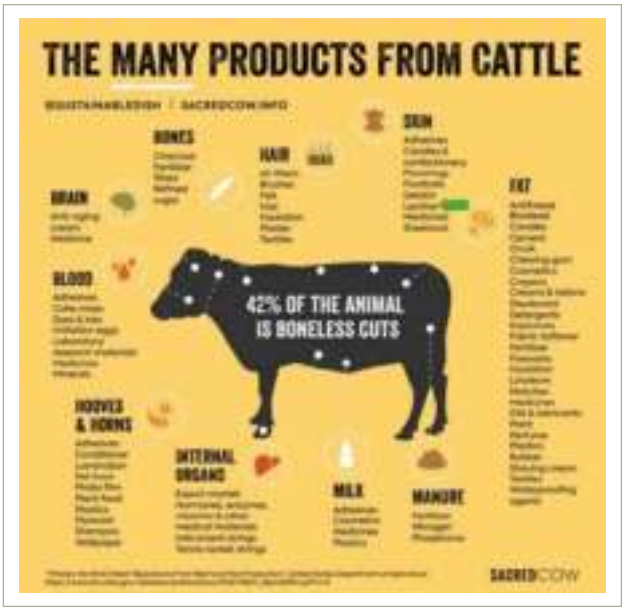
Pressure groups' attempts to discredit leather and its products



Source: People for the Ethical Treatment of Animals (PETA).

One of the major inaccuracies in these campaigns is the claim that animals are killed exclusively for their skin. However, it is now widely understood that livestock are not slaughtered for hides or skins, as they represent only a small part of the value of an animal (less than 10%). The use of these raw materials leads to a lower environmental risk than wasting them, since the latter causes important environmental and sanitary damage. To counter misinformation regarding leather in today's world, digital communication and social media have become increasingly important. Its natural origin, renewability, circularity, durability, reusability and even recyclability are values that must be effectively communicated to the public.

Figure 3: Cattle by-products



Source: Sacred Cow info.

Rising interest in leather alternatives

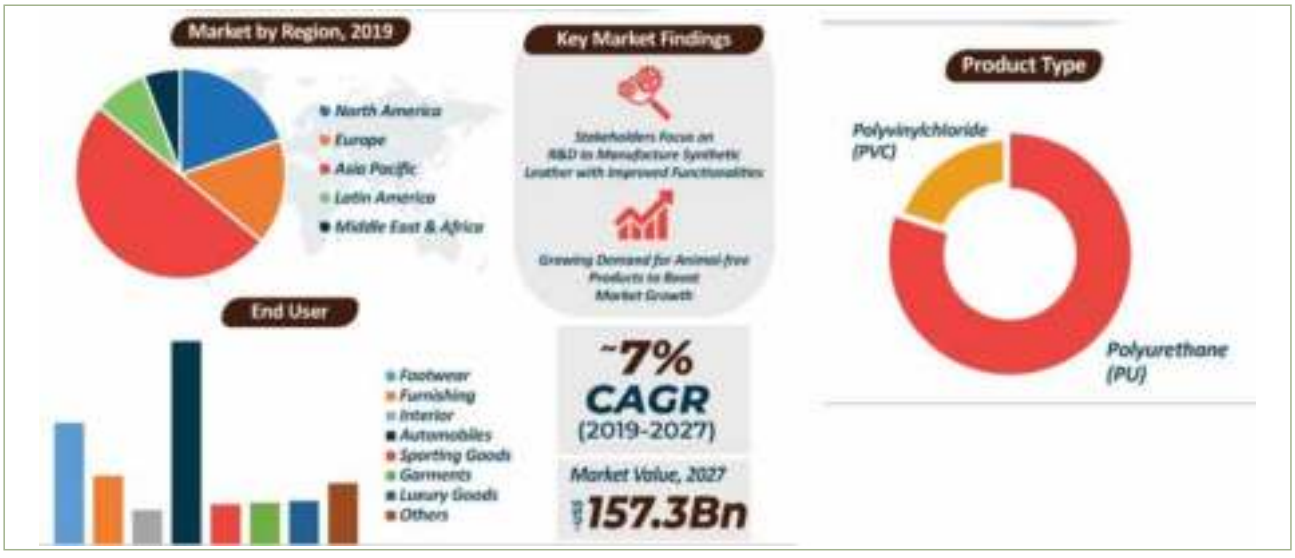
The aggressive and often misleading stories behind factory farming, health issues affecting workers and the leather industry's high carbon footprint are encouraging brands to invest in leather alternatives even though the material is often not as durable.

The global demand for synthetic alternatives has witnessed significant growth. This soaring demand is driven by a range of factors, including evolving consumer trends, mounting concerns over the impact of traditional leather on the environment, ascending demand for animal-free products and growing unawareness among consumers concerning the sustainability attributes of synthetic materials. At present, synthetic materials is increasingly being used in a range of applications, which include footwear, interior designing, furnishing, automotive interiors, garments and luxury goods.

Animal cruelty perceptions play a critical role in boosting the prospects of the synthetic alternatives, as a greater number of consumers are inclined to purchase animal-free products. Due to these factors, the synthetic materials market is projected to reach a value of approximately $157.3 billion by 2027 from $85.5 billion in 2018.[2]

Natural resources are increasingly being used as alternatives for hazardous chemicals-based production. To address the chromium (which is used in the leather tanning process) concerns, a few brands have shifted to natural leather alternative such as Piñatex, made from cellulose fibres extracted from pineapple leaves, or mycelium 'leather' made from mushrooms. These alternative materials are eco-friendly to some extent. However, the majority of these alternative materials often contain plastic, which is non-biodegradable. Their market volume is expected to continue increasing at approximately 7% up to 2027 (Figure 4).

Figure 4: Synthetic leather segmentation



Source: Transparency Market Research, 2020.

2.– Transparency Market Research, Synthetic Leather Market, 2020.

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TO COMPETE, CLEAN PRODUCTION TECHNOLOGIES ARE BECOMING A REQUIREMENT

The leather industry would be a heavily polluting industry if the effluents produced by tanneries were not treated properly, hence having a significant negative impact on local water resources. Unless treated, which occurs in all or most industrialized and emerging economies (with some exceptions), chromium contamination and high chemical oxygen demand in tannery effluents could create serious risks to the environment and human health. In many low-income countries, these pollutants, where not treated, are responsible for the contamination of nearby surface and groundwater systems with severely high levels of chromium (Bhuiyan et al., 2010), as river systems are the primary means of disposal of waste, especially tannery effluents.

Wet processing in tanneries is a significant source of solid waste, industrial wastewater and air pollution. Generally, for the treatment and processing of 1 kg of raw animal hide and skin, an average of 40-45 litres[3] of water is required. However, this varies with the process (Table 3 presents some of the processes).[4] An estimated 11 megalitres (i.e. 11 million litres) of wastewater is produced daily based on the processing of 110,000 kg of raw hides, producing 320 kg of solid waste per day.[5] In view of this, if not properly disposed of, tanning waste can be considered as one of the leading causes of environmental pollution worldwide.

-Table 3: Volume of water used for different processes-

Sl. no.	Type of process	Volume of water used
1.	Raw to finish	40-45 l/kg of raw weight
2.	Raw to wet blue	25-30 l/kg of raw weight
3.	Wet blue to finish	20-25 l/kg of wet blue weight
4.	Crust to finish	10-15 l/kg of crust weight

Source: Ramanujam, et al. (2010). 'Wastewater Treatment Technology for Tanning Industry'.

Figure 5 illustrates how tanneries pollute the environment. Moreover, workers might be handling tanning chemicals in an unsafe way without any type of protection.

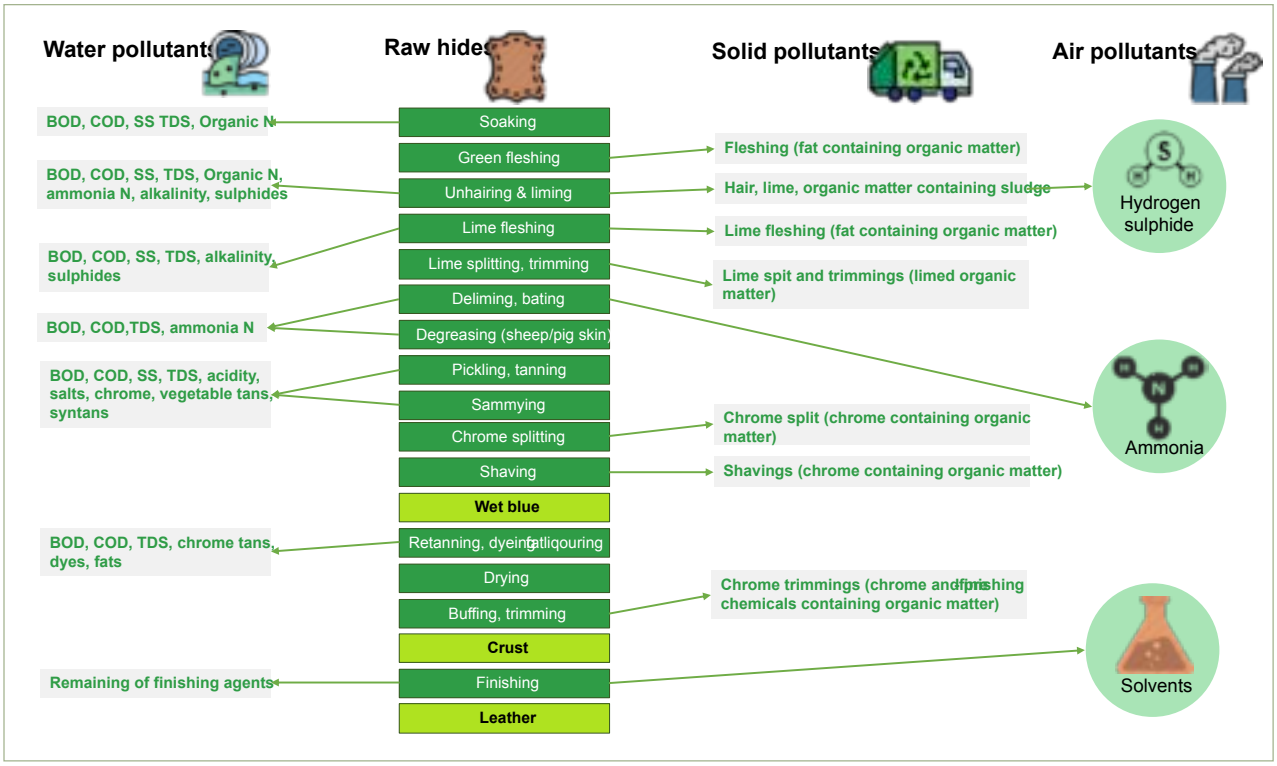
Thus, while global leather demand is on the rise, consumers, especially of a younger demographic and in developed countries, are making conscious choices to gravitate towards environmentally sustainable businesses and are demanding traceability of the final products, pushing for an acceleration of the green leather industry.

3.– Source: Shegani, G. (2014). 'Study on Some Pollutants in the Leather Industry: A Case Study in Albania'. *International Journal of Sciences: Basic and Applied Research* 14(1): 115–124.

4.– Source: Ramanujam, R.A., Ganesh, R. & Kandasamy, J. (2010). 'Wastewater Treatment Technology for Tanning Industry'. *Encyclopedia of Life Support Systems*.

5.– Source: Mohammed, Kasim (2017). 'Tannery Waste Management: Challenges and Opportunities'.

Figure 5: Pollution from tanneries and leather processing



Note: BOD: Biochemical oxygen demand; COD: Chemical oxygen demand; TDS: Total dissolved solids; SS: Suspended solids.
Source: Author illustration based on the United Nations Industrial Development Organization (UNIDO) report, 'Introduction to treatment of tannery effluents', 2011.

In the developing world, where there is less demand for 'green' leather products, governments have begun to step in. In China, the Ministry of Industry and Information Technology's directive, 'Guiding Options of Tanning Industry Structural Adjustment', proclaimed that tanneries whose production scale fell to less than 30,000 pieces of standard cattle hide per year would be shut down, while those producing less than 100,000 pieces would be subject to limits. The ministry expressly encouraged Chinese tanneries to obtain LEATHER STANDARD by OEKO-TEX® certification as defined by the China Leather Industry Association (CLIA).[6] Since 2003, the CLIA has encouraged tanneries to meet or exceed international standards in the production process and with regards to the finished goods themselves – in terms of leather quality, the use of specialized 'green' chemicals, pollution control, waste treatment and corporate social responsibility.

LEATHER PRODUCTION IS STILL AHEAD OF ALTERNATIVES

When compared to alternative materials, the leather industry has great potential, since these alternatives, such as textile and polymer-based or fungus-based materials, have characteristics such as tensile strength (tear and stitch strengths), vapour transferability and solvent washability that fall short of leather, both in terms quality and durability. These eco-alternative raw materials, though enormously publicized by interest groups, influencers, social media and the media, are in reality not an alternative to leather. Often, they are not even as ecological as is communicated, because they are often totally or partly composed of plastic derivatives.

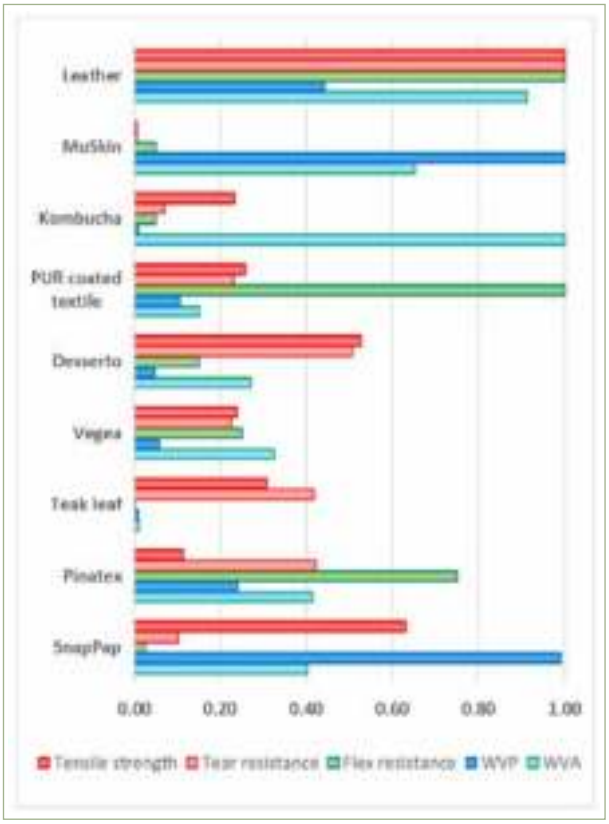
Figure 6 shows the performance of the different materials in comparison to leather. Alternative materials have specific advantages, but none of the materials combines high mechanical strength and flex resistance with high water vapour permeability as in the case of leather (Meyer, 2021).

The tensile strength and tear resistance of the so-called vegan alternatives for leather are inferior to the industrial standard demand due to its uniform open structure. However, even though polymer-based leather alternatives have a better tensile and tear resistance than the vegan-based alternatives, they are still inferior to leather's tensile and tear resistance. In addition, the

6.– See https://www.chinawaterrisk.org/resources/analysis-reviews/sustainable-leather-more-steps-to-go/.

polymer-based alternatives have no vapour transferability, as the vapour is unable to penetrate the upper polymer layer of the material. Therefore, leather as a raw material for footwear and apparel has no viable alternatives.[7]

Figure 6: Comparison of the physical properties of the various materials



Note: WVP: Water vapour permeability; WVA: Water vapour absorption.

Source: MDPI (2021). 'Comparison of the Technical Performance of Leather, Artificial Leather, and Trendy Alternatives'.

In addition, the potential for leather consumption worldwide is positive, despite the fashion ups and downs. Strong underlying demand in the meat industry and the growing livestock sector provide a constant supply of raw materials for a thriving leather industry.

The expected increase in red meat consumption in emerging and developing countries easily outpaces the reduction of meat consumption in Western countries. Therefore, the quantity of hides and skins will increase, along with the demand for footwear, garments and consumer goods. Similarly, there will be an overall rise in consumption at all levels with the increase in population. Additionally, the gross domestic product (GDP) per capita has shown a steady increase in emerging countries, including Sub-Saharan Africa. With incomes improving, one expects that consumers will be able to transit from cheaper, mostly hydrocarbon-based footwear or garments to more fashionable and durable consumer goods like those made from leather. Therefore, in developing economies with growing populations and rising incomes, especially among the younger population, the demand for leather goods will rise. For these reasons, the leather sector has a huge potential, because it cannot be replicated or substituted, but needs a paradigm shift.

There has been a major global shift in the leather and leather products sector, with a resetting of competitive advantage from Europe to Asia (and within Asia from East Asia to South Asia). Moreover, the sector is expected to continue to grow rapidly in the next decade, owing to improvements in quality and performance within the leather industry. However, the sector continuously faces competition from the rise in the alternative non-leather material market. There have been several ongoing and inaccurate campaigns falsely claiming that animals are killed exclusively for their skin. Moreover, the campaigns inappropriately use sustainability, environmental and social compliance as the main argument.

The leather industry's resilience, however, enabled the sector to target high-end developed market consumers – with ethical and sustainable products.

Thus, while global leather demand is on the rise, consumers, especially of a younger demographic and in developed countries, are making conscious choices to gravitate towards environmentally sustainable businesses and are demanding traceability of the final products, pushing for an acceleration of the green leather industry.

7.– Source: Lineapelle Magazine (2021). 'Eco alternatives? Science says that only leather is better than leather'. Accessed at https://magazine.lineapelle-fair.it/en/green-corner-en/eco-alternatives-science-says-that-only-leather-is-better-than-leather/.

AS A HISTORICAL PAKISTANI SECTOR, LEATHER POSSESSES THE CRITICAL SIZE NEEDED TO ALIGN WITH GLOBAL SHIFTS

Pakistani leather has the potential to align with Sustainable Development Goals

Leather is probably one of the oldest examples of the circular economy. Indeed, since the beginning of time, humans have benefitted from animal hides and skins as a by-product of hunting and recycled them into clothing, shelter and tools. Totems, musical instruments, gourds, tents, clothes, shoes and many other leather artefacts are found in archaeological sites across the globe (European leather industry, 2020).

The leather and leather products sector is one of the major industrial sectors in emerging countries such as Pakistan. However, to become more attractive to international brands, retailers, distribution chains and ultimately consumers, the global leather sector is undergoing drastic changes in its production methodologies. The Pakistani leather industry will need to make several considerations to adapt to the changing times to create a leather value chain that is socially and environmentally sustainable, following the guidelines of the United Nations Sustainable Development Goals to make the highest impact (Figure 7).

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Figure 7: Kering views on supplier compliance

Source: International Leather Maker webinar.

A diversified product basket

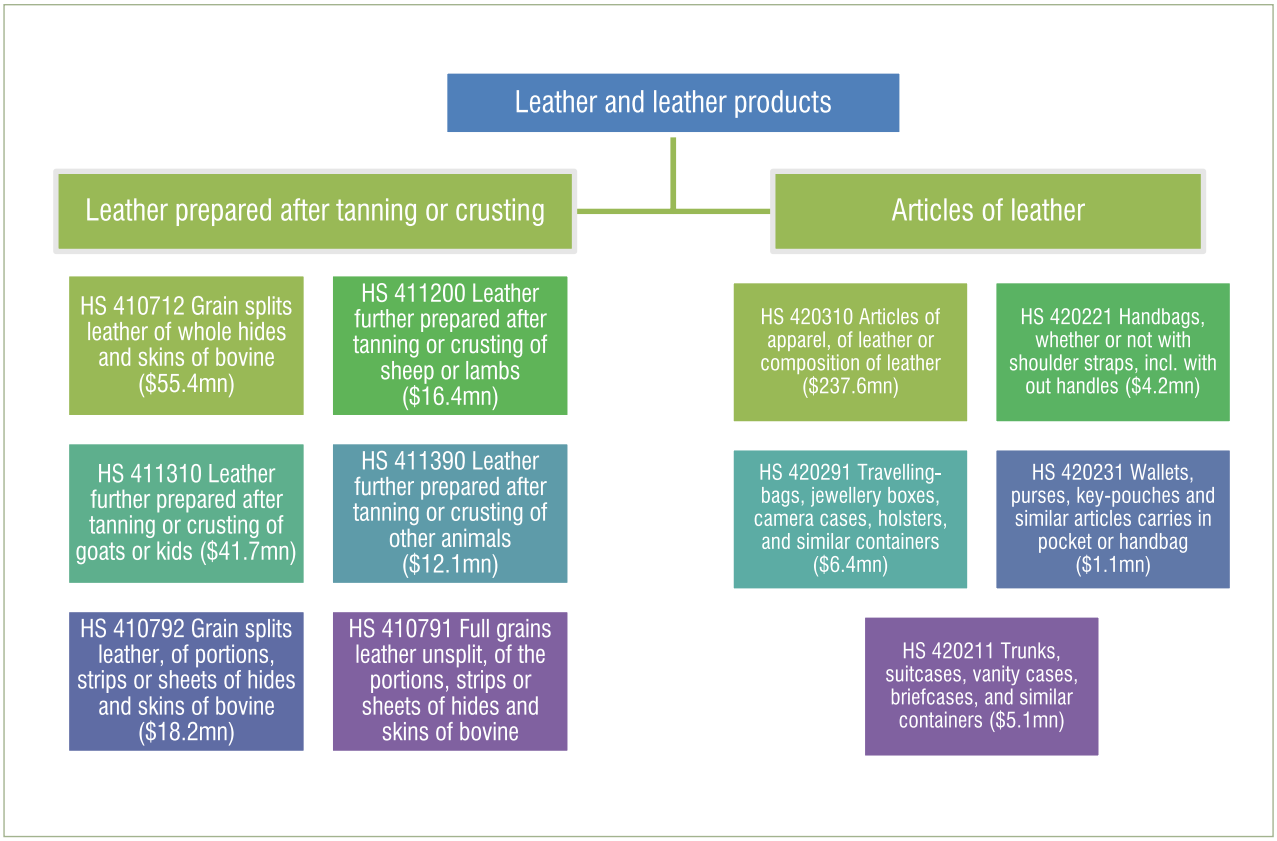
Most of the leather and leather products produced and exported are found under the HS 41 category of leather prepared after tanning or crusting, HS 42 category of articles of leather, and HS 64 footwear and such articles. However, since footwear is considered a separate priority sector under the STPF, this strategy only focuses on leather and leather articles, such as bags and apparel, thus excluding footwear.

Among the selected category, Pakistan has a great diversity of products ranging from gloves and mittens to belts, and saddlery and harnesses. However, since resources are limited and to ensure that they are allocated in the most efficient way possible, the TDAP proposed certain products to be taken into consideration for the purpose of this sector strategy. Thus, the product map in Figure 8 presents some of the main products currently produced and exported by Pakistan that form the base for the analysis of this research.

Most of the leather and leather products produced and exported are found under the HS 41 category of leather prepared after tanning or crusting, HS 42 category of articles of leather, and HS 64 footwear and such articles. However, since footwear is considered a separate priority sector under the STPF, this strategy only focuses on leather and leather articles, such as bags and apparel, thus excluding footwear. The leather and leather products sector has tremendous potential and growth scope, especially for emerging countries such as Pakistan. However, to become more attractive globally, Pakistan's leather sector must adapt to the changing times to create a leather value chain that is transparent and socially and environmentally sustainable.

Overall, there is a need to improve the industry's image. Investments should be made to make the processes inside the tannery more sustainable, focusing on the reduction of pollution by strict effluent treatment and control, verified and certified by objective third parties. Tanneries and leather goods producers should rethink their supply chain and focus on traceable raw material supplies. Pakistani tanneries should become actively involved in improving animal welfare in the country.

Figure 8: Pakistani leather and leather products map



Source: ITC.

A well-established sector, but not immune to recent consumer demand changes

In developing a strategy for Pakistan's leather and leather products industry, the starting place for analysis begins with an understanding of the country's existing leather products and markets. This section identifies most important leather products and highlights the major significant segments and trends of domestic and export markets.

Until the 1970s, Pakistan exported raw hides, skins and leather in the form of wet blue and small quantities of crust leather. It was only in the 1980s that it began to export finished leather and leather products. The domestic supply of raw material started to be fully used by tanneries and the import of raw hides and skins was also allowed. As the demand for tanned leather increased in the world market, the number of registered tanneries in the country increased from 529 in 1999 to more than 800 in 2012 (Asian Development Bank, 2015). Tannery clusters are mostly located in Karachi, Hyderabad, Lahore, Multan, Kasur, Faisalabad, Gujranwala, Sialkot, Sahiwal, Sheikhupura and Peshawar. There are 461 leather garments/apparel production units, which produce approximately 5 million pieces annually against a capacity of 7 million. The 348 leather gloves units produce 5 million pairs against a capacity of 10 million pairs annually (Asian Development Bank, 2015).

In 2020, Pakistan's leather production accounted for 213 million square feet, with a share of 0.09% globally. Table 4 summarizes the top leather-producing countries in 2020. Pakistan's world market share in leather production is 0.09% against the top countries such as China (25%), Brazil (9.5%), the Russian Federation (7%) and India (6.4%).

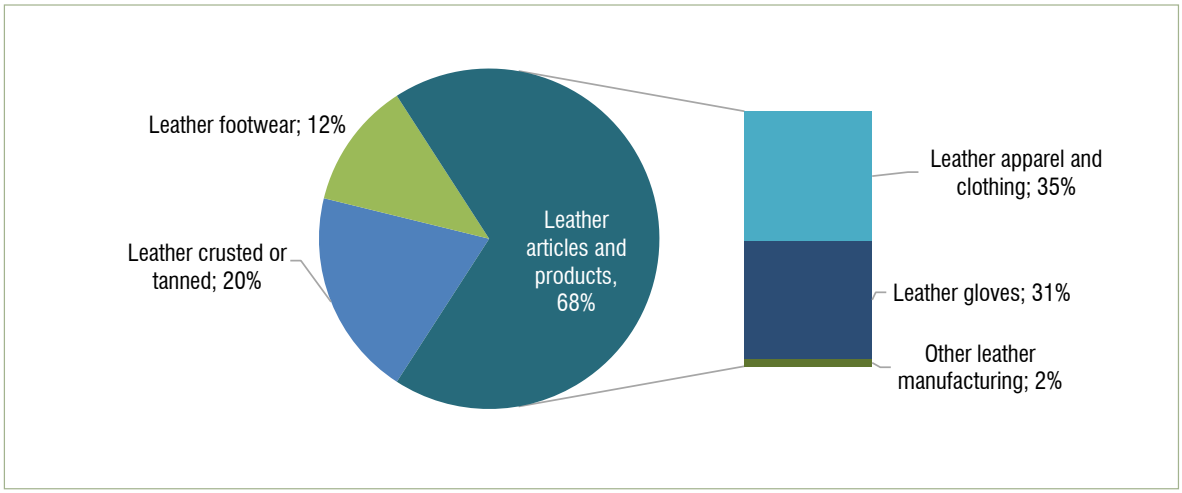
Table 4: Top leather-producing countries

Rank	Country	2020 Avg. annual production (million sq. ft)	Share of global production
1	China	6 170	25%
2	Brazil	2 360	9.5%
3	Russian Federation	1 652	7%
4	India	1 560	6.4%
5	Italy	1 521	6.3%
6	Republic of Korea	1 140	4.8%
7	Argentina	804	3.4%
8	United States	719	3%
9	Mexico	642	2.7%
10	Turkey	529	2.2%
…	Pakistan	213	0.9%

Source: BizVibe, https://blog.bizvibe.com/blog/top-10-largest-leather-producing-countries.

Pakistan's leather exports consist mainly of production of finished leather products (68%). According to data from the Pakistan Tanners Association (PTA) and Pakistan Bureau of Statistics, in the financial year July-May 2020/21, the country exported leather and leather articles worth $739.9 million. These consist of crusted and tanned leather worth $145.2 million, and leather articles consisting of leather apparel and clothing, leather gloves, and other leather manufacturing products, which together made up $502.1 million (Pakistan Bureau of Statistics, 2020–21) (Figure 9).

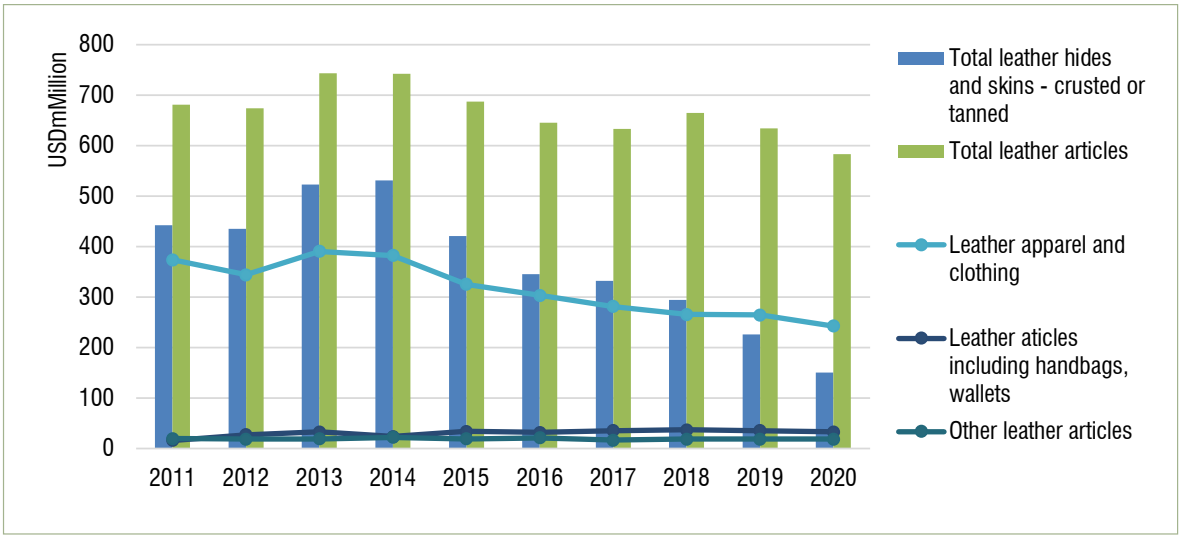
Figure 9: Share of Pakistan's exports of leather and leather products



Source: Pakistan Bureau of Statistics, financial year July-May 2020/21.

In the last few years, the size of the leather export market from Pakistan has shown a downward trend. Since the strategy focuses on select leather and leather products, Figure 10 elaborates on the specific products in detail. As can be seen in Figure 10, the share of crusted or tanned leather in the total exports has decreased at 19% CAGR in the last five years, while that of finished articles has fallen by 2% CAGR in the same period. This sustained decrease in exports is due to multiple reasons, both international and domestic. Some of these are a contraction in the global demand for leather and challenges faced by the domestic industry in terms of product diversification, technological upgradation and compliance with environmental regulations. Another important reason is that, by increasing the export volume of finished leather products, there is a clear shift in the country towards value addition.

Figure 10: Total exports of leather and leather products from Pakistan (2011–20)



Note: Total leather articles includes apparel and clothing, articles including handbags, wallets, gloves, and other leather articles.
Source: ITC calculations based on UN Comtrade statistics since January 2020. Classification of the products corresponds with the product map.

The semi-processed hides and skins most exported by Pakistan by animal source are bovine animal hides (see Table 5). A decade ago, Pakistan's exports were more towards leather prepared after tanning or crusting of goats and leather prepared after tanning or crusting of other animals, but grain splits leather of whole hides and skins of bovine animals has now emerged as the largest exported product for Pakistan, with exports reaching $55 million in 2020. Exports of leather prepared after tanning or crusting of goats have remained high and represent its second-largest exported product, reaching a little more than $41 million in 2020.

In general, there is less worldwide demand for goat and sheep leather, because the cutting value of goat and sheep to produce leather products is less than that of bovine leathers. In short, percentage-wise, there is more cutting waste on 5 sq. ft of goatskin or 8 sq. ft of sheepskin than there is on 20 sq. ft of hide. Therefore, the cost of using bovine leather is less than the cost of using goat or sheep leather for the same end product.

Exports of leather prepared after tanning or crusting of other animals have shown a drastic decrease in growth, reaching close to $12 million each in 2020 from $75.9 million in 2011.

Table 5: Most-exported Pakistani hides and skins products (2011-20) (USD million)

HS code	Product label	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
410712	Grain splits leather of whole H&S of bovine	46.4	74.9	106.7	120.6	120.5	115.9	114.6	110.4	68.8	55.4
411310	Leather prepared after tanning or crusting of goats	137.9	132.6	158.9	141.7	121.9	97.5	83.1	74.5	58.4	41.6
410792	Grain splits leather of the portions, strips or sheets of H&S of bovine	53.4	58.8	76.6	79.8	60.6	56.9	50.8	48.9	29.4	18.2
411200	Leather prepared after tanning or crusting of sheep	55.2	63.3	53.5	45.4	33.7	25.1	32.3	26.5	22.7	16.4
411390	Leather prepared after tanning or crusting of other animals	75.9	41.7	78.4	88.8	28.9	31.9	36.8	22.3	35.9	12.1

Source: ITC calculations based on UN Comtrade statistics since January 2020. Classification of the products corresponds with the products identified in the product map in Figure 8.

In the finished leather goods segment, articles of apparel constitute the majority share of the exports basket, accounting for more than 90% of total exports. As indicated in Table 6, Pakistan's exports of finished leather articles besides articles of apparel have grown in the past decade. Travel bags (HS 420291) grew from $0.3 million in 2011 to $6.4 million in 2020, recording a CAGR of approximately 41% (2011–20). Similarly, trunks, suitcases (HS 420211) recorded a 13% growth (CAGR) in 2011–20. However, analysis reveals that most leather products that are being exported at HS 6-digit from Pakistan are being least imported globally. For example, articles of apparel of leather makes 33.7% of exports from Pakistan, while it has only 1.14% share in the global leather imports (ITC, 2020). In addition to that, Pakistan has already captured a sizeable share in the existing global imports for these products, but their low global demand creates constraints to increasing exports. Similarly, but on the contrary, handbags, whether or not with shoulder straps (HS 420221) have 7.4% share in global leather imports, while it has only approximately 0.6% share in Pakistan's leather export basket. This hints at a global potential market for Pakistan to diversify provided Pakistani producers adapt to global sustainability requirements.

Table 6: Most-exported Pakistani finished leather products (2011-20) (USD million)

HS code	Product label	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
420310	Articles of apparel, of leather (excluding clothing accessories, footwear)	371.0	342.1	385.1	378.7	321.0	298.0	276.0	260.3	258.7	237.5
420291	Travelling-bag, rucksacks, shopping-bags,... etc.	0.3	0.3	0.5	0.6	2.2	2.3	5.6	5.8	6.4	6.4
420211	Trunks, suitcases, vanity cases, briefcases, and similar containers	1.7	0.9	1.6	1.3	1.0	1.5	1.6	2.1	2.5	5.1
420221	Handbags, whether or not with shoulder straps	4.1	5.4	6.8	6.3	7.6	6.3	7.0	6.0	6.0	4.2
420231	Wallets, purses, and similar articles.	0.7	0.5	1.0	0.9	0.4	0.6	0.6	1.4	1.7	1.1

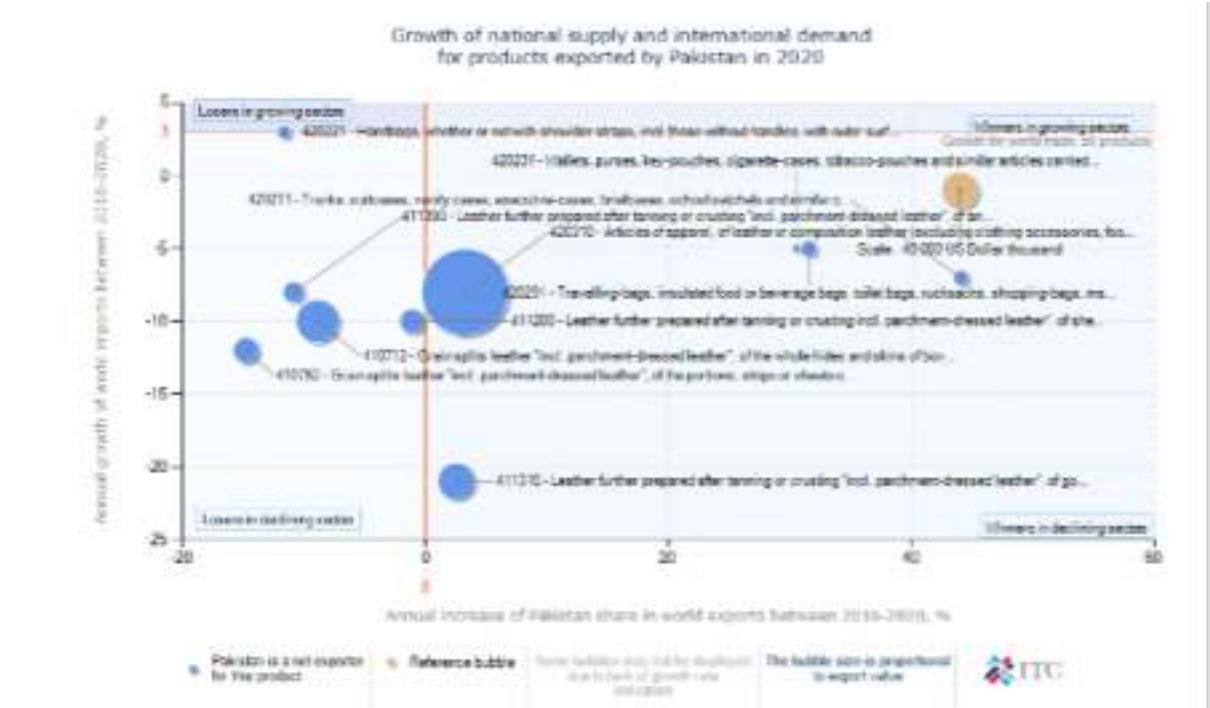
Source: ITC calculations based on UN Comtrade statistics since January 2020. Classification of the products corresponds with the product map.

The same is presented in a trade complementarity matrix in Figure 11, showing that the leather and leather articles export concentration is classified as the one for which global demand is low, while Pakistan falls behind in catering to the exports of products that are in high demand globally.

Although export destinations remain stable for articles of leather, the share has reduced drastically for semi-processed leather. A decade ago, Pakistan's exports of semi-processed and finished hides and skins were consumed by Hong Kong, China, whereas Italy has now emerged as the largest export market for Pakistan. Exports to Hong Kong, China, although still in the top five, have dropped drastically, reaching just more than $9.1 million in 2020 from $92.8 million in 2011. Germany retains the largest importer title for the exports of finished leather articles from Pakistan. Even though the current export volumes are at low, Pakistani exporters are forging relationships with the European markets, including France, the Kingdom of the Netherlands and the United Kingdom, albeit through extremely low export volumes (Figure 12).

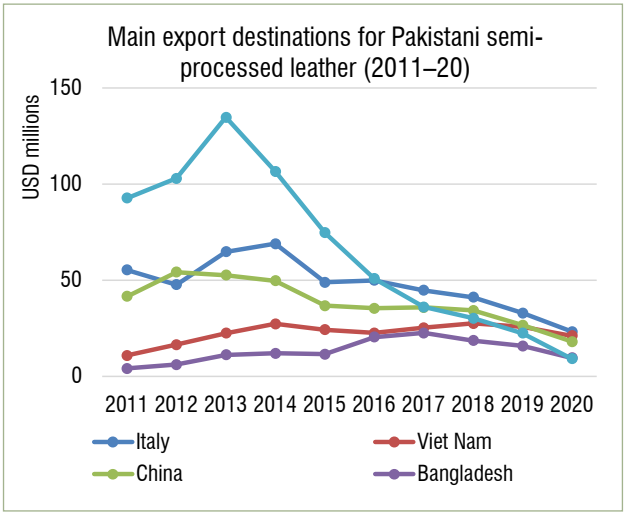
©ITC

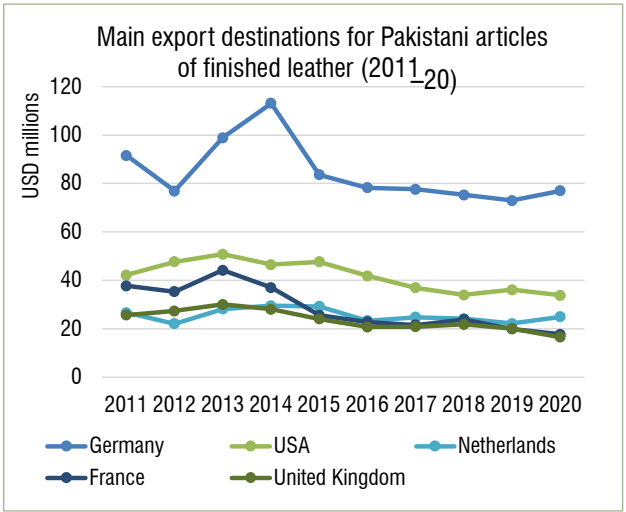
Figure 11: Pakistan and the world trade complimentary matrix – leather and leather articles exports



Source: ITC calculations based on UN Comtrade statistics since January 2020. Classification of the products corresponds with the product map.

Figure 12: Main export destinations for Pakistani leather and leather goods (2011-20)





Source: ITC calculations based on UN Comtrade statistics since January 2020. Classification of the products corresponds with the product map.

In 2020, Pakistan's leather production accounted for 213 million square feet, with a share of 0.09% globally. According to data from the Pakistan Bureau of Statistics (PBS), in the financial year July–May 2020/21, the country exported leather and leather articles worth $739.9 million.

Although Pakistan served as a hub for leather and leather products, from 2015, the size of the leather export market has shown a downward trend. Its competitive position has been eroded due to multiple reasons, both international and domestic. Some of these are a contraction in the global demand for leather and challenges faced by the domestic industry in terms of product diversification, technological upgradation and compliance with environmental regulations.

The need to shift investments from traditional productivity gains to new sustainable production methods

SO FAR, FDI HAS NOT PLAYED A TRANSFORMATIVE ROLE IN THE LEATHER SECTOR

To invest in expanded capacities and new activities, private investors need to be confident of their supply and their market, and to feel that Pakistan serves their needs better than other locations. Public investment is needed in the technical and administrative capacity to disseminate best practices to all value chain segments, effectively regulate the sector, and design and implement policy and/or enforcement alternatives that halt the loss of quality raw H&S to smuggling.

Competitiveness analyses for Pakistan in terms of its value-added leather products suggest that additional investment in upstream processes, as well as improved quality control, policies designed to encourage foreign direct investment (FDI), and upscaling of product designs and manufacturing processes are needed. Currently, Pakistan significantly lacks sustained investment in human resources and technology.

Although export potential in the leather and leather goods industry is high, FDI is missing, which is a necessary link for triggering this. One of FDI's main advantages can be improvement in cost efficiency, meeting international standards, technology economies of scale, and boosting exports, leading to technology spillovers and export spillovers to domestic firms.

FDI in the Pakistani leather industry has remained very low despite all the efforts made. Some of the major reasons for comparatively low FDI are low levels of technology and low-quality trade-related infrastructure. In 1999–2005, Pakistan attracted $52 million in FDI, which is 0.1% of the total FDI stock. Moreover, the leather industry has been granted 'priority industry' status in Pakistan, allowing 100% foreign investments. Some tanneries were able to attract FDI in the 1970s and establish technical and commercial collaborations, but these projects fizzled out, with Pakistan becoming less attractive to FDI. This was partly because foreign investors have the perception that Pakistan lacks safety, and due to a large part of the industry maintaining a traditional approach to industrial management rather than embracing a modern view.

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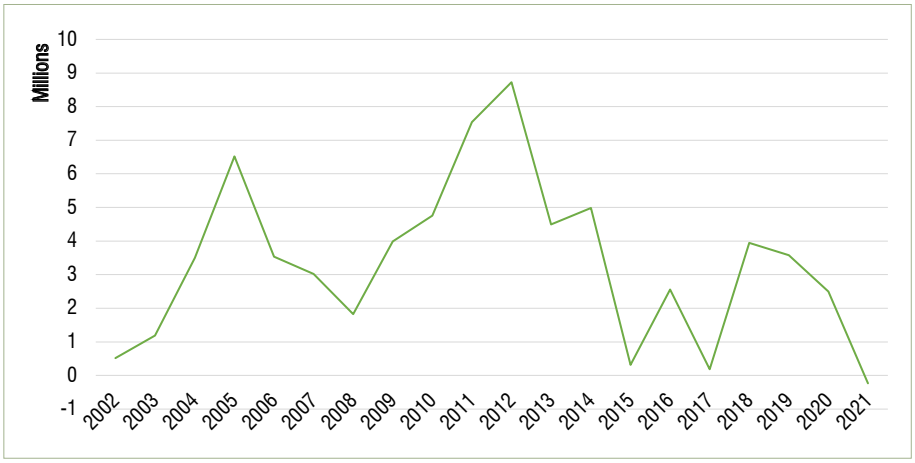
As can be seen in Figure 13, the leather and leather goods sector has thus far not attracted significant levels of investment. The net FDI inflow has fluctuated a lot, such that, in 2021, Pakistan had a negative FDI inflow, meaning that the outflows from the sector were greater than the inflows to the sector in the country.

Low FDI in the leather and leather goods sector has led to limited access to new markets and inputs that could help facilitate product diversification. Pakistan needs to strengthen its export competitiveness to attract FDI. A lack of FDI has also resulted in a poor vertical integration of leather goods units in the organized sector. Most firms in the sector are not vertically integrated; i.e. the majority do not possess complete production and processing capabilities from raw material/component manufacturing to the finished leather article. Lack of vertical integration, some of which is due to a lack of capital, has meant that the sector has not been able to innovate through new materials/designs or scale up and take on large export orders.

Nevertheless, Pakistan is in a unique position: as one of the largest leather and leather goods producers and exporters in Asia, investors in Pakistan can engage the full value chain from leather hides and skins to articles made of finished leather such as apparel, handbags and gloves. However, this potential is not being leveraged to the maximum capacity.

Figure 13: Leather and leather products, net FDI



Source: State Bank of Pakistan

Notes: 1. Fiscal year from July-June. Foreign direct investment inflows/outflows include cash received for investment in equity, intercompany loan, capital equipment brought in/out and reinvested earnings.
2. The data from FY15 has been revised by incorporating the FDI channelled through permissible offshore accounts. The revision study is available from http://www.sbp.org.pk/departments/stats/Notice/Rev-Study-External-Sector.pdf.

INVESTMENT AND TECHNOLOGY, A CATALYST FOR VALUE CHAIN DEVELOPMENT

The global investment trends for the leather industry in the coming years will be focused on the demands of the brands and large distribution chains in terms of animal welfare, corporate social responsibility, environment and natural resources, and how to address these subjects in the most efficient way. Traceability is the most important tool, as it encompasses the whole process from cradle to grave or from farm birth to the end of the leather goods' life cycle.

The investment rationale in the leather value chain is different at each level of production. Tanneries invest significantly more in equipment and automation, whereas leather goods manufacturers invest more in the workforce and less in technology. The Pakistani industry's investment needs are on several levels of the value chain:

- Supply of raw material: Although the leather industry has no decision-making power in its supply line, it can influence its supply line by demanding proper animal treatment at the farm level, and better transport conditions of the animals and their treatment at slaughter level. This could be challenging in the context of Pakistan due to the way animals are raised, which is not professionalized in most cases. There are few professional farms, as the majority of animals are raised privately or in community surroundings. Transport facilities are currently far from international expectations, as animals are mostly hoarded in trucks or transported large distances on foot. Slaughtering of animals is mostly at the community level in less-than-ideal circumstances, mostly because there is a dearth of recognized slaughterhouses in the country, which not only has a negative influence on the leather industry, but also, and more importantly, on the food chain safety. The leather industry can influence these conditions and focus its supply on those suppliers that are compliant or willing to start to become compliant with international standards of good practices. The incentive is a monetary premium hoping that non-compliant suppliers are incentivized by better remuneration to become compliant.

Figure 14: Enterprise resource planning (ERP) mapping in the leather sector

Source: Ralph Arbeid.

- Tanning: Tanneries need to invest in equipment that is more environmentally friendly with lower energy consumption and better efficiency, and automate as much as possible to avoid human error that generally leads to wastage in terms of energy and chemicals, requiring re-processing or a reduction in the sales price and, hence, in profits. Traceability of the materials, upon arrival at the tannery and throughout the production and up to the departure from the tannery, should be performed by a proper tannery specific enterprise resource planning (ERP) software. This is a relatively cheap investment and provides a host of information of the process and the individual articles, some of which could be transferred to buyers of finished leathers to substantiate the supplied leathers' sustainability. Finished leather goods manufacturers have far less challenges than tanneries in terms of environment, but more challenges in terms of social issues.
- Tanning and manufacturing: Tanneries and leather goods manufacturers in Pakistan need to invest in attracting female labour. Female consumers make up the majority of finished leather goods consumers. In developed countries, consumers consider gender equality in the supply chain an important aspect of product choice. Due to social and cultural traditions, there is far less employment for women than for men in Pakistan. Pakistan's direct competitors (India, the People's Republic of Bangladesh, and the Republic of Indonesia) sustain gender equality and their economy profits from this (Figure 15).

Figure 15: Gender equality in Bangladesh and Indonesia

Glove factory in Indonesia

Handbag factory in Bangladesh

Shoe factory in Bangladesh

Source: ITC international consultant, Ralph Arbeid.

- Compliance and image building for entire value chain: The global leather industry, including the Pakistani leather industry, needs to invest in image building to show consumers that it is a sustainable and environmentally responsible industry. In the case of Pakistan in particular, much needs to be done to be able to convey the image of a clean, professionally managed industry based on international standards that are accepted by brands, distribution chains and, most of all, by consumers.

Investment trends are all going in the direction of a clean industry with zero emission, emission offsetting, sustainability goals and a life cycle assessment, which appeal to brands and distribution channels, forming the client base directly or indirectly for tanneries and leather goods manufacturers. For example, the Italian Dani Group recently launched a life cycle assessment and emissions-reducing project called Create to Change. Luxury accessories brand Montblanc immediately responded to these goals and signed up for the project. This shows that, if tanneries want to appeal to their clients, they need to invest in these 'futuristic' projects, which in reality will soon become the basic requirement. Similarly, brands sign up to the Leather Working Group (LWG) and Sustainable Leather Foundation (SLF) initiatives and actively participate in discussion groups of both organizations to influence the decision-making process. Having stakeholders from both the upstream and downstream value chains to meet and exchange ideas regularly will benefit the whole value chain.

Pakistan possesses a few favourable factors to bring the above investments to fruition.

Availability of raw material: Pakistan is rich in livestock, including stock of cattle and buffaloes, which is continuously growing. The livestock production index shows a steady rising trend. This indicates the availability of

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raw materials and the region's growing strength and sustainability in procuring the raw materials of the leather industry.

Low labour costs: Availability of abundant cheap labour is one of the biggest assets for the leather industry in Pakistan, and one that can give the country a much-needed competitive boost. With increasing labour costs in China, domestic and foreign companies in China might be forced to fragment their recently established fully integrated production processes and outsource labour-intensive processes. Pakistan can provide an alternative destination for foreign firms in the leather industry.

Growing export potential: Pakistan has huge export potential in leather and leather products, which can attract export-oriented FDI. Lowering tariffs and the removal of export restrictions can go a long way in attracting foreign firms.

Export potential in the leather and leather goods industry is high, but FDI is low, which is a necessary link for triggering this. This limits access to new markets and inputs that could help facilitate product diversification. Investment trends are all going in the direction of a clean industry with zero emission, emission offsetting, sustainability goals and a life cycle assessment, which appeal to brands and distribution channels, forming the client base directly or indirectly for tanneries and leather goods manufacturers. Similarly, brands sign up to the LWG and SLF initiatives and actively participate in discussion groups of both organizations to influence the decision-making process.

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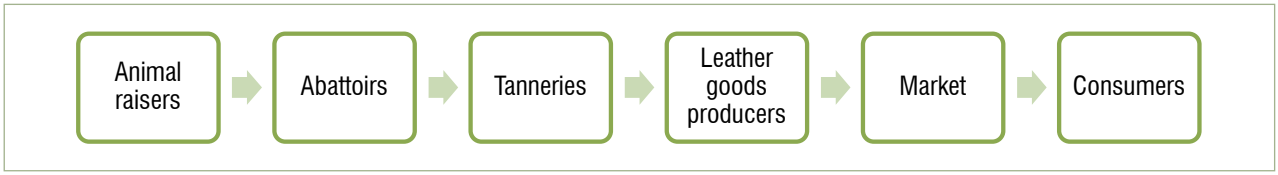
VALUE CHAIN AND COMPETITIVENESS DIAGNOSTIC

Value chain mapping

The value chain mapping for leather is broadly classified below. Pakistan's leather sector is composed of suppliers of raw hides and skins, abattoirs, tanneries and producers of leather products in varying sizes. Each phase stages both directly and autonomously as well as through agents and/or traders. Broadly, the sector is divided into the formal and informal sector. Total employment in the leather industry is estimated to be 500,000[8] during peak times. Almost all leather and leather goods manufacturers that operate in Pakistan today are considered small and medium-sized enterprises.

This chapter maps the structure and organization of Pakistan's leather sector. It deals with both leather and leather products production. An in-depth analysis of all the actors and the steps along the value chain can be found in Annex I.

Figure 16: Simplified leather industry value chain



Source: ITC.

There are numerous types of inputs required for the production of leather and leather products. Upstream activities of the value chain concern animal husbandry. Typically, inputs for slaughter slabs, houses and abattoirs include storage materials such as warehouses and salt and tools such as flaying implements. However, in the case of Pakistan, slaughter facilities do not take the necessary steps to conserve the hides and skins after the process of slaughtering the animals. Tanneries require inputs in the form of machinery, which is imported; chemicals, which are also imported; knowledge; qualified labour; and finance. While the materials and labour are relatively easily accessible, stakeholders identified the difficulty in finding qualified leather technicians. Leather goods manufacturers require machinery and tools, design skills and marketing channels.

Animal husbandry: Pakistan is the sixth-largest producer of hides and skins in the world. Most smallholder farmers keep a small inventory of livestock. Commercial ranching is almost negligible. The Pakistan Tanners Association claims that large quantities of live animals are smuggled out of the country to neighbouring countries such as the Islamic Republic of Iran and the Islamic Republic of Afghanistan, which causes a shortage of available raw materials to produce leather.

Slaughter slabs, slaughterhouses and abattoirs: Most slaughter slabs are small scale, with usually rudimentary sites made up of a concrete platform with a simple corrugated iron roof for shelter. The informal slaughter sector for livestock is very strong in the country. There is no official estimate on the size of the informal market,

8.– Trade Development Authority of Pakistan (2016). 'Sectoral Competitiveness and Value Chain Analysis: Leather Gloves'. Available from http://www.trtapakistan.org/wp-content/uploads/2016/05/leather-final-report.pdf..

although there are currently 35[9] approved private sector slaughterhouses in Pakistan that are in major urban centres. Slaughterhouses are estimated to be operating at one-quarter of their peak capacity (Board of Investment, 2020). Most of these facilities usually lack basic equipment such as hoisting facilities, a lighting system and a regular water supply. The standard of hygiene, and both liquid and solid waste disposal, are poorly managed, leading to several situations where some slaughterhouses have faced forced closure by public health authorities.

Collection of hides and skins: Hides and skins are mostly traded via collectors, from the meat processing facilities to the tanneries in wet salted condition. Due to the climate and the lack of refrigeration, the time of effective conservation is rather limited. Export of raw hides and skins is strictly prohibited since the 1970s and it is perceived that there are no illegal exports. Due to the lack of demand and the consequent reduced productivity, particularly in the Qurbani[10] season, many hides and skins are wasted and do not enter the leather production chain.

A major issue relating to the quality of hides and the value lost in selling the skins is slaughterhouse practices, with respect to the flaying and curing of skins. Flaying of the skins is usually carried out haphazardly, without the use of mechanical flaying devices, because the primary focus is to get the meat to the market as fast as possible, as opposed to the preservation of the quality of the hides and skins. This leads to flay cut damage, flay holes, misshapes and damaged grain due to putrefaction setting in because of late salting.

Another key issue regarding the skins obtained from slaughterhouses and slaughter slabs is that, once an animal is killed, both the meat and hide are usually returned to the smallholder (*arthi*). The skins are then prone to putrefaction due to late preservation, reducing their commercial value to tanneries. Some of the other causes for the poor quality of the available skins and hides include diseases in animals (pox lesions, tick and mite infestation, ring worm, lice and warble fly, etc.) and the management of animals, including horn racks, rope marks and branding, etc.

Semi-processed hides – finished leather sheets: There are approximately 800 tanneries[11] in Pakistan. Their supply comes mostly from Pakistan itself and for a small part from abroad, where Europe, the United States of America and Australia are the main actors. Raw hides and skin pass through a series of actions, namely soaking, liming, fleshing, bating, pickling, splitting, neutralizing and filling out to attain a semi-processed form.

Pakistani tanners have been unable to export to their potential, because they have little influence over the intermediary production; i.e. the raw hides and skins suppliers. Most of these suppliers lack traceability and are not compliant with buyers' demands for sustainability. Other challenges include growing requirements in terms of environmental compliance, chemical controls (including the Registration, Evaluation, Authorisation and Restriction of Chemicals, or REACH, regulation) and dealing with buyers' delivery requirements (e.g. grades and timings, etc.). These challenges make tanneries operate well below capacity.

Light manufacturing: Pakistan has moved gradually from being a leather-exporting country to becoming an exporter of value-added products. Statistics show that leather exports are gradually reducing, whereas the export of finished leather goods is increasing in both numbers and value. There are an estimated 461 leather garments/apparel-making units, which produce approximately 5 million leather products annually against a capacity of 7 million, and 348 leather glove manufacturing units that produce 5 million pairs against a capacity of 10 million pairs annually (Asian Development Bank, 2015).

Marketing and exports: The final stage in the value chain involves marketing the products. Almost all these leather products are exported internationally (90%), with very few sold to local markets.[12] This includes a series of activities such as product placement, branding and packaging, repairing and reworking, and policy initiatives to diversify market and enhance market share.

The quality of the finished leather products is appreciated worldwide, but Pakistan is in close competition with other markets like China, India, Bangladesh and Viet Nam. This is because the Pakistani leather industry focuses on quantity rather than authenticity, meaning bringing a locally designed product into the market. Products are either copied or designed in collaboration with foreign partners, which gives more benefits to the buyers than to the Pakistani leather value chain.

9.– Pakistan Economic Survey (2020). Chapter 2: Agriculture. Accessed at https://www.finance.gov.pk/survey/chapter_20/02_Agriculture.pdf.

10.– Qurbani means sacrifice. Every year, Muslims around the world slaughter an animal – a goat, a sheep, a cow or a camel – to reflect Prophet Ibrahim's willingness to sacrifice his son, Ismail, for the sake of God.

11.– Source : Pakistan Tanners Association: https://www.pakistantanners.org/index.html.

12.– GIK Institute of Engineering Sciences and Technology. 'An Assessment of Environmental Concerns in the Leather Industry and Proposed Remedies: A Case Study of Pakistan'. Accessed at https://d3pcsg2wjq9izr.cloudfront.net/files/0/articles/2226/2045.pdf.

Box 1: Competitiveness benchmarking of Pakistani manufacturers

To have direct indications of the competitiveness of the Pakistani handbag manufacturers, a request was sent out by e-mail to approximately 50 handbag manufacturers in different countries such as Pakistan, India, Bangladesh, Indonesia, Viet Nam, the Republic of South Africa, the Netherlands, Brazil and the United Mexican States with the request for a quotation. The quotation was for 100 bags, made of average quality bovine leather. The design of the bag was a realistic design put at the disposal of ITC's international leather consultant by Dutch brand MYoMY (Figure 17), whose collaboration is herewith acknowledged with gratitude.

Figure 17: MYoMY star leather handbag

Source: MYoMY.

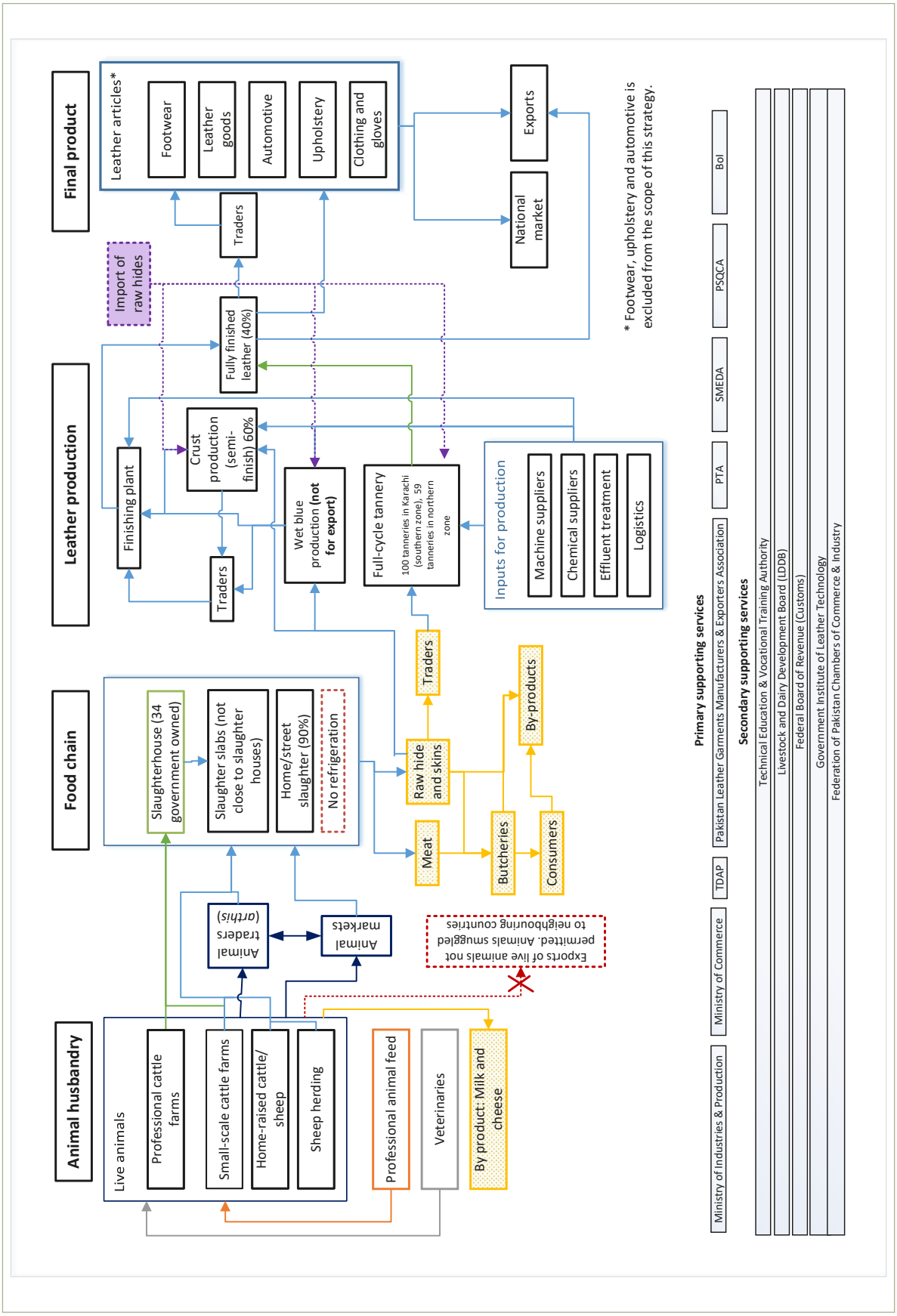
Most of the leather bag manufacturers that were contacted highlighted on their website the sustainability of their products. In addition, all factory floor photos that are published on the respective websites show the employment of female workers. Responses obtained are summarized in Table 7. It is necessary to note that, although the design is clear, differences between the quotations to the order of 10%–15% can occur due to the fact that the leather quality that was requested was 'average bovine leather quality'. This can be interpreted differently from supplier to supplier. However, the table gives a reasonable indication of which markets are more competitive than others. One can deduct that Pakistan is in an average competitive position.

Table 7: Bag quotations

Bangladesh	T.K. Footwear Ltd	www.tkfootwear.com	riff_leather@hotmail.com	$35,50
Bangladesh	Leatherina	www.leatherina.com	leatherina@gmail.com	€25,00 ($30)
Brazil	Pontezeros		ramon@pontozeroacessorios.com.br	R$ 250,00 ($48)
China	Jiarun Leather Goods	www.jiarun-sak.com	sales01@jiarunleathergoods.com	$54,80
China	J.D. Leather Goods	www.jdleathergoods.com	angelwang@jdleathergoods.com	$85,00
Indonesia	Pt. Karya Idaman Bersama	https://pt-karya-idaman-bersama.business.site/#details	marketing2kib@gmail.com	$54,58
Pakistan	Superlative Enterprises	www.superlative.com.pk	info@superlative.com.pk	$22,00
Pakistan	Chemxs Leather	www.chemxsleather.com	info@chemxsleather.com	Rp 9000,00 ($57)
South Africa	E. Baronos Leather Manufacturers	www.ebaronosleather.com	info@ebaronosleather.com	R 1900,00 ($138)
Zimbabwe	Samuneti Leathers	www.samunetileathers.com	samunetileathers@yahoo.com	$65,00
Zimbabwe	Goodhope Leather Products	www.goodhlp.com	gigimatsika@gmail.com	$50,00

Source: ITC.

Figure 18: Value chain map



Source: ITC.

INSTITUTIONAL AND POLICY SUPPORT ECOSYSTEM

The success of the leather and leather goods sector will not only depend on the internal capacities of the communities and companies operating in the industry, but also on the role of the various ministries and public institutions, as well as other technical agencies. For the sector to achieve long-term sustainable growth, participating enterprises must be able to rely on a capable network of government and private sector support institutions. The overall trade support network (TSN) of Pakistan's leather and leather goods sector is considered for this sector strategy as the aggregate institutional framework in the country, bringing together those institutions that have a particular interest in or bearing on the sector's export development and competitiveness. Broadly, the TSN comprises the following support areas: policy support network, trade services network, business services network, and educational services and civil society network.

Box 2: Trade and investment support institutions supporting Pakistan's leather and leather goods industry

Policy support	• Ministry of Commerce (MoC) • Ministry of Finance • Federal Board of Revenue (FBR) • Ministry of National Food Security & Research (MNFSR) • Livestock and Dairy Development Board (LDDB) • Ministry of National Health Services Regulations and Coordination • Ministry of Environment
Trade services	• Federation of Pakistan Chambers of Commerce & Industry (FPCCI) • Ministry of Industries & Production (MoIP) • Small and Medium Enterprises Development Authority (SMEDA) • Ministry of Commerce • Trade Development Authority of Pakistan (TDAP) • Pakistan Standard & Quality Control Authority (PSQCA) • Pakistan Tanners Association (PTA) • Pakistan Leather Garments Manufacturers & Exporters Association (PLGMEA)
Business services	• Ministry of Maritime Affairs • Directorate General Ports & Shipping • National Institute of Health (NIH) • Corporate Dairy Farmers Association (CDFA) • Board of Investment
Academia and civil society	• University of Veterinary and Animal Sciences (UVAS) • Pakistan Agricultural Research Council (PARC), under MNFSR • National Institute of Leather Technology (NILT) • Government Institute of Leather Technology (GILT) • Technical Education & Vocational Training Authority (TEVTA)

According to industry players, institutes such as GILT and the National Institute of Leather Technology (NILT) were built to teach leather processing and technology. However, due to lack of funds, the quality of courses being taught has declined considerably.

Pakistan's leather and leather goods industry is mostly in the unorganized sector, which makes government's role more crucial. Table 8 presents measures that have been taken by the government for promotion of the leather industry in the past decade. In the federal budget 2016–17, the Government of Pakistan provided an exemption to the leather industry from sales tax. In addition, an exemption of 3% custom duty on tanned hides and skins and exemption of an additional 2% customs duty on all plant and machinery used in manufactured or production of goods. Moreover, the government provides a series of subsidies for electricity and gas to export-oriented industries such as leather.

The power price has been fixed at $0.07/unit for July-August FY 2021 and $0.09/unit for September-June FY 2021. The gas tariff is fixed at $0.065/mmbtu[13] for the whole FY 2021. The Power Division has allocated a PKR 20 billion subsidy for this purpose (Pakistan Economic Survey, 2020/21).

Table 8: Government policy interventions in the sector

Name of policy/law/regulation	Date enacted/introduced	Relevant responsible government institution
Levy of additional customs duty on import of goods; i.e. 2%	SRO 630 (I) 2018	Ministry of Finance and Economic Affairs
Levy of regulatory duty on import of goods; i.e. 5%	SRO 640 (I) 2018	Ministry of Finance and Economic Affairs
Imposition of sales tax on export articles; i.e. 6%	SRO 1058 (I) 2011	Ministry of Finance and Economic Affairs
Duty drawback rates on finished leather, goat/sheep @ 3.73%, buffalo/cow @ 1.78%	SRO 460 (I) 2020	Ministry of Finance and Economic Affairs
Amending the slab of sales tax to 5%	SRO 1012 (I) 2011	Ministry of Finance and Economic Affairs
Levy of withholding tax of 1% on annual turnover on monthly basis	SRO 333 (I) 2011	Federal Board of Revenue
Import policy order IPO 2009	SRO 766 (I) 2009	Ministry of Commerce
Export policy order EPO 2009	SRO 767 (I) 2009	Ministry of Commerce
2% withholding tax on basic raw material	SRO 670 (I) 2019	Ministry of Finance and Economic Affairs
5th schedule of the Customs Act Rescheduling the import duty on tanning machinery CKD varying from 3% to 15%	Federal budget 2018–19	Ministry of Commerce
Exemption of 3% customs duty on tanned hides and skins	Federal budget 2018–19	Ministry of Commerce
Exemption of additional 2% customs duty on all plant and machinery used in manufacture or production of goods	Federal budget 2018–19	Ministry of Commerce
Quarantine certification on import of basic raw material	SRO 1067 / 2020	Ministry of Commerce
3% additional goods and services tax and income tax to 5.5% imposed on commercial importers for leather industry		Ministry of Finance and Economic Affairs
Additional regulatory duty at 10% on import of various basic tanning chemicals	SRO 06 (I) 2018	Ministry of Finance and Economic Affairs
Collection of EDS @ 0.25%	2018	Ministry of Finance and Economic Affairs
20% customs duty on basic raw material as raw and wet blue hides and skins	SRO 645(I)/2018	Ministry of Finance and Economic Affairs
5% drawback on local taxes and levies on finished leather – increase in threshold of taxable income	Federal budget 2018–19	Ministry of Commerce

Source: ITC.

Pakistan's leather sector is composed of suppliers of raw hides and skins, abattoirs, tanneries and producers of leather products in varying sizes. Broadly, the sector has 800 tanneries located in different geographical regions. Export of raw hides and skins is prohibited from Pakistan.

Pakistan has gradually moved from being a leather-exporting country to becoming an exporter of value-added products. The finished leather sheets obtained by tanning and crusting processes are cut in patterns to match the final product design, after which these are stitched to give the final shape of different leather products. The final stage in the value chain involves marketing the products. Almost all the leather products are exported internationally (90%), with very few sold to local markets.

13.– Metric million British thermal unit.

Sustainability assessment in the leather value chain

The leather and leather products sector would be one of the largest contributors to environmental pollution if the effluents from tanneries were not treated. While most of the tanneries across the globe have set up effluent treatment plants, wastewater treatment systems remain a challenge for some countries. The sector is also resource intensive, having a large ecological footprint along the value chain and at each step of the product life cycle.

Figure 19: Linear economy

Source: Based on chart by M. Costello.[14]

SUSTAINABILITY IS THE NEED OF THE HOUR

The need for sustainability is both an economic and an environmental imperative, and governments have a responsibility to reconcile the two. With the rise of environmental consciousness, no brand would want to associate itself with environmentally irresponsible suppliers in countries with little regard for sustainability.

In addition to the environmental angle, sustainability in the leather and leather industries is manifested through a variety of dimensions: social, economic and political, etc. This section provides an overview of these sustainability dimensions,[15] including specific processes across the leather value chain.

14.– Sustainability in the Leather Supply Chain Conference March 2018: 'The Circular Economy: Opportunities for the Chemical Industry and Leather Supply Chain'. The circular economy aims to redefine the way products and services are designed to look beyond the 'take, make and dispose' model of industrial manufacturing. Accessed at https://www.leathersustainability.com/stahl-speak-opportunities-circular-economy-hong-kong-sustainability-conference/.

15.– The following sustainability factors are largely not monitored or evaluated within the leather value chain. As a result, they are not covered here. However, they should be borne in mind when formulating recommendations for a robust transparency and traceability system for sustainable leather value chains.

Packaging: The use of packaging for the movement of hides/skins, pallets of semi-processed materials, and rolls or consignments of finished leather is not assessed or audited as an environmental aspect. Safe disposal of chemical containers and any hazardous waste is considered part of chemical management and waste disposal, but not general packaging.

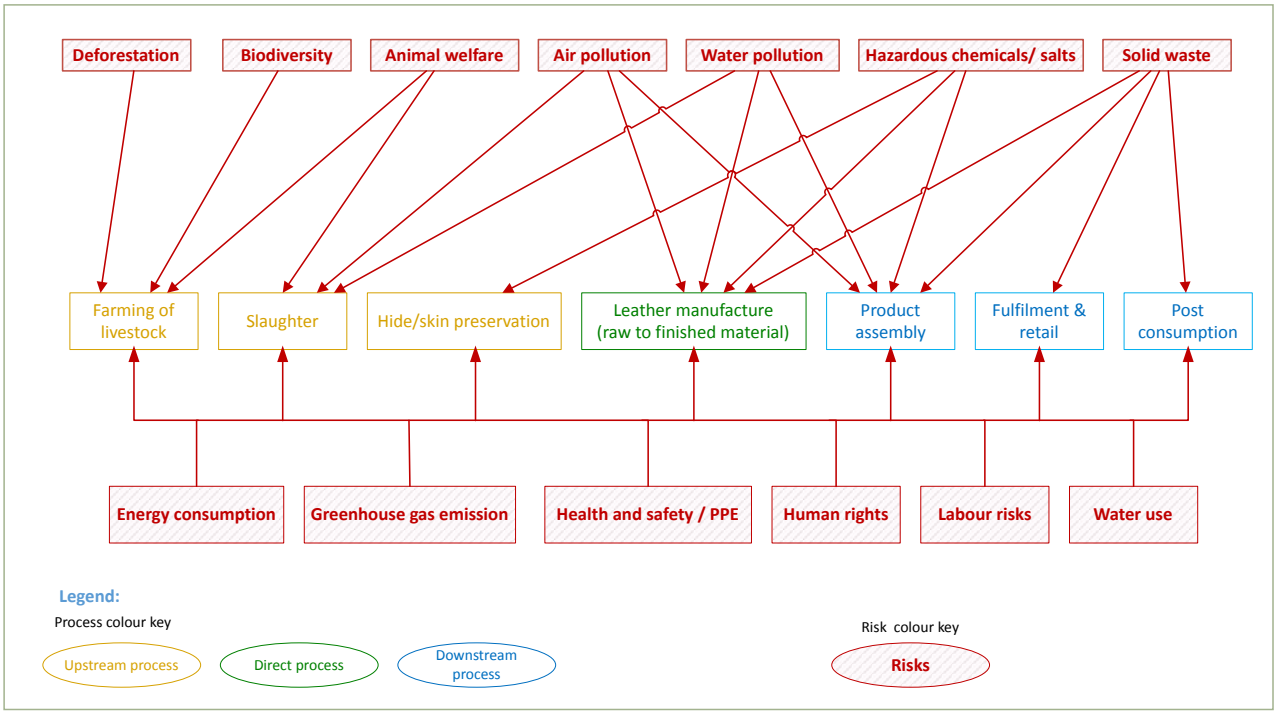
Transportation: Impact of movement via transportation is not a standard measurement. Some organizations are monitoring this, but carbon footprint is not certified. Although some value chains can operate using only local and national transportation, most of the leather value chain operates on a global scale and materials are shipped around the world for different processes.

Post-consumption: There is currently no standard mechanism or audit for the final destination/disposal of leather products.

One of the main findings is the need to move beyond the present situation where the leather industry exercises control over and obtains information from only its immediate suppliers, and has little influence over the upstream and downstream processes that are necessary for the complete life cycle management of a product. To create fully traceable and transparent value chains that support sustainability, it is necessary to greatly increase cooperation and information exchanges between farmers, abattoirs, product manufacturers, brands and retailers (United Nations Economic Commission for Europe, 2021).

The principal sustainability risks and opportunities in the leather value chain are described below.

Figure 20: Sustainability risks (and potential opportunities) in the leather value chain



Source: ITC.

Animal welfare: Traditionally, the welfare of animals during the farming process has been seen as a responsibility of the meat and dairy industry rather than the leather industry (which transforms the by-product H&S of the animal post-life). However, more current thinking also recognizes that, without livestock, there can be no leather and, therefore, some shared responsibility is necessary in that the leather industry can pressure the livestock industry to adhere to best practices in the treatment of the animal, as the leather industry is pressuring the livestock industry in Brazil to combat deforestation. In addition, the health of the livestock, and specifically the proper treatment of animals at slaughter level, affects the quality of the resulting H&S, which in turn affects the end quality of the leather article.

There are areas of the world where the welfare of animals is generally not taken into consideration, and cases of animal cruelty have been widely documented through non-governmental organizations (NGOs) and other agencies. The adoption of better practices can be encouraged by increased transparency in value chains.

While there are no global conventions on animal welfare, many countries have national and local legislation based on the five freedoms of animal welfare,[16] introduced in 1965 by the OiE World Organisation for Animal Health, which are:

1. Freedom from hunger and thirst (including ready access to fresh water and diet to maintain health);
2. Freedom from discomfort (including housing and transportation);
3. Freedom from pain, injury or disease;
4. Freedom to express normal behaviour;
5. Freedom from fear and distress.

16.– OiE World Organisation for Animal Health. Accessed at https://www.oie.int/en/what-we-do/animal-health-and-welfare/animal-welfare/.

A global map produced by the Global Animal Law Association[17] indicates many countries have varying levels of legislation as per the key below.

Case 1: Countries where no animal welfare legislation was found.

Case 2: Countries having basic national laws: anti-cruelty laws (or penal code provisions) and new legislation on animal welfare.

Case 3: Countries with a national civil code provision giving a new status to animals.

Case 4: Countries with a basic national law and a provincial civil code provision giving a new status to animals.[1]

Case 5: Countries with a basic national law and a national civil code provision giving a new status to animals.[1]

Case 6: Countries with a basic national law and a provincial or local constitutional principle.[2]

Case 7: Countries with a basic national law and a national constitutional principle.[2]

Case 8: Countries with a basic national law, a national civil code provision giving a new status to animals[1] and a national constitutional principle.[2]

[1] Civil codes provisions giving a new status to animals recognize the sentient nature of animals and/or extract them from the category of things (however they are still subjected to the property regime)

[2] Constitutional principles are key provisions recognizing a duty of the State, province or city toward animal beings. Those important principles (e.g. compassion, dignity etc.) differ from more common provisions recognizing only the jurisdiction (e.g. national or provincial) to legislate on animal cruelty or animal welfare matters.

Notes:

1: Civil codes provisions giving a new status to animals to recognize the sentient nature of animals and/or extract them from the category of things (however, they are still subjected to the property regime).

2: Constitutional principles are key provisions recognizing a duty of the State, province or city toward animal beings. Those important principles (e.g: compassion and dignity, etc.) differ from more common provisions recognizing only the jurisdiction (e.g. national or provincial) to legislate on animal cruelty or animal welfare matters.

Deforestation: Within the leather value chain, risk of deforestation exists in relation to land conversion for agriculture and grazing. This issue is mainly focused on South America, particularly the Amazon region in Brazil. Although it is recognized that cattle grazing is not under the direct influence of the leather manufacturing industry, the use of responsible purchasing in order to minimize the industry's impact on deforestation remains a potentially important contribution to sustainability.

Hides and skins preservation: The most common form of preservation for hides and skins is salting. However, other methods used include drying, brine curing and lowering water activity (reducing water content to inhibit bacterial activity achieved through the process of salting).

The main source of total dissolved solids (TDS), especially of sodium chloride, is salt from preservation. Unfortunately, TDS in tannery effluents cannot be removed by conventional treatment (reverse osmosis is considered excessively expensive). The environmental damage caused by salting prevails over its positive aspects. Worldwide, based on approximately 10 million tons of wet salted (w.s.) weight processed and computing the salt at the level of 25% of fresh hides and skins' weight and after allowing for hides processed unsalted, it can be estimated that at least 3 million tons of common salt per year is discharged into water recipients (Buljan, 2019). It is good practice to desalt wet salted hides and skins before processing in a desalting drum.[18]

17.– Global Animal Law Association, database of animal welfare laws. Accessed at https://www.globalanimallaw.org/database/national/index.html.

18.– Source: UNIDO www.leatherpanel.org.

Source: UNIDO.

In addition to the drying mentioned earlier, the only alternative to salting is the processing of fresh (green) hides and skins; i.e. short-term preservation by cooling, using crushed ice or refrigerated storage.

Rapid cooling can be carried out in a few ways:

- Flesh the hides immediately after skinning;
- Immediately after flaying, hides are put into a mixer containing chunks or cubes of ice;
- Immediately after flaying, hides are passed through a tank of glycol-cooled water and, generously iced, placed in a storage container;
- By using CO_2 snow. Convenient where cold storage facilities are already available; with good ventilation, there is almost no health or safety risk;
- By using refrigerated storage units; the hides must be hanging and without touching each other.

If the refrigeration temperature is reduced to 20°C, hides and skins can be stored for three weeks without suffering damage. The main benefit of chilling (i.e. avoiding use of salt) is that the amount of total dissolved solids in the tannery effluent is reduced by 30%–40%, corresponding to savings in overall environmental costs.

Hazardous chemicals management: Chemical management for the leather sector entails a set of measures to track and control the use of chemicals, identify and assess chemical hazards, manage the risks associated with the use of chemicals, and prepare for any emergencies involving the chemicals. Most of the chemicals used in leather manufacturing, if not responsibly managed and controlled, have the potential to harm human health and the environment. For that reason, it is one of the most regulated risks in the leather value chain, with many regulations around the use and permitted limits of use of chemicals, such as the European Commission's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulations.[19]

Water use: Responsible water consumption is a key priority for ensuring that an adequate, safe, clean supply is available for health, the environment and industry. According to UN Water,[20] globally, it is estimated that more than 80% of wastewater is released into the environment without adequate treatment across industries. The leather value chain uses water at many stages of production and the amount used depends on the type of tanning method adopted.

Water and chemicals use go hand in hand. Adopting new chemical processes can create better absorption and reduce the overall chemicals usage, which subsequently results in low water consumption and less effluents discharge.

There is considerable scope for simple, low-cost and effective ways to save water and reduce manufacturing costs even in a tannery following conventional technology. Commonly, the first, mandatory steps include (Buljan, 2019):

- Separately monitoring and measuring water use in various departments (beam house, wet finishing, finishing and utilities etc.) as well as effluent streams and total flow through available electronic tools;
- Calculating the tannery's current water footprint and defining target consumption benchmarks for individual sections;
- Switching from continuous 'running water' to batch washes;
- Introducing strict (ideally automated) control of the volume of processing water;
- Adherence to the principle 'reduce, reuse, recycle', e.g. lime washes for the first soak;
- Adoption of process formulas with reduced water usage;
- Modification or replacement of existing vessels and some equipment with more efficient ones – introduction of new generation drums, which reduce water usage by an estimated 50% and chemical use by approximately 8%.

19.– See https://ec.europa.eu/environment/chemicals/reach/reach_en.htm.

20.– 'Water Quality and Wastewater'. Accessed at https://www.unwater.org/water-facts/quality-and-wastewater/.

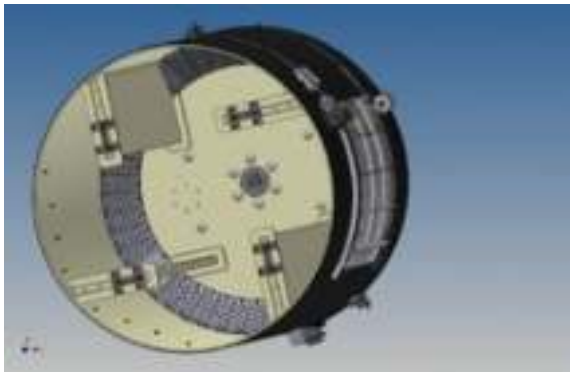
Box 3: Practical examples of water-saving methods

1. Washing: Water used for washing in various steps of production represents approximately 30%–50% of all the water used, which is why it is the very first target within the water-savings measures. In practice, the main cause is washing with running water; i.e. with rotating drum, slatted door and open water valve. This way, it is very difficult to control the process and the flow rate. Instead, batch washing with a closed door can bring about water savings of more than 50%.
   - » Additional water reduction and more uniform quality is achieved by thorough drainage after each process step, including washes; float residues in vessels require more water for washing. False perforated bottom ends in paddles or plastic/wooden perforated sectors (with more drainage valves per sector) significantly improve drainage of floats.

Introduction of new generation drums, which reduce water usage by an estimated 50% and chemical use by approximately 8%.

Plastic sectors inside the drum, fixed with stainless steel screws | Installation of wooden sectors to improve drainage of floats

Source: Mr. N. Niedzwiedz



Source: Hüni AG Process Controls.

2. Recycling and water reuse: Many relatively clean rinse and wash waters can be recycled to other processes where the low concentration of residuals chemicals will have little adverse impact. Typical examples of water reuse:
   - » Part of the main soak can be reused for the 'dirt soak';
   - » Part of the second lime wash can be reused to start a new lime liquor; alternatively, it is used for the first wash;
   - » Recycling of spent tanning floats;
   - » Water from wetting back wet blue leather is mixed with fresh water for the next wetting back batch.
3. Green fleshing: This not only opens the hide structure and allows for better penetration of chemicals during soaking and liming, but also reduces the water needed for soaking, liming and washing after liming by up to 15%.
4. Fleshing, vacuum dryers and finishing: In some tanneries, fleshings are collected and transported with the aid of water. Use of fleshings pumps with an efficient collection system can effectively reduce water consumption for this operation. Additionally, old vacuum dryers are typical examples of 'hidden' and often overlooked water consumers.

A comparison of various types of water flow measuring equipment (Kanpur, India)

PARAMETER	ORDINARY	ELECTROMAGNETIC	AUTOMATED HOT & COLD WATER MIXING AND DOSING
Type	Mechanical	Electromagnetic	Electromagnetic, PLC controlled
Accuracy	Average	Very good	Very good
Possibility of manual error	Average	Average	Low
Ease of operation	Manual control required	Easy	Very easy
Life	Relatively short (strainers are required)	Long	Long
Investment (About 8 processing vessels)	Rs. 80,000 (= USD 1,200)	RS. 300,000 (= USD 4,600)	Rs. 1,000,000 - 1,500,000 (= USD 15,500 - 23,000)

Source: Buljan, 2019 – UNIDO.

Waste management: Any material or substance discarded from the facility that can potentially pollute and contaminate the environment or the surrounding communities can be defined as waste. It can also include expired raw materials, materials generated from production processes with no further use on-site, expired finished products and redundant equipment, etc. Waste management encompasses all the actions required to collect, treat and dispose of solid, liquid or gaseous materials that have served their purpose in the production process and are no longer useful.

Water pollution and wastewater[21] management

The risk of pollution through wastewater is high in the leather value chain, as many of the processes use large volumes of water along with chemicals, which, if left untreated, can pose significant health risks. Much research and innovation has been done and continues to take place, aimed at minimizing the use of water, eliminating the use of hazardous chemicals and improving production methods. Most tannery regions have a common or municipal effluent treatment plant (CETP or METP), and some tanneries have their own effluent treatment plants (ETPs) in their facilities, or a combination of a tannery pre-treatment plant. The purpose of these treatment plants is to clean the pollutants from the water to enable it to be either reused or discharged safely into rivers and other waterways.

Solid production waste

The production of leather results in the creation of waste. There are many techniques that can be adopted to minimize waste, some of which have the added benefit of reducing the amount of chemicals used. In addition, some waste products can be recycled for use by other industries. For example, by carrying out the trimming of raw hides/skins before the first tanning process, less material needs to be treated with chemicals and this also avoids unnecessary water consumption. In addition, those trimmings can then be sent for rendering or for gelatine manufacturer. Fleshings can be transformed by the cosmetic, pharmaceutical and food industries into useful products. Leather waste, post-process, can also be recycled into 'bonded' leather (or reconstituted leather) – where leather trimmings and shavings are mixed with binding materials such as polyurethane and adhesives to produce blended material. For waste that is not recycled or repurposed, it is important that safe removal and disposal is carried out.

21.– Wastewater/effluent is water that has been used in a production process and is then: (a) discharged directly into the environment; (b) sent to a treatment plant before discharge into the environment; or (c) sent to a treatment plant before being recycled and used again in production.

Energy consumption: Energy consumption is necessary to produce leather and, as with water use, the amount of energy consumed can be affected by the tanning method adopted, as well as the methods for drying and the types of finishing used. Energy consumption can be minimized through more efficient processes, good-quality energy efficient machinery, proper maintenance and the use of renewable energy sources, including co-generation and the conversion of waste into fuel.

Air pollution: Risk of air pollution exists at many stages in the leather value chain, starting with the handling of animal wastes at the abattoir/slaughterhouse, where unpleasant odours could be emitted and gaseous pollutants released into the air. This could be of particular concern if the facility is in a residential area. Moving through the physical production of leather, at various stages of production, there is a risk of pollutants being emitted into the air, some deadly like hydrogen sulphide gas (H2S) and others with irritant properties that can contribute to health issues, such as volatile organic compounds (VOCs), sulphur dioxide (SO2), nitrogen dioxide (NO2) and particulate matter (PM). Proper preventive measures include equipment such as air emission filters, personal protective equipment (PPE) for workers, automatic chemical weighing, mixing and addition, automatic acid dilution, enclosed dying and spraying booths with extraction and filtration and, importantly, appropriate production controls and practices.

Health and safety, including personal protective equipment (PPE): Workers' health and safety is a key risk area and is important in all areas of the leather value chain. Among the most important measures to offset this risk is the use of PPE. Key reasons for requiring the use of PPE include:

- Protection from contact with chemicals;
- Protection from inhalation of harmful air pollutants;
- Protection from moving machinery parts;
- Alarms and protection against exposure to H2S gas, which can cause death;
- Protection against damage to hearing from excess noise.

In some countries, the use of PPE is not regulated (or, in some cases, not enforced) and, as a result, it is still possible to see workers who are accustomed to working around machinery with bare feet or just sandals standing in untreated wastewater. Education, therefore, also has a role to play in ensuring that not only is PPE provided, but also that workers understand why it is necessary to use it.

Human rights (child labour, slave labour and bonded labour): One of the most important human rights risks in the leather sector is child labour. This is a global social sustainability risk that is treated with varying degrees of tolerance in different regions. There are organizations and standard providers who audit and certify compliance in these areas, and value chain participants should ensure that their suppliers and customers are acting in accordance with the expectations of international conventions and local/national legislation as applicable.

Labour risks: Labour (social) risks for workers can be prevalent across the value chain to varying degrees and include unfair treatment around pay, working conditions, equality, harassment, unsafe practices and representation. Pakistan's leather sector is largely associated with low-paid, unskilled labour with lack of equal opportunities, and the risks of social abuse through unfair pay, often handling harmful chemicals and heavy machinery without protective equipment. Many tanneries in a country with limited safety compliance controls deactivate safety devices on machines, hence exposing the workers to serious health risks, sometimes even death. Most recently, in August 2021, at least 16 labourers died and five others were injured after a blaze erupted at a leather bag manufacturing factory in Korangi, Karachi.[22] Corporate social responsibility (CSR) and good governance practices, along with safety compliant construction with operating fire exits could have avoided this incident.

Discrimination against women in the form of lack of equal pay and opportunity are also high-risk issues. Many live from paycheque to paycheque and resort to taking out loans to cover basic expenses. To make matters worse, it is difficult for workers to hold employers to account, since most lack documentation to prove their employment.

Corporate social responsibility (CSR) should become part of the formula for producing leather in Pakistan. Some examples could include:

- Educating current and incoming employees through audiovisual equipment and adult learning programmes;
- Ideas to improve the community's living conditions, including having a medical emergency room attached to the tannery in case of emergencies;

22.– *The Express Tribune* (2021). '16 die in Karachi factory blaze'. Available from https://tribune.com.pk/story/2317366/16-die-in-karachi-factory-blaze.

©shutterstock

- Company supported local schools, canteen and crèche facilities;
- Ensuring women have the same opportunities as men when it comes to finding employment. Transport could be arranged to take women safely from their villages to the factories and return them home at the end of the working day (a key concern for the women and their families).

Lack of proper governance and CSR practices are often the direct cause of the difficulty the sector faces in attracting the right workers. Unsafe and unclean working environments discourage educated workers from joining tanneries.

LEATHER LIFE CYCLE ANALYSIS

Tanning industries have been vital to the Pakistani economy, yet they have been proven to be detrimental to the environment, mainly due to the discharge of large quantities of untreated wastewater containing chromium. A life cycle assessment is a practical tool used to evaluate and compare the life cycle environmental impacts of the products. For example, in the case of leather products, environmental impacts are assessed from raw material extraction and processing (cradle), through the product's manufacture, distribution and use to the recycling or final disposal of the materials composing it (grave). The assessment of leather manufacturing throughout its life cycle shows how much impact it has on health and the environment.

Greenhouse gas emissions: Greenhouse gas (GHG) or CO_2 emissions along the leather value chain are primarily the result of non-renewable energies in production and transportation. Transportation occurs at all stages of the value chain from the movement of cattle, either from farm to farm or to abattoirs/slaughterhouses all the way to package delivery to customers' homes. Transport's share of total national GHG emissions range from up to 30% in high-income economies to less than 3% in least developed countries (Sims, et al., 2014).

Chemicals and solid waste discharge: A paper by Dr. Javed Ahmas Chattha and M. Mobeen Shaukat notes that as many as 130 chemicals (ranging from common salt to chrome sulphate) were found to be used in a survey of 596 tanneries in Pakistan.[23] Many of these chemicals have not been designated a health hazard, but others are extremely dangerous and damaging to humans and the environment. The survey revealed that the tannery's wastewater is highly contaminated, many times beyond the limits set by environmental quality standards for all wastewater parameters. A comparison of average quantities of pollutants from tanneries with National Environmental Quality Standards (NEQS) is shown in Table 9.

Major solid waste is generally separated at the source. Except for dusted salt, most of the solid wastes are sold in the local market to the poultry feed manufacturers due to their protein content. The main problem with the waste is the high chromium content. The mixing of this metal in poultry feed could produce serious human health problems. Table 10 presents a breakdown of the solid waste.

23.– GIK Institute of Engineering Sciences and Technology. 'An Assessment of Environmental Concerns in the Leather Industry and Proposed Remedies: A Case Study of Pakistan'. Available from https://d3pcsg2wjq9izr.cloudfront.net/files/0/articles/2226/2045.pdf.

Table 9: Pollution levels in tannery effluents

Parameters	* Raw sheep and goat skin finished leather (mg/l)	** Raw calf hides finished leather (mg/l)	*** Wet blue (goat and sheep) finished leather (mg/l)	NEQS (mg/l)
pH	9.33 – 9.88	7.35 – 7.67	3.52 – 3.55	6 – 10
BODs (unfilled) at 60 minutes settling	11 050 – 14 827	840 – 1 740	714 – 1 346	80
COD (unfiltered) at 60 minutes Settling	41 300 – 43 000	1 000 – 2 680	2 000 – 3 500	150
Suspended solid at 0 time settling	4 270 – 4 650	820 – 1 920	1 970 – 6 620	150
Sulphate as SO4 at 0 time settling	1 814 – 3 146	800 – 860	5 480 – 6 480	600
Sulphate as (S) at 0 time settling	288 – 292	1.2 – 2.6	Nil	1.0
Chromium (Cr) at 0 time settling	64.133.3	41	160 – 194	1.0

Source: GIK Institute of Engineering Sciences and Technology. 'An Assessment of Environmental Concerns in the Leather Industry and Proposed Remedies: A Case Study of Pakistan'.

Note: Biochemical oxygen demand (BOD); chemical oxygen demand (COD).
The pH of directly discharged tannery effluent varies from 3.5 to 13.5. Water with a low pH is corrosive to water-carrying systems and can lead to metal dissolving in the water. High-pH water can cause scaling in the sewers. Also, large fluctuation in the pH value is detrimental to some aquatic species.

* Quantity of raw material: 12 000 kg/day. Volume of wastewater: 600 m^3/day
** Quantity of raw material: 5 500 kg/day. Volume of wastewater: 814 m^3/day
*** Quantity of raw material: 10 000 kg/day. Volume of wastewater: 110 m^3/day

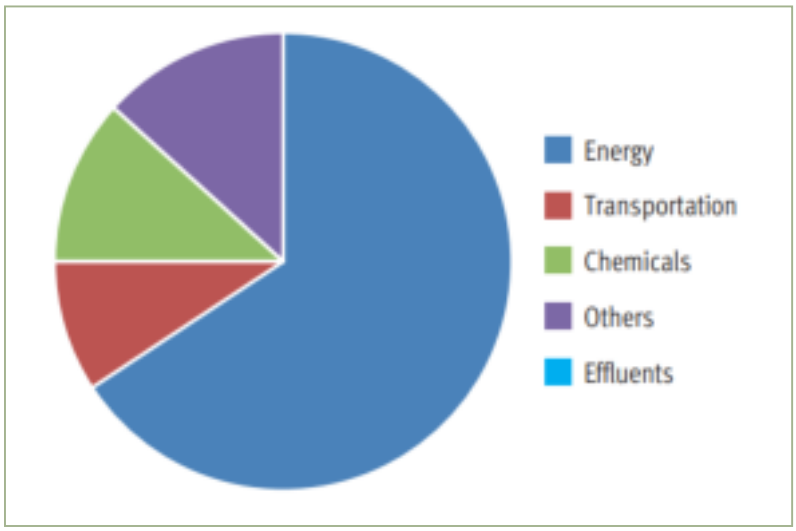
Table 10: Solid waste in tanneries

Type of solid waste	Rate of generation	Characteristics of solid waste	Comments
Dusted salt	0.1 kg/skin	Contains approximately 120 gm/kg of moisture, 120 gm/kg of volatile matter and 450 gm/kg of salt	Contaminated with blood, hair, dirt and bacteria. Partly reused in curing and the rest is indiscriminately dumped in undeveloped lands near the tanneries.
Raw trimmings	0.024 kg/skin	Proteins	The skins are trimmed (especially at legs, belly, neck and tail parts) to give them a smooth shape. The trimmings are usually sold for soap and poultry feed production.
Fleshing	0.25 kg/skin	Contains approximately 240 gm/kg of proteins, 200 gm/kg of fats and 3 gm/kg of sulphide	This is the flesh material of limed skins. It is usually sold to soap and poultry feed makers.
Wet trimming/wet shaving	0.14 kg/skin	Contains approximately 240 gm/kg of proteins, 30 gm/kg of fats and 15 gm/kg of chromium oxide	After chrome tanning, skins or split hides are shaved to proper thickness. This operation produces solid waste containing chrome. Secondary users, including poultry feed makers, usually collect these shaving from the tanners.
Dry trimmings/dry shaving/buffing dust	0.06 kg/skin	Contains approximately 300 gm/kg of proteins, 130 gm/kg of fats and 30 gm/kg of chromium oxide	Secondary users, including poultry feed makers, collect cuttings, dry trimmings and buffing dust from the tanneries.
Assorted refuse	No consistent quantity	Primarily cartons, bags and drums, etc.	This is usually sold separately (in bulk) in the retail market.

Source: GIK Institute of Engineering Sciences and Technology. 'An Assessment of Environmental Concerns in the Leather Industry and Proposed Remedies: A Case Study of Pakistan'.

A carbon footprint (CF) is the total amount of CO_2 and other greenhouse gases emitted over the full life cycle of a process or a product (e.g. leather); it is expressed in grams of CO_2 equivalents. The carbon footprint for leather includes material and operations from the raw material starting from the slaughterhouse to the end of the leather product life cycle. In principle, cleaner and more efficient technologies are very important for the reduction of COSwis721 Lt BT emissions. However, there are also other factors that significantly influence the total leather CF, among them being mainly the following: transport, water consumption, efficiency in use, energy footprint, nature of raw material, biodegradability and use/recyclability. Figure 20 shows the relative part of COSwis721 Lt BT emissions due to energy for the production of leather through a life cycle analysis.

Figure 21: Relative greenhouse effect emissions of leather

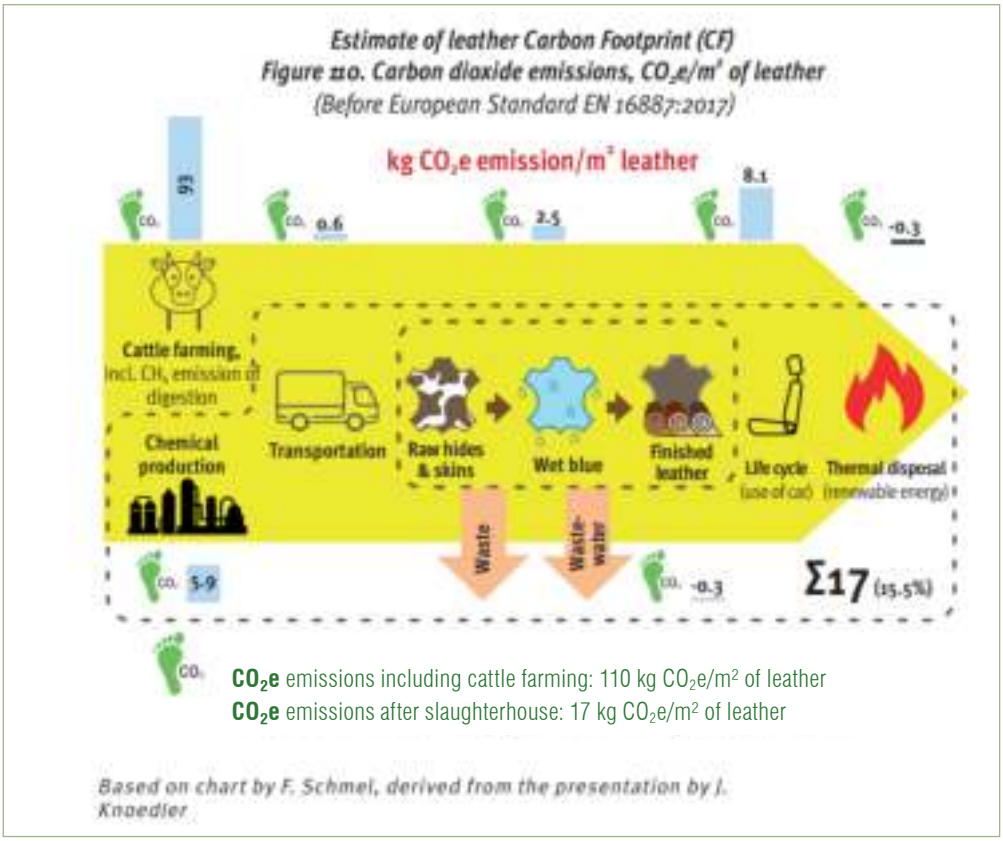


Source: UNIDO, 2017.

Overview of some contributors to CO_2 emissions in leather processing

- CO_2 emissions from raw material transport: The two main factors here are the means of transportation and distance. Globalization makes it easy to send goods around the world. However, the choice of the means of transportation and distance severely influences the amount of CO_2 emitted due to the transportation of goods. The means of transport chosen largely depends on the country of origin, destination and the infrastructure available. In Pakistan, while the road network continues to expand on a steady basis, lack of maintenance has resulted in irreparable breakdowns throughout. Moreover, the trucking fleet is not only old, but also environmentally unfriendly, with the majority of the trucks being Euro II or below. From that point of view, ideally, tanneries should be near the source of raw material whenever possible; this would also help to avoid the negative impact of long-term preservation and transportation.
- Thermal energy: Most of the thermal energy in a tannery is needed for water heating and steam production. Usually, it is provided by a central boiler; the fuel used has a significant impact on the level of CO_2 emissions. As in the case of electricity, CO_2 emissions depend not only on the type of fuel source, but also on the efficiency of the heating system and heat exchanger. In countries with sufficient insolation, a very attractive (supplementary) source of energy can be a solar water-heating system, which not only reduces CO_2 emissions, but also operational costs. That is why it is very attractive from both an economic and an environmental point of view. Some Pakistani tanneries use solar energy both for water and electricity production. This use should be promoted and expanded.
- Wastewater treatment: Effluent treatment with aerobic biological activated sludge treatment directly emits CO_2 in the atmosphere through the conversion of carbon contained in the organic matter in the wastewater.

Figure 22: Estimate of leather carbon footprint



Source: UNIDO.

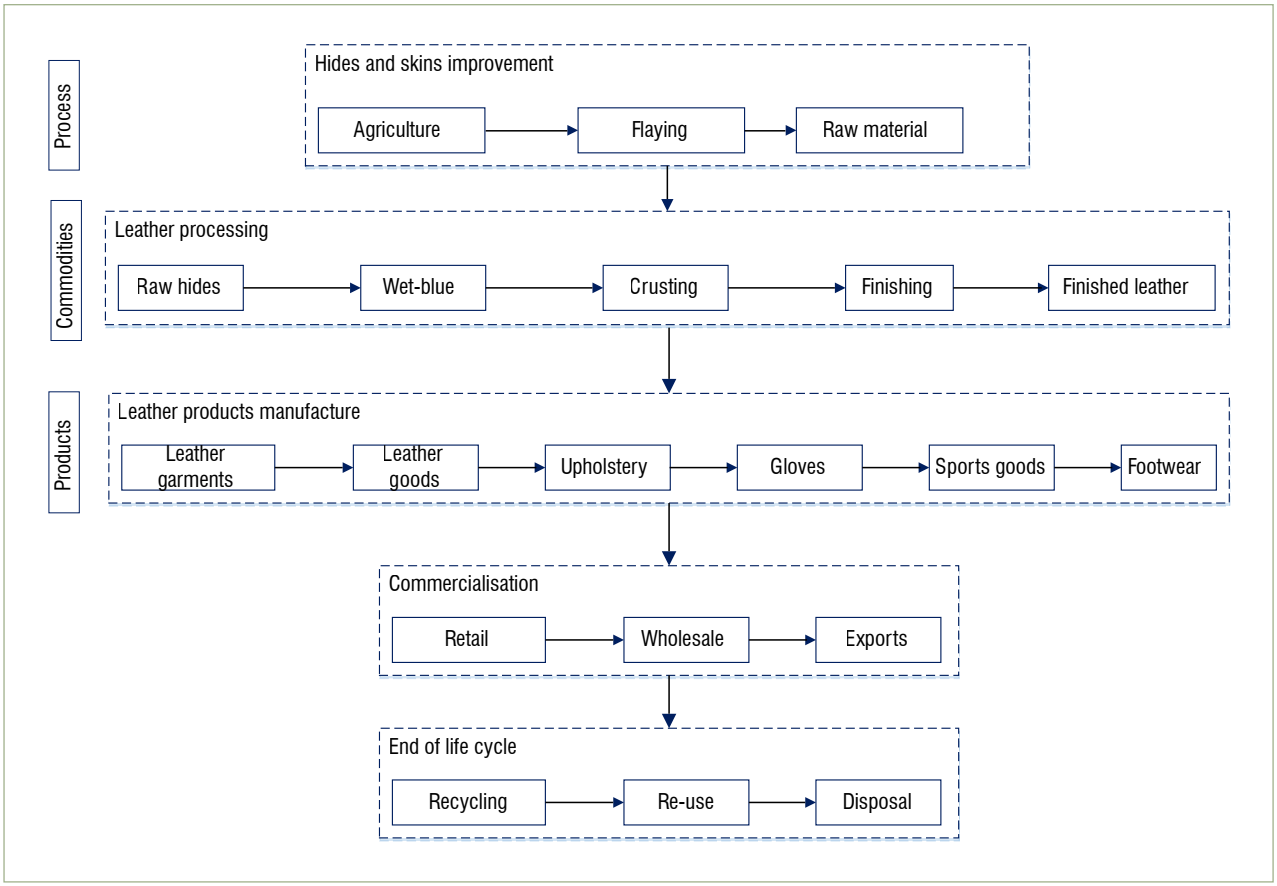
Product use, producers' responsibility issues and end of life (EoL)

Leather is nowadays mainly used for footwear production, automotive and furniture upholstery, garments, gloves and other leather goods production. Leather as a product is very durable, but the useful life of leather products is relatively short and progressively decreasing due to rapid market changes and consumer fashion trends. This creates a large waste stream of worn and discarded products. At the time their functional life has ended, most of them are disposed of in landfills. Producers' responsibility issues and forthcoming environmental legislations, as well as increasingly environmental consumer demands, are expected to challenge the way the leather products industry deals with the EoL of its products. Modern tanning processes aim at biodegradability adding to the sustainability of leather as a consumer product.

In the last few years, the industry has placed significant effort in improving energy and material efficiency, as well as eliminating the use of hazardous materials during the production phase. However, the environmental gains and energy efficiency made in production are being overtaken by the considerable increase in the demand for leather products, the so-called rebound effect. In most countries, managing EoL waste has long been and, in most cases, still is the responsibility of governmental agencies and local authorities. Once products reach the end of their functional lives, producers play no role in collection, recycling and/or disposal of EoL products. This approach has started to change with the emergence of a producer's responsibility concept. This concept was first introduced in Germany with the 1991 Packaging Ordinance,[24] which required manufacturers and distributors to take back packaging from consumers and ensured that a specified percentage is recycled. This concept of broadening a manufacturer's responsibility for products beyond their useful life and into the post-consumer phase includes closing the loop concerning materials used and waste management. In this context, take-back and producer responsibility legislation is expected to affect the leather sector.

24.– Seehttps://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=env/epoc/ppc(97)21/rev2#:~:text=With%20the%20Packaging%20Ordinance%2C%20which,and%20recovery%20of%20sales%20packaging.

Figure 23: Leather supply chain – life cycle assessment



Source: ITC.

International initiatives on sustainability in the leather sectors

This section discusses a few of the major international initiatives targeted at ensuring sustainability against three pillars of sustainability in the leather value chains – environmental, social and governance.

Zero Discharge of Hazardous Chemicals25

The Zero Discharge of Hazardous Chemicals (ZDHC) is one of the most authoritative frameworks towards sustainability in the leather sectors. It was launched in 2011 in the wake of a rising scrutiny on the fashion industry's polluting nature, and an investigation into wastewater discharge.

The ZDHC Foundation was established in 2015 in Amsterdam with a vision of collaborative efforts from brands towards mainstreaming sustainable chemistry, sustainable innovation in the value chain and a firm commitment to best practices in the fashion industry to protect consumers, workers and the environment. The foundation oversees the Roadmap to Zero programme, a comprehensive set of guidelines towards better chemical and wastewater management in mills and tanneries through input, output and process management.

The ZDHC offers a holistic approach to greening the fashion value chain, offering not only science-based standards and targets, but also implementation support and capacity development. The key elements of its approach are:

25.– See Roadmap to Change. Available from https://www.roadmaptozero.com/.

- Establishing industry endorsed and industry aligned guidelines and tools for sustainable chemical management;
- Facilitating actual implementation of these standards in production facilities;
- Embracing a holistic stakeholder engagement process to empower producers at all points in the supply chain to manufacture safer products with minimal environmental impact.

The Leather Working Group

The Leather Working Group (LWG), founded in 2005, is a multi-stakeholder group that boasts more than 1,000 members from across the leather supply chain, including brands, suppliers, retailers and technical experts. The LWG has developed a leather manufacturer audit protocol.[26] It is a not-for-profit group that administers the most authoritative environmental certification in the industry. The group's audited tanneries represent approximately 16% of total global leather volume. Once a tannery is audited successfully, a certificate is issued. The certification is categorized into four levels: gold, silver, bronze and audited. Each rating entails the attainment of minimum scores in the level. The audit protocol criteria include waste management and effluent treatment. The effluent treatment aspects contributing to the scores include:

- Provision of separate site drainage system (for surface run-off, sanitary effluent and process effluent);
- Wastewater treatment plant operations;
- Salt discharge;
- Monitoring of wastewater discharge quality;
- Verification of monitoring of wastewater discharge;
- Wastewater discharge quality.

Due to the high costs involved, LWG ratings are difficult to reach for small tanners and particularly tanneries in developing countries.

Sustainable Leather Foundation[27]

The Sustainable Leather Foundation (SLF) is a non-profit organization formed in 2020 to support the global leather industry to comply with the three pillars of sustainability – environmental, social and governance responsibility. The foundation's aim is to provide industry, retailers, brands and other value chain customers with tools to strengthen their sustainability storytelling, while collaborating throughout the leather industry to streamline certification standards in a transparent and inclusive way. They achieve this with their SLF Transparency Dashboard™ linked to a certification standard that assesses the compliance and performance of leather manufacturers and associated facilities with the three pillars. The SLF audits are focused and affordable, and thus easier for small tanneries to join.

The international leather and leather goods value chains are making concerted efforts towards going green and reducing their ecological footprint. Most of this change is driven by large global fashion brands, who require the suppliers in their supply chains to adhere to internationally agreed standards on wastewater and chemical management. For Pakistani businesses, being unable to comply with these standards creates a risk of being left out of global supply chains and represents a high cost in missed export market opportunities. It is thus of paramount importance, both environmentally and economically, to empower Pakistani businesses in improving compliance. Despite the presence of comprehensive global standards and best practices, such as those promoted by international initiatives like the ZDHC, LWG and SLF, an understanding of the necessary steps towards compliance is lacking among Pakistan's small tanneries. Local policymakers, enforcement authorities and manufacturers find it difficult to align local legislation with international standards due to this information asymmetry. Even when there is a fair understanding of the sustainability requirements from global brands, poor access to finance and inadequate technical capacity thwart better compliance.

26.– See the audit protocols. Available from https://www.leatherworkinggroup.com/how-we-work/audit-protocols/leather-manufacturer-audit-protocol-7-0.

27.– See SLF Transparency Dashboard. Available from https://www.sustainableleatherfoundation.com/.

Competitiveness constraints

The value chain diagnostic above outlines the operations of the leather and leather products industry in Pakistan. This section provides an overview of the constraints faced by stakeholders at each stage in the chain. To remain realistic and resource-efficient, this strategy will not be able to focus on all the issues affecting the value chain. An informed selection of the most important issues is made. To assess relative importance, criteria used are the level of disturbance (perceived by national stakeholders) and the ease of resolution (both in terms of cost and time involved) (Table 11).

Table 11: Longlist of competitiveness constraints

Constraints	Root causes	Ease of resolution (Grade 1-5; 5- very difficult)	Urgent action needed (Grade 1-5; 5- very urgent)
Supply level			
Availability of raw materials	Pakistan has one of the highest livestock populations in the world. However, despite the size of its livestock population, the industry complains of a lack of available raw H&S for the tanning industry. One of the most important reasons that the supply of raw material is severely affected is due to smuggling of a huge number of live animals to other countries such as Afghanistan and Iran.	3	5
Ineffective supply chain	Inefficient supply chains, resulting in wastage of raw materials. Negligence and absence of technical skills lead to quality deterioration of leather at pre-slaughtering, during slaughtering and post-slaughtering stages.	2	5
Cost of doing business	High cost of inputs such as electricity and gas.[28] • Pakistan's leather industry pays 22.2% higher per kWh consuming electricity compared to India and Bangladesh. • Gas consumption: 156.7% higher per MMBtu compared to Bangladesh and 63.8% higher than India. In comparison to Bangladesh and India, Pakistan pays 98.5% and 17.4% higher wages to labourers working in the leather industry.	5	5
Production and processing levels			
Lack of modern technology and tools	• The industry's potential to meet both domestic and international demand is constrained by the absence of modern technology and equipment. • The technological gap can partly be explained by customs duties imposed on the import of machines used in the industry.	2	4
Lack of adequate skills transfer	• Shortage of skilled and semi-skilled labourers.	2	4
	• Most of the business are family run and operated; few firms invest in providing training to employees. • There should be a taskforce/training unit inside the tanneries.	1	5

28.– State Bank of Pakistan Annual Report, SOE, 2017.

Constraints	Root causes	Ease of resolution (Grade 1-5; 5- very difficult)	Urgent action needed (Grade 1-5; 5- very urgent)
High import tariff for dyes, chemicals and organic surface-active agents	Approximately 90% of the inputs for production are imported. The import tariffs are relatively high, contributing to an increase in the cost of production, leading to high prices of finished products. • For dyes, Pakistan applies a minimum of 10.2% and a maximum of 13.3% import tariffs. • For chemicals, Pakistan imposes a tariff rate of 6.1%–9.5%. • Import tariffs on the organic surface-active agents used in leather tanning are 13.3 %–18.2%.	5	5
Low value addition	The industry is lagging in terms of product diversification and value addition. Most of the sales are intermediate items to other countries for further value addition.	3	4
Lack of certification	The international market demands product certification or firms' registration with an internationally accredited agency or platform to certify that the products and firms involved in trade comply with quality, environmental, health, social and safety standards. Currently, only 14 manufacturers from Pakistan are LWG[29] members, while the registered members India are 192.	5	5
Low environmental compliance	Leather tanneries in Pakistan produce all three categories of waste: wastewater, solid waste and air emissions. However, wastewater is by far the most important environmental challenge faced by Pakistan's tanneries.	5	5
	Wastewater: The current practice is to discharge this water into the local environment without any treatment.	5	5
	Air emissions: There are two sources of air pollution from tanneries in Pakistan – emissions from generators (diesel-based and operated only during power breakdowns) and from boilers. Ammonia emission during processing and washing of drums, though intermittent, but important, has adverse effects on workers' health.	3	4
	Solid waste: Two types of solid wastes are generated from leather production processes (i.e. tanned and untanned). The solid wastes have secondary use in glue manufacturing and poultry feed making, etc. However, the use of chrome-containing solid waste for poultry feed preparation can cause serious health problems for poultry consumers.	5	5
Gender equality	There is no female labour in the professional animal husbandry, food and leather production chain, whereas in the rural areas with home-based animal raising, female labour is common. In the final product production, there was a relatively important female labour input in the past, which has steadily reduced due to cultural barriers and a patriarchal society.	5	5
Logistics and distribution at market levels			
Improper handling of raw materials by intermediaries	Lack of capacity building, incentives and knowledge.	1	5
Lack of international success of Pakistan Mega Leather Show	Negligible presence of foreign buyers. More perceived as a local social event of the value chain than a commercial event.	2	3
Lack of purchase interest from brands	Lack of interest by tanners to supply brands, augmented by non-compliance with sustainability goals.	2	3

29.– The Leather Working Group (LWG) aims to ensure and promote environmental compliance in the production of leather commodities involved in international trade.

Deeper discussion of selected priority issues

TOP ISSUES AT SUPPLY LEVEL

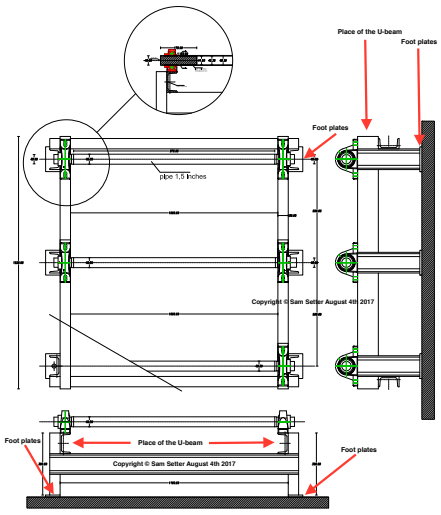
Limitations in the supply chain of raw materials

Raw materials must be of quality and traceable

The current quantities of exportable and high-quality primary production are relatively low due to a number of reasons, most of them rooted in the fact that most producers are small-scale herders or rural animal keepers and that the animal is raised to produce milk and/or work in the fields. The production of meat will only take place when the animal is incapable of reproducing, stops producing milk and becomes unable to work in the fields. This small scale limits the human and financial capacities, and the mechanization of production. Among the numerous issues producers face, the following categories have the most impact on their competitiveness:

- Quality and quantity of hides and skins: The hides and skins, not being a primary product, but a waste product of the meat industry, are not being considered of any value until after slaughter. Before slaughter, animals are frequently whipped, and can be exposed to insect bites or contract injuries from bushes or barbed wire. During slaughter, the focus is on meat production and, hence, the less meat that remains on the hide or skin, the more saleable weight is available for the meat trade. Combined with the requirement to move the meat from the slaughter facility as quickly as possible to the market or shops, this causes a high risk of damage to the hide or skin by knife cuts and flaying holes. After flaying, the hide or skin needs to be salted to avoid the start of putrefaction, within a maximum of 120 minutes from slaughter. This often does not happen. The available quantity of hides and skins is determined by the state of putrefaction. There is a lack of flaying instruments such as specialized flaying knives or simple mechanical flaying tools such as the Static Flaying Frame (SFF) (Figure).

Figure 24: Flaying tools



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Source: Ralph Arbeid.

- Availability of chemicals: Pakistani tanners and leather goods producers depend largely on imported chemicals. The lead time can take up to three months, which causes a serious issue for tanneries' cash flow, as they need to buy large quantities to offset the lead time. This immobilizes their cash by up to six months, because the chemicals need to be bought with a letter of credit, then production time and shipment of the end product must be considered before the final buyer actually pays for the product and, hence, the chemicals the product contains. Locally made chemicals would drastically improve cash flow.
- Lack of environmental compliance: Pakistan's leather industry suffers greatly from the lack of environmental compliance. Few tanneries have their own effluent treatment plant and none of the tannery clusters operates a common effluent treatment plant (CETP) that is compliant with Pakistani environmental legislation and/or international standards.

  » Relevant activities in the PoA for supply level: 1.1.3; 1.1.4; 1.2.2; 1.3.5; 1.3.7; 2.1.2; 2.1.3; 2.3.1; 2.4.2; 2.4.3.

PRODUCTION AND PROCESSING LEVEL

- Limited levels of automation and old-fashioned equipment: Tanneries make very limited use of modern process control and process automation. The general mentality is 'why invest money in tools that we never needed in the past'. Tannery management do not consider or don't want to consider the enormous savings in water, chemicals, energy and effluents that result from modern equipment and tools. Modern equipment and tools have a payback period, as their investment is neutralized by their benefits in a relatively short period of time, which can be quantified in approximately three years.
- Limited corporate social responsibility (CSR): Tannery workers are not treated within the norms published by the International Labour Organization (ILO). Workers work in a dirty environment and are not protected from chemical or mechanical injuries.

  » Relevant activities in the PoA for production and processing level: 1.3.6; 2.2.1; 2.4.2; 2.4.4.

DISTRIBUTION AND LOGISTICS AT THE MARKET ACCESS LEVEL

- Total lack of gender equality: In rural areas, female labour is common at family level to tend to animals, such as herding and milking. At transport level, there is no female labour employed, nor is there in the tanneries. At the level of the production of leather goods, in the past, there was an important proportion of female labour, which has steadily reduced. This is a serious obstacle at end buyer level where female buyers in developed countries pay attention to gender equality.
- Certification: Only 14 Pakistani tanneries have been certified by the Leather Working Group (LWG). Brands and large distribution chains pay more attention to their supply line being certified by organizations like the LWG, SLF or others. In many cases, the lack of certification automatically excludes the supplier from any consideration by the buyer.

  » Relevant activities in the PoA for market access level: 2.1.1; 2.1.2; 2.1.4; 2.1.5; 2.2.1; 2.2.2; 2.3.2; 3.1.2.

Pakistan's leather sector's competitiveness is currently based on the nation's comparative cost advantages, derived from its abundant natural resources of cattle, goats and sheep, its relatively low labour costs and its comparative disregard for environmental and related social costs. The leather sector's production costs are subsidized to the extent that government policies (and their poor enforcement) fail to force producers to internalize environmental and social costs associated with sustaining the sector, including, most importantly, water resources clean-up, long-term health care and natural resource replenishment costs. Several factors hinder the growth of Pakistan's leather industry. For the tanning subsector of the leather value chain, the relatively high cost of imports of inputs and chemicals and the availability of raw material (i.e. hides and skins) represents its most significant competitiveness challenge. Additionally, only a few tanneries process finished leather for sale in the domestic market.

In the finished leather products subsector, Pakistan's lack of cost competitiveness results from the following three major constraints that disadvantage producers: (i) The high cost and low availability of domestically sold leather and leather inputs; (ii) Insufficient training and skills for production; and (iii) The high cost of electricity.

THE WAY FORWARD

Leather is a historical Pakistani sector that has built considerable experience and accumulated a wealth of expertise, which make it one of the pillars of Pakistani trade performance today. Yet even a well-established sector such as Pakistani leather is not immune to recent consumer demand changes. Globally, the leather sector is undergoing a profound transformation to demonstrate its relevance in the new global sustainability paradigm. This shift has already started affecting leather and leather goods manufacturers in Pakistan, and some actors have started building a response.

Unfortunately, this has not been taken forth by smaller actors of the value chain, which keep focusing on investments on productivity gains, disregarding sustainable production methods. This originates from industry stakeholders' traditional mindset. In the 1970s, the Pakistani leather industry was well ahead of its competitors in the region, with a push for transformation and modernization in the Rangiwara leather zone. With a keen eye on the future, important investments were made prioritizing equipment quality, longevity and productivity. Many of the machines that were bought then are still operating now. The trend then shifted to buying price-sensitive equipment, with quality and performance becoming fringe benefits.

To make the Pakistani leather industry attractive to international buyers, there is a need for change in the mindset to one that encourages following the international industrial trend. These changes, albeit costly and long term, are necessary. Gradually, if enacted, these can bring drastic improvements to the sector. If this change of mindset and adoption of new concepts is not incorporated, the Pakistani leather value chain risks being drastically redimensioned, with only a few compliant firms being able to survive.

Prerequisites for sustaining growth in Pakistan's leather sector

There is an urgent need to improve the industry's overall image. This is particularly true in Pakistan, as in some other countries where tanneries must engage in a 'facelift' of the factories and convert their present image of a dirty, dangerous, chaotic and asocial working place into an organized clean industrial environment, where workers are considered valued collaborators in the production process. Moreover, what is presently an all-male industry should gradually allow female staff to be involved in the production and management process. The following United Nations Sustainable Development Goals (SDGs) will directly or indirectly guide in reaching these goals: SDG 5 (gender equality) and SDG 8 (decent work and economic growth).

Investments should be made to make the processes inside the tannery more sustainable, focusing on the reduction of pollution by strict effluent treatment and control, and verified and certified by objective third parties. Similarly, tanneries should invest in the reduction of their use of chemicals and adopt modern processes that are now available from the chemical suppliers aimed at lower chemical consumption. Tanneries and leather goods producers should invest in modern equipment that is more cost efficient in the consumption of natural resources such as water, chemicals and electrical power and create fewer polluting and unhealthy outputs, process controls and production management. The leather industry's inability to take appropriate, adequate and durable action against pollution could undermine the attainment of several Sustainable Development Goals (SDGs) in Pakistan. These include SDG 13 (climate action), SDG 14 (life below water) and SDG 15 (life on land).

Tanneries and leather goods producers should rethink their supply chain and focus on traceable raw material supplies. Animal welfare should be part of the considerations a tannery makes when it purchases its raw materials. Likewise, the production process inside the tannery should be documented and traceable, as well as transparent. It should inform buyers and end consumers of the chemical content or at least that the chemicals used in the process are compliant

with international standards and benchmarks such as REACH, Zero Discharge of Hazardous Chemicals (ZDHC), Manufacturing Restricted Substances List (MRSL) and Restricted Substance List (RSL).

Moreover, Pakistani tanners are equipped to process large quantities of hides and skins according to the concept to produce large quantities to save costs. However, according to the present industrial concept for leather production, the drums in use are big and are constructed with an old engineering concept, which is not flexible to process both large and small quantities of hides and skins. New concept drums can also process, apart from their maximum capacity, reduced quantities of up to 25% of the maximum capacity without influencing the quality. Therefore, development of the leather supply chain has a significant impact on the achievement of SDG 12 (responsible production and consumption).

World views are changing and becoming more environmentally conscious and industries are adapting to this trend. There is a shift towards preserving natural resources and the economy is gradually finding ways to become circular to consume as little natural resources as possible. Recycling is part of this circular economy where garbage is now separated into degradable and biodegradable waste. Leather is partly biodegradable, with an increasing shift to becoming fully biodegradable. To achieve this vision, big chemical suppliers of the leather industry are investing in recycling and biodegradability of processed materials, while leather manufacturers are encouraged to improve water quality. This would directly lead to achieving SDG 6 (clean water and sanitation) that can be reached by reducing pollution, minimizing the release of hazardous chemicals, increasing water recycling, safe reuse of water and reduction of water consumption.

Increasing transparency in tanneries is an ongoing endeavour for all parties in the leather industry. For more than a decade, the social partners have consistently demonstrated that leather making is good for people, the planet and prosperity. They have communicated to consumers that, when leather making is performed responsibly, it fulfils important societal needs. Tanneries in developed countries are not comparable with the dreadful images of irresponsible operators, who are mostly found in developing countries, conveyed so often through the internet and social media. Pakistani leather value chain operators should actively support the improvements within their value chain and promote such plants combining craftsmanship and art in an industry that exemplifies better than any other the circular economy. Positive and lasting impact can only be created through collaborations. Leading leather industry organizations in Pakistan must be open to collaborations in which they can share their knowledge, expertise, technology and financial resources (SDG 17 – partnerships for the goals).

Based on the analysis and findings of the Pakistani leather industry and the competitiveness challenges and opportunities it faces, this section provides recommendations for strategic targeting of key products and markets, and puts forward actions to strengthen the industry's competitiveness.

Key drivers of change and how the sector should adapt

Changing patterns of consumer demand and production in the leather sector means that Pakistani producers will need to adapt to succeed in international markets. The strategy design process considered current capabilities and constraints, and future shifts and opportunities for Pakistan's leather and leather goods sector, and industry stakeholders extensively evaluated future orientations and upgrading trajectories.

Moreover, by solving some of the key competitiveness and growth constraints, Pakistan's leather and leather goods manufacturers can position strongly for export growth. It is necessary to set some strategic objectives for the short to medium term to drive sector transformation, and prioritize key actions. These strategic objectives for the sector's development are reflected in the strategic foresight and the future value chain, which is the result of consultations, surveys and analysis conducted as part of the leather and leather goods sector strategy design process, and is rooted in the document's diagnostic section. The future perspective offers resolutions to the current issues and provides responses to the opportunities, and has two main components:

- A market-related component involving identification of key markets for Pakistani exporters;
- Structural changes to the value chain that result in strengthening of linkages or introduction of new linkages.

STRATEGIC FORESIGHT

Technological advances, environmental compliance and changing demographics are broad and interconnected megatrends that have driven profound changes in the leather and leather goods industries. To better understand these disruptive changes and how they will affect the current ways of working within the sector, the leather sector's participants used the Ride Two Curves[30] tool (Figure). The first curve assesses today's ways of doing things and which of those will remain strong and competitive into the future (i.e. will remain as residual assets for Pakistan), while the second curve assesses the current innovations and trends already seen in Pakistan and globally, and how these will influence the future strategic orientation of Pakistan's leather and leather goods sector (i.e. tomorrow's way of doing things).

Deriving from this, Table 12 examines these specific drivers at each level of the value chain (starting from animal husbandry and the food chain, all the way to leather production and the final product) that are most likely to steer the changes in the sector in the future. Pakistan is gradually losing market access due to several factors based on changed consumer demands, which mostly focus on animal welfare, and social and environmental compliance. Some key messages that emerge from this exercise are presented in Table 12.

Table 12: Summary of stakeholder perspectives on future trajectories

Residual assets	Strategic shifts
Some compelling residual assets include the technical knowledge and know-how of production, steady supply of raw materials, brand value and design.	Some compelling strategic future shifts could include stricter compliance with international standards, biodegradable products, proper animal welfare and traceability of products, and an increase in consumer preference for long-lasting sustainable products.

Source: ITC.

THE FUTURE VALUE CHAIN

Unlocking the potential of the Pakistani leather and leather goods sector will require transformations throughout the value chain. These adjustments, as reflected in the future value chain schematic (Figure 27) are the result of the targeted efforts detailed in the strategy's PoA that address the constraints identified in the competitiveness constraints section. The future value chain will be characterized by:

- Improved quality of hides and skins brought about by the training of farmers;
- Incentives and skills building provided to slaughterhouses;
- Improved preservation of input distribution;
- Improved overall coordination and governance;
- Enhanced forward planning and trading capacities;
- Increased market development;
- Investment attraction.

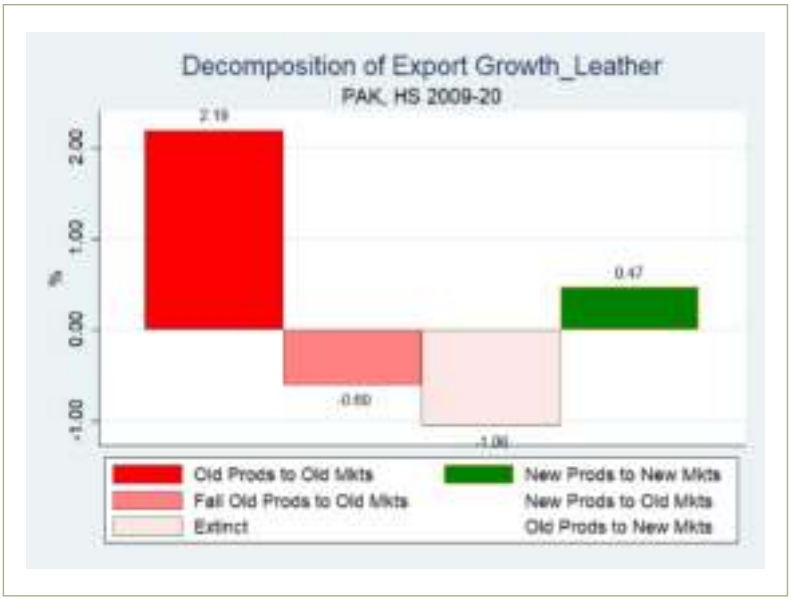
Leveraging market opportunities

The Pakistani leather and leather goods industry has great potential, owing to the large livestock population, and hence an uninterrupted supply of raw material, a well-established network of buyers and technical know-how within the sector. Markets have been identified on the basis of market size, demand for products, technology, development and the sustainability of the end product industry in the near- and long-term future. Present trade relationships have also been considered. The data for the broad categories of HS 4107, HS 4112, HS 41113, HS 4202 and HS 4203 from the ITC Trade Map have been taken as an indication of market potential in the target markets.

An analysis of the source of export performance (Figure) confirms that the majority of growth in Pakistani leather and leather products exports in 2009–20 was generated through an increase in exports of traditional products to existing markets. There has been some small product diversification, with registered growth in new products to new markets. The low degree of diversification in the last decade reflects weak technology adoption, limited access to finance and a number of supply-side constraints. The following section identifies opportunities for Pakistan to leverage to overcome these challenges.

30.– Ride Two Curves © 2017 Institute for the Future. All rights reserved.

Figure 25: Decomposition of Pakistan's export growth



Source: ITC calculations based on United Nations Comtrade statistics.

The domestic leather and leather products industries are always important, as the initial requirements are not stringent and can take care of low selections and products. It gives an opportunity to local tanners and product manufacturers, as the scale, and hence the risk, is low. It also provides an opportunity to develop the local industry to curb imports and develop the local talent pool. However, the local capacities of tanners and product manufacturers must also be challenged by the more stringent requirements of foreign buyers. That experience is required for the sector to grow to a point where it can compete in global markets and, eventually, attract the foreign capital, technologies and expertise needed to move it up the value chain.

Based on Pakistan's trading relationship and expectations for future growth, the market of North America, Europe and South-East Asia (Republic of Korea, and Japan) are expected to be particularly important export markets for leather products from Pakistan. Succeeding in these markets will require exporters to adapt to these markets' requirements and expectations, including strong environmental, social and labour regulations, increasing female workforce in tanneries and maintaining strong regulatory compliance. Gradual approaches will be needed to increase the share in these markets.

Structural adjustments to the value chain

Tapping into the potential of the leather and leather goods sector growth in Pakistan will require modifications throughout the value chain. The following segments of the value chain are foreseen as key focus areas for achieving the future value chain. The strategy aims to improve and modernize animal husbandry and flaying practices at the farm level as well as skills and practices in slaughterhouses for flaying, preserving and storage. This will lead to direct improvements in the quality and quantity of raw materials for tanneries.

1. Improved R&D, innovation and technology

The future performance of the Pakistani leather and leather goods sector will largely be determined by its ability to integrate new production techniques, develop new products and stimulate innovation between sector operators. Innovation and R&D will be encouraged mainly at tanneries and at the leather products manufacturing level. The strategy aims to develop partnerships between operations to encourage innovation and develop or adapt new technologies. It also aims to stimulate investment, partnership and awareness, and to encourage the adoption of new technologies such as affluent treatment plants, renewable energy and cleaner technologies.

2. Modernization of slaughter techniques and facilities for better quality and efficiency

The modernization of slaughter techniques and facilities is a determinant of the sector's future performance. Improved operations with enhanced monitoring and control of flaying by the relevant authorities will minimize losses in the skins, improve the prevailing sanitary conditions and introduce a grading system for skins.

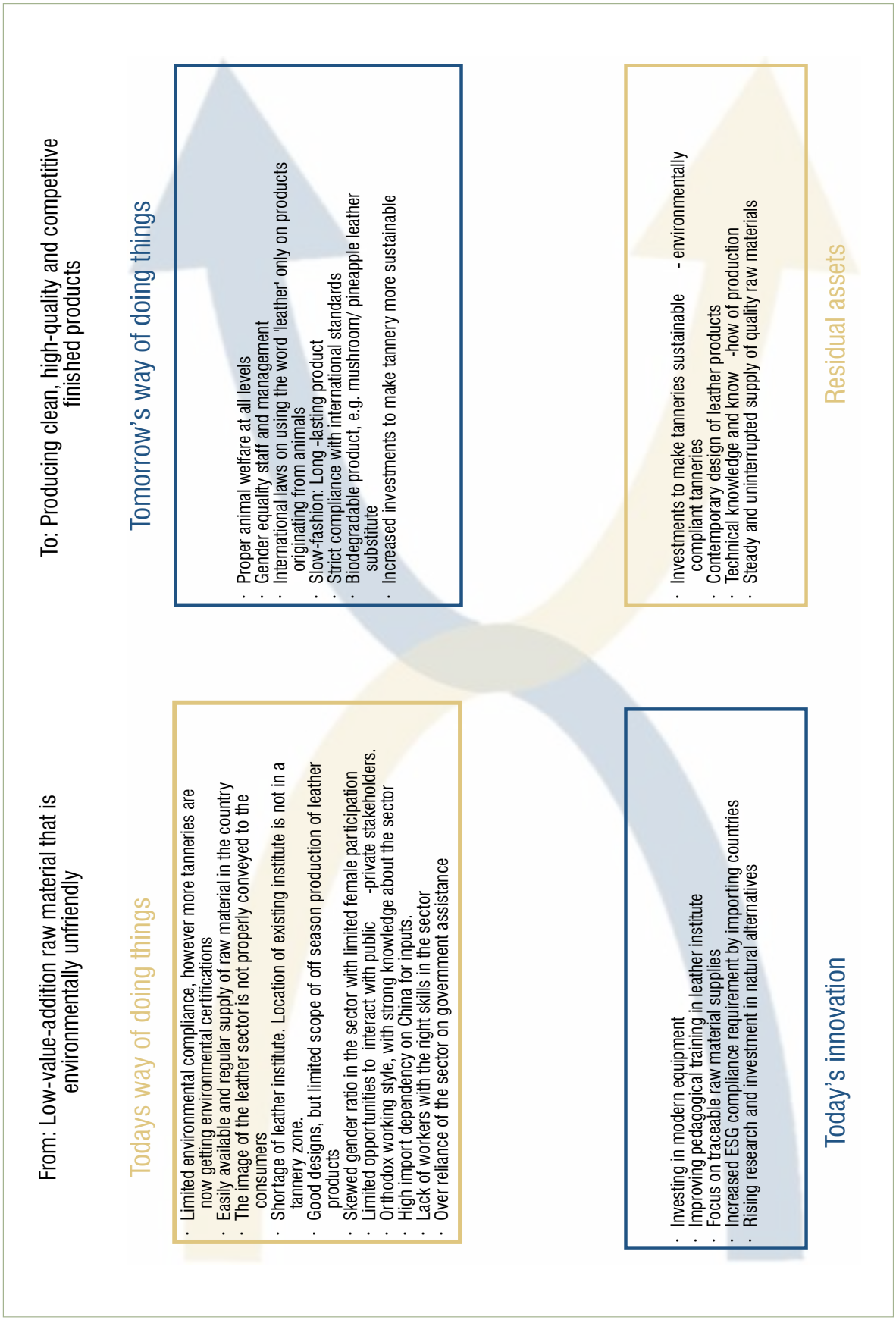
©ITC

Standards and grading of skins will also improve prices and thus incentivize slaughterhouses to improve their practices. Realization of these improvements depends on significant investments in new and upgraded mechanized abattoirs and slaughterhouses. Currently, it is estimated there are only 34 government-approved slaughterhouses, which needs to increase to match demand and reduce street slaughter.

3. Improved environmental management across the value chain

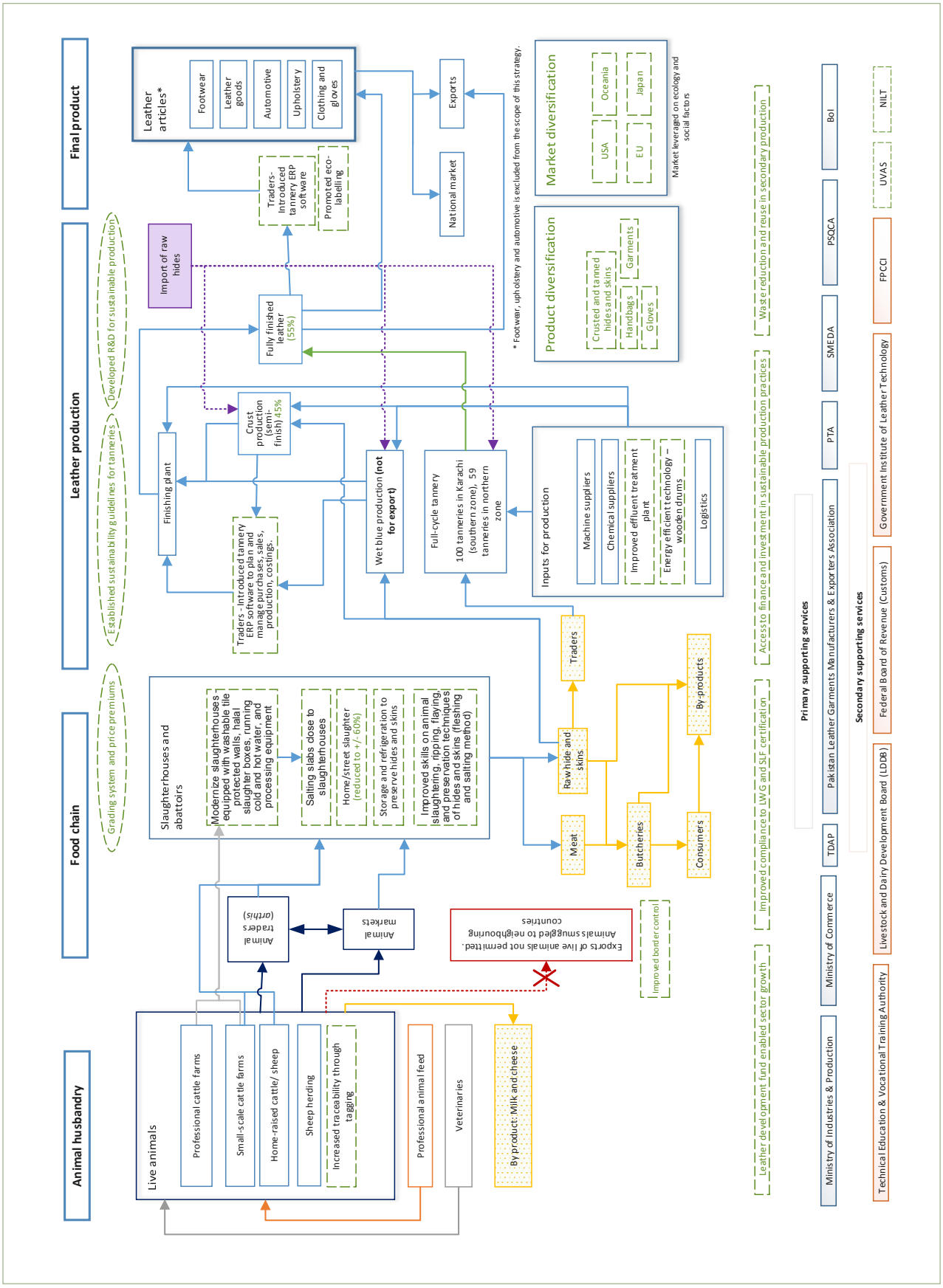
With the leather industry being considered a very polluting industry and with increasing demands from consumers for environmentally friendly products, it is important for the future value chain to improve environmental efficiency. In order to green the value chain of the Pakistani leather and leather goods sector, a number of actions will be undertaken. At the slaughter level, the strategy foresees better collection of hides and skins to reduce the amount of solid waste, including minimizing waste during the Qurbani season. A large share of the greening efforts focuses on tanneries having improved access to technologies to reduce consumption of water and energy, better management of water and solid waste through establishing effluent treatment units, and increased compliance with SLF and LWG certifications. Better application and monitoring of environmental standards in tanneries will contribute to strengthening environmental management across the value chain.

Figure 26: Ride Two Curves exercise



Source: ITC, adapted from the Institute for the Future.

Figure 27: Future value chain



Source: ITC.

ORIENTATION 1: ALIGN SECTOR INPUTS WITH SUSTAINABILITY STANDARDS

Animal husbandry: The keeping of cattle and small ruminants in rural areas is the livelihood of families and, hence, should not be changed, but the families should be made aware that animals have a comprehensive value for milk, labour during their lifetime and, after their useful period at the farm, for meat and hides. A happy well-fed and well-treated cow, sheep or goat produces superior-quality milk, meat and hide, and hence has a better value than a less-tended or whipped animal. The proof is that animals raised for the Qurbani festival (Eid-Al-Adha) are bigger, fatter and fetch a better price in the markets than non-Qurbani animals. Their hides and skins are also superior in quality to those of non-Qurbani animals.

Box 4: Qurbani season

Qurbani is a religious sacrifice of 5–8 million animals in three days during the festival of Eid-Al-Adha. The resultant skins and hides are the cheapest raw material for the leather industry, which fulfils 25%–40% of their annual demand. In addition, the quality of skins and hides of these animals are of a premium value (in terms of size and quality), as the animals are specially reared with care and love for the event on special feed and fodder. However, the material is ruined by bad flaying and bad conservation techniques. The festival generates economic activity of approximately PKR 242 billion, including PKR 234 billion through animal sales, PKR 6.54 billion through purchases of hides and PKR 2.6 billion through allied industries.1 In the last few years, Eid-Al-Adha has been celebrated during the country's peak hot and humid season. The expected average shelf life of H&S at such extreme temperatures and humidity is approximately 2–3 hours. Of the total slaughtered animals, 70% of H&S get putrefied before reaching the tanneries, which is a huge loss for the leather industry as well as for Pakistan. In 2020, both tanners and hide dealers endured an estimated loss of approximately PKR 1.5 billion in the shape of putrefied H&S due to the hot and humid weather, lack of awareness and improper management of raw stock.

1.– Business Recorder (August 2018). 'Eidul Azha gives boost to leather industry'. Available from https://fp.brecorder.com/2018/08/20180828402490/.

Slaughterhouses: Slaughtering practices needs to be regulated by law, with minimum standards at both industrial and non-industrial levels. These should be applicable to both government-owned and private-owned slaughterhouses, as well as slaughter slabs. The criterion for regulations include waiting spaces for animals, their humanitarian introduction into the slaughterhouse and slaughter in a dedicated enclosure where the animal cannot see bleeding carcasses. Halal slaughter boxes are readily available and their introduction would drastically change the image of slaughtering in Pakistan. Larger slaughterhouses could introduce hide fleshing machines, which would allow for the recovery of uncontaminated fat, which can create revenue for their use for cooking, cosmetics and pharmaceuticals, etc. The fresh fleshing of hides at slaughter level would also positively contribute to the conservation of the hides, as the penetration of salt after fleshing will be more effective without the fat barrier. The meat processing sector needs to invest in treatment and recovery of the processing waste and by-products and become transparent by publishing data and live images of the interior of slaughter facilities. The result would be a significantly healthier hide and higher-quality finished leather.

Required investments

- Animal welfare requires awareness building at grass roots level with smallholder farmers and traders who provide the transport of the animals, as well as slaughterhouse workers. Where legislature is not available or enforced, laws should be written based on international norms that regulate the minimum acceptable conditions for the transport of animals. Such a law should regulate the minimum individual space for each animal on a transport, the provision of food and water as well as the maximum time acceptable that an animal can be transported per sector *(related to PoA Activity 1.1.2).*

- An important investment to streamline this constraint could be the introduction of an identification system for all livestock at birth, such as ear tags or embedded radio frequency identification (RFID) tags. It would introduce a traceability system at livestock level that is of value throughout the value chain up to the final product.

- Legislation should be revised and investments should be made to:

- » Prohibit home and street slaughter (related to PoA Activities 1.3.2 and 1.3.3);
- » Set up a countrywide awareness-building programme in animal welfare and food safety (related to PoA Activity 1.1.3).
- » Create (cooperative) slaughter centres in rural areas with proper buildings, with proper waiting areas for live animals and tiled slaughter rooms with overhead rails. These mini abattoirs must be provided with running water and facilities to collect slaughter waste and by-products such as blood, stomach and intestine content, which can be sold and used for agricultural purposes such as chicken feed and fertilizers (related to PoA Activities 1.3.3 and 2.4.1).
- » Provide operators with the appropriate tools for slaughter operations, such as halal slaughter boxes (Figure), pulleys to hoist the carcasses to rails and proper skinning knives for skinning operations, as well as mechanical dehiding equipment such as the Static Flaying Frame© by Sam Setter (related to PoA Activity 1.3.5).

Figure 28: Halal slaughter box

Source: Ralph Arbeid.

At the early stages of implementation, investment for slaughter boxes and hide-pulling equipment may not be profitable in the rural areas, but changes can be introduced by the construction of small, tiled slaughterhouses, balanced in size adapted to the production requirement, rather than random slaughter in the streets or in front of butcher shops with blood flowing freely. Centralized slaughter would allow for better-organized conservation of the hide and skins, as salting can be done right after slaughter.

ORIENTATION 2: IMPLEMENT EFFICIENT AND SUSTAINABLE TANNING METHODS TO ALIGN WITH GLOBAL TRENDS

Tannery: With a few exceptions, tanneries in Pakistan were built decades ago in the out-of-town industrial areas, which have been incorporated in the cities' expansions. The areas that were conceived with open spaces are now overcrowded and over-constructed, with only a minimum of infrastructure. The first impression of the tanneries' conditions is mostly negative due to the overall environment. It needs to be acknowledged that there are a few exceptions of modern tanneries with a keen eye on the presentation of their premises, with well-tended gardens and well-organized, clean production floors, and these should be considered an example for their fewer representative colleagues. The tannery should not be perceived as a dirty place with workers wading in dangerous liquids, where little can be improved, but rather as an organized factory with clean and safe production floors.

Required investments

Investing in advance technology: Wooden drums are produced all over the world, including locally in Pakistan. Their quality is determined by the type of wood that is used and the construction technology on how the wood is used. The best types of wood are African hardwoods such as Kanbala (Iroko), Ayan (Movinguy) or similar. Pakistani drum producers do not use these recommended types of wood and, hence, are able to offer a cheaper drum, with a much shorter production life. Worldwide, tanneries tend to substitute wood as the construction material of drums in favour of polypropylene (PPH), which is recyclable and more versatile in its use, and suitable for all processes.

Moreover, there is a difference between the traditional and modern types of internal drum construction. The modern type of drum construction aims at sustainability and, although it is more expensive than the traditional interior layout, over time, the excess in investment

returns in terms of cost savings on water, power and chemicals. Furthermore, modern drums have a higher capacity, which means that a tannery could either buy fewer drums or buy drums of smaller dimensions. A generic example of the principle is shown in Table 13 (related to PoA Activity 2.4.4).

Table 13: Investment example: High-capacity drum

Production (in tons) of raw hides per day: 20			
Drum requirement	Quantity	Unit cost	Total
Traditional liming drums 4.00 x 4.00 m wood	4	65	260
High-capacity liming drums 4.20 x 4.50 m wood	2	95	190
Traditional tanning drums 4.00 x 4.00 m wood	2	65	130
High-capacity tanning drums 4.20 x 4.50 m wood	1	95	95
Traditional re-tanning drums 3.00 x 2.00 m PPH	3	49	147
High-capacity re-tanning drums 3.00 x 2.00 m PPH	2	65	130
Total drum investment, traditional			537
Total drum investment, high capacity			**415**
Saving investment ,high capacity			**122**

Source: ITC international consultant, Ralph Arbeid.

In Table 14, the investment cost of the high-capacity drum from the example mentioned in Table 13 is compared to the consumption savings for water, energy and chemicals based on the costs reported by Pakistani sources for consumption commodities. Payback time for the whole investment could be as short as one year, three months, after which the savings can be added to the production profit.

Table 14: Calculation of payback period

Production in kg raw hides:

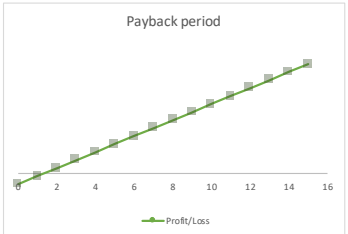
Input data

Initial investment	415.000,00 €	
Total investment drums	21.900,00 €	
Water saving by high-tech drums in %	40%	
Total water saving per year		8.760,00
Total energy cost per year	384.000,00 €	
Saving rate energy high tech drums	30%	
Total energy savings per year		115.200,00
Total chemical consumption per year	1.824.000,00 €	
:al saving with high-tech drums per year	5%	
Total saving chemical		91.200,00
Effluent treatment cost per year	111.325,00 €	
Saved water %	40%	
Total saving effluent treatment		44.530,00
Total quality loss low grain per year	100.000,00 €	
Reduced quality loss low grain	50%	
Total saving low grain		50.000,00

TOTAL saving per year 309.690,00 €

Year	Savings per year	Profit/Loss
0	-415.000,00	-415.000
1	309.690,00	-105.310
2	309.690,00	204.380
3	309.690,00	514.070
4	309.690,00	823.760
5	309.690,00	1.133.450
6	309.690,00	1.443.140
7	309.690,00	1.752.830
8	309.690,00	2.062.520
9	309.690,00	2.372.210
10	309.690,00	2.681.900
11	309.690,00	2.991.590
12	309.690,00	3.301.280
13	309.690,00	3.610.970
14	309.690,00	3.920.660
15	309.690,00	4.230.350

Payback period: **1,3** years



Source: ITC international consultant, Ralph Arbeid.

Similarly, as for new-tech drums, the introduction of process control, process automation, ERP and Industry 4.0 will have a payback period of its investment through the savings of consumables, elimination of human error and increased efficiency (related to PoA Activity 2.1.6).

Leather production: The leather value chain subsector that will require the largest investment is tanning, as it is the most industrial sector using a very extensive range of equipment and workers.

- Significant investments are to be made in creating a compliant effluent treatment system. Whether that is as centralized plants or individual (total or pre-treatment) plants depends on the location of the tanneries in question. The treatment technology needs to be updated and upgraded to be compliant with local legislation and internationally recognized standards. Proper effluent treatment is the first significant, and most expensive, step towards compliance with auditing facilities such as LWG and SLF. Compliance will allow a more consistent number of Pakistani tanneries to be audited and obtain international certification and, hence, have access to buyers that are not currently accessible (related to PoA Activities 2.3.1, 2.3.2 and 2.3.3).

- Gradual substitution of production tools from inefficient outdated equipment to new efficient equipment (related to PoA Activities 1.3.5 and 2.1.2).

- Introduction of professional tannery management software that covers all requirements for purchase, sales and production, and also allows management access via the cloud to access all data concerning purchase, production and sales from wherever the management is located[31] (related to PoA Activity 2.1.6).

- Upgrade the tanneries from the perception of dark, dirty, disorganized working places to modern, clean, well-organized and properly illuminated production units. Introduction of governance and social responsibility modules to make the tannery more efficient and safeguard workers in a socially acceptable healthy working environment. Introduction of green areas to offset at least part of the CO_2 creation (related to PoA Activity 2.1.4).

Market focus and strategies

- Domestic market, raw hides and skins:
  - » Leather industry should impose minimum supply requirements of hides and skins to the input suppliers;
  - » Increase collaboration between tanneries and manufacturers of final leather articles (related to PoA Activity 3.1.2).
- US and EU export market for crusted and tanned hides and skins:
  - » Set up a leather export promotion council (related to PoA Activity 3.1.1);
  - » Pakistani tanneries are mostly equipped for large, standard production quantities, which allow for little flexibility, and long and uncertain delivery times. Pakistani tanners will need to adapt to international market requirements, which demand precise and fast deliveries of small, quality consistent quantities on a need basis. These products should adhere to the international quality control certifications.

Required skills

Most value chain participants have technical skills, but there is a lack of modern management skills in tanneries, which needs to be improved (related to PoA Strategic Objective 2.2).

ORIENTATION 3: BOOST CERTIFICATION IN THE ENTIRE THE VALUE CHAIN

Social standards: Sales in today's consumer environment are very much linked to sustainability, corporate social responsibility, gender equality and labour conditions. Influencers are today's trendsetters, and the trend is animal welfare, good labour practices and gender equality. Brands and distribution chains have realized that they need to adapt and accept these demands to be able to place their products. Brands are now heading the trend demanding safe and clean working places for workers, sustainable products, and proper treatment in terms of remuneration, representation and freedom of choice. Gender equality is a sensitive matter in a country like Pakistan where tradition sees the place of ladies at home rather than in factories. Female involvement needs to be addressed and possibly promoted, including the peace of mind of female employees for their children with adequate centres where children can be tended to when the mothers are working. Equal pay for equal work is another important factor that would need to be looked at.

Compliance requirements: Pakistan's leather sector should engage itself jointly in compliance in each of the leather sectors and have that compliance certified. Slaughterhouses, tanneries, traders and leather goods manufacturers should engage to become members of at least one organization that offers certification that is

31.– It is to be noted that, in 2020, one Pakistani tannery acquired a specialized tannery ERP, which is under implementation since 2021.

acceptable to, or in many ways demanded by, brands and distribution channels in general. The best-known and longest-existing in the tannery environment is the LWG, but compliance with their protocol is usually quite an investment, because 'you need to get it all right at the same moment' and other certifications do not count in their auditing standard. The SLF, a non-profit organization that has only recently emerged, has a different approach through their Transparency DashboardTM that transparently certifies 'bits and pieces' of compliance and then makes them publicly available to producers, brands and consumers. These bits and pieces can expand, step by step, and hence become a whole set of conformances to complete the audit. Audits from other organizations such as the LWG, ZDHC and ISO are accepted provided that they comply with the SLF protocol, and hence there is no duplication of time or funds.

Coupled with the modular approach is the supporting documentation that is purposefully designed to help the leather sector understand the requirements and how to start the process. Finally, by raising the visibility of the work done through the Transparency Dashboard, the SLF can communicate better with consumers about the sustainability of leather as a material produced by the individual leather producer, transparently showing the work being done to mitigate risk.

Figure 29: SLF Transparency Dashboard

Open-source dashboard with accomplished compliance (green), work in progress (orange), not yet started (grey) and red (failed).

Detailed view of each compliance stage, visible only to paid partners.

Source: Sustainable Leather Foundation.

Transparency to producers, brands and consumers, each with focussed details. Particularly due to the negative publicity that is being launched against the leather industry in general, consumers are becoming increasingly susceptible to the sustainability and origin of the products they buy.

©ITC

Required investments

International leather value chains are making concerted efforts towards going green and reducing their ecological footprint. Most of this change is being driven by large global fashion brands, who require the suppliers in their supply chains to adhere to internationally agreed standards on wastewater and chemical management.

Leather goods production: The leather goods production sector of the Pakistani leather value chain is less disadvantaged than the leather production, although it suffers from the compliance gaps of the leather production sector, due to the fact that buyers view the whole production chain, hence they trace the origin of their purchases back in the production chain. If Pakistani leather goods producers buy leather from a non-compliant tannery, their goods are considered non-compliant. However, leather goods manufacturers in their own capacity are recommended to invest in:

- Modern and safe equipment (related to PoA Activity 2.2.4);
- Well-illuminated working environment with dedicated areas for restauration, crèche and kindergarten facilities, and first aid (related to PoA Activity 2.1.3);
- Gender-equal workforce (related to PoA Activity 2.1.5).

Market focus and strategies

In the past, Pakistan's leather value chain operators demonstrated their capability to market their products, establish contacts and attract buyers from all around the world. The key to success so far has been mutual understanding between buyers and sellers – the right product at the right price. However, markets have changed, and sales are not just based on personal relations, product and price. Sales are now also dominated by a set of different parameters, of which interpersonal relations, product and price are just parts. Ecology, ethics and social factors are also an important consideration by the main markets such as Europe, Oceania, Japan and North America. Markets demand green production methods, meaning less harmful auxiliaries used for the production process and less harmful by-products or waste products are produced in the process.

The Pakistani leather value chain's strategy should be:

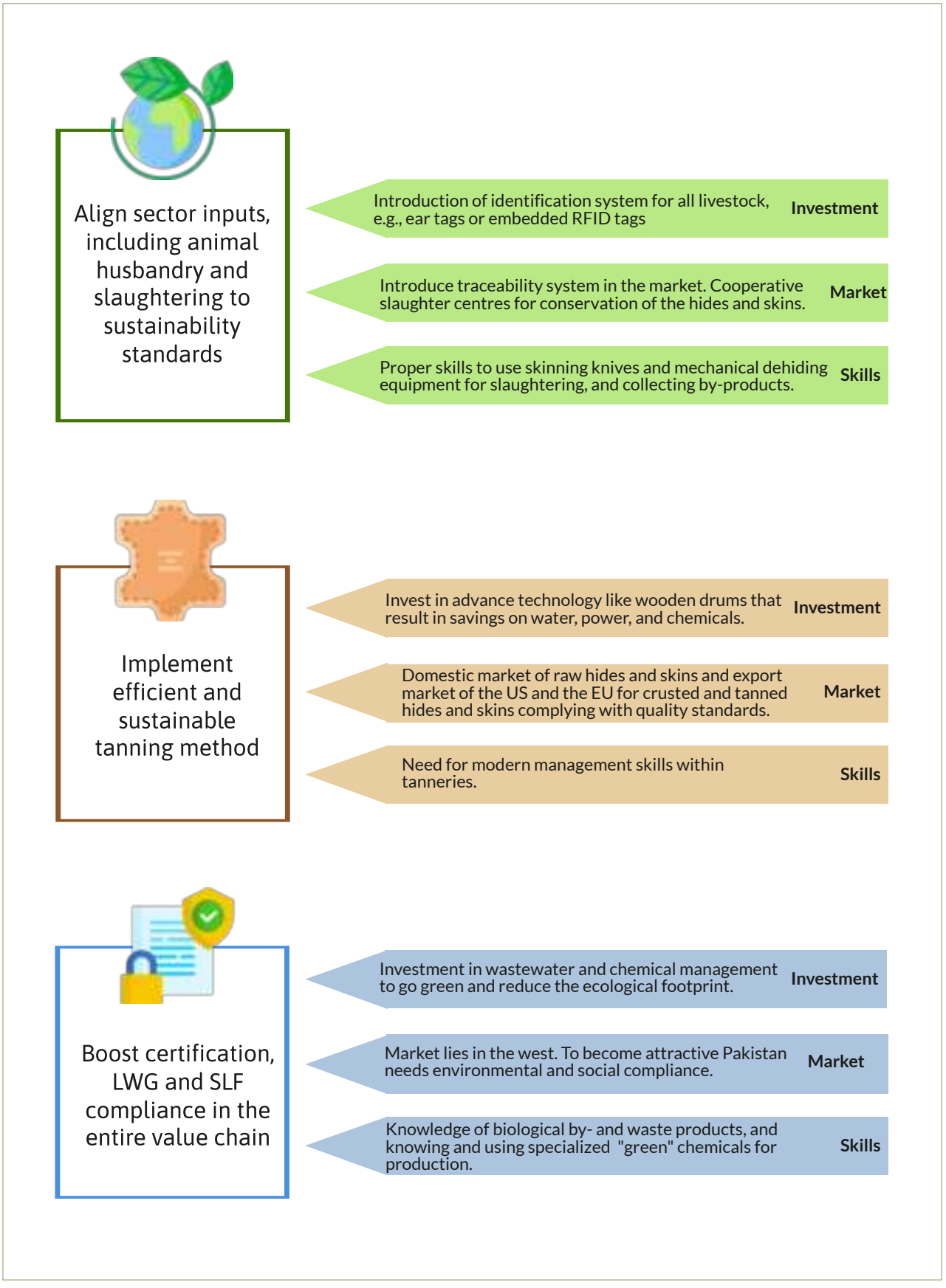
- Work towards recycling of liquid and solid waste.
- Find solutions for the use of leather waste after leather goods production by creating recyclable leather goods, thus closing the supply chain.
- Strive for compliance with international standards and obtain recognition through auditing agencies such as the LWG and SLF (related to PoA Activities 2.1.1, 2.1.2 and 2.1.4.).

Moreover, since the markets for Pakistani leather products lies in the Western world, to sell in Europe and North America, the country needs to invest in developing a detailed single-market penetration plan for possible market diversification to decrease reliance on select export destinations in Europe and reduce seasonality. Popular destinations could include countries in the southern hemisphere such as Oceania countries (related to PoA Activity 3.3.1).

Required skills

The main skills required are: (i) Profound knowledge of biological by-products and waste products of the meat processing industry; and (ii) For tanneries (the skills are purely chemistry based), knowing and using specialized 'green' chemicals for production.

Figure 30: Key drivers of change



Source: ITC.

The strategic framework

THE VISION

In the context of the STPF's broader vision for 'Pakistan to become a dynamic and efficient domestic market as well as a globally competitive export driven economy', its leather and leather products sector offers an important opportunity for industrialization and export diversification.

The vision for the Pakistani leather value chain is to amalgamate the success of past achievements in terms of production and sales with modern management techniques. The objective is to transform the present tanneries and leather goods facilities into sustainable smart factories that use sophisticated technology in their purchase, production and sales activities. Equally important, ensuring environmental regulations are adopted and enforced would provide a strong message regarding the vision for the leather industry.

To achieve this target and more, Pakistan's public and private sector leaders will need to collaborate and work intelligently to create this vision and strategy, implement actions and develop the conditions for a renewal of competitive strength and dynamism in the leather industry.

The following delineates this strategy's proposed vision and strategic approach to develop the leather and leather goods sector. The vision statement was agreed on by all sector stakeholders in Pakistan:

> **"Pakistan to be among the top exporting countries in the world for leather and leather goods, through investments in state-of-the-art technology, skilled human resources and safe environmental management practices in a socially viable environment."**

THE STRATEGIC OBJECTIVES

The plan of action (PoA) will respond to this vision by addressing the sector's constraints and leveraging opportunities in a comprehensive manner. The PoA will be structured around the following strategic objectives, agreed with all sector stakeholders.

Strategic Objective 1: Improve the input quality standard	• Throughout the value chain, and particularly at the upstream level with animal husbandry, incentives for quality should be aligned and identification systems promoted to ensure traceability of the hides and skins.
Strategic Objective 2: Build sustainable growth in the leather industry to expand access to markets	• Increasing access to markets for Pakistani leather goods is the key ingredient for the industry's success. To this end, the strategy suggests creating awareness and providing tools for domestic firms to coordinate the branding of Pakistani leather as one thatfocuses on quality enhancement and adoption of sustainable, clean technologies.
Strategic Objective 3: Strengthen the business climate for the development of the leather and leather goods sector	• Due to the highly fragmented structure of the Pakistani leather industry, the limited linkages among stakeholders, and lack of coherent and shared competitiveness policies, this strategic objective aims to strengthen collaboration within the industry between the private sector, government and other institutions.

IMPLEMENTATION FRAMEWORK

The objective of the Leather and Leather Goods Export Strategy for Pakistan is to create an enabling environment for the industry to realize its potential and benefit the country's image by leading Pakistan to be among the top exporting countries in the world for leather and leather goods, through investments in state-of-the-art technology, skilled human resources and safe environmental management practices.

Achieving this ambitious objective will depend on the industry's ability to implement the activities defined in this strategy. To structure sector development, it is recommended that the following interventions be implemented with priority:

- Preserve the quality of hides and skins through training on flaying techniques (PoA Activity 1.2.1) and develop awareness on hides and skins preservation (PoA Activity 1.2.2).
- Provide appropriate incentives for upgrading technology for tanneries to improve their production techniques (PoA Activity 2.1.2) and for small and medium-sized enterprises to request funds to conduct pilot training modules on manufacturing and production (PoA Activity 2.2.1).
- Build skills capacity of students interested in the sector through a Bachelors and Masters programme on leather technology (PoA Activity 2.2.3), and orient them towards apprenticeship training (PoA Activity 2.2.4).
- Reduce environmental impact through improved effluent treatment (PoA Activity 2.3.3) and enforced national environmental quality standards (PoA Activity 2.3.1).

MANAGING FOR RESULTS

The translation of priorities into implementable projects will contribute to achieving the substantial increase in export competitiveness and in export earnings envisaged under the strategy. These will be driven by reforming the regulatory framework, optimizing institutional support to exporters, and strengthening private sector capacities to respond to market opportunities and challenges. Allocation of human, financial and technical resources is required to efficiently coordinate, implement and monitor overall implementation.

Successful execution of activities will depend on stakeholders' abilities to plan and coordinate actions in a tactical manner. Diverse activities must be synchronized across public and private sector institutions to create sustainable results, and it is therefore necessary to foster an adequate environment and create an appropriate framework for the strategy's successful implementation.

Key to achieving the targets will be coordination of activities, monitoring progress and mobilizing resources for implementation. To that effect, industry representatives recommended that a public–private sector specific council for the leather industry be rapidly established, operationalized and empowered. The sector specific council is to be responsible for overall coordination, provision of policy guidance and the monitoring of industry development along the strategic orientation.

LEATHER SECTOR SPECIFIC COUNCIL

It is recommended that a leather sector specific council be rapidly established by the Minister of MoC and effectively organized by the TDAP and MoC to support the industry, with the capacity to steer its development strategically. The sector specific council is to be facilitated by a secretariat coordinated by the TDAP, supported and advised by the Pakistan Tanners Association.

Industry representatives recommend that the leather sector specific council be composed of the following members:

- Ministry of Commerce (MoC);
- Trade Development Authority of Pakistan (TDAP);
- Small and Medium Enterprises Development Authority (SMEDA);
- Pakistan Standard & Quality Control Authority (PSQCA);
- Board of Investment (BOI);

- Federal Board of Revenue (Customs);
- Livestock and Dairy Development Board (LDDB);
- University of Veterinary and Animal Sciences (UVAS);
- Pakistan Tanners Association;
- Pakistan Leather Garments Manufacturers & Exporters Association;
- Federation of Pakistan Chambers of Commerce and Industry (FPCCI).

It is recommended that the sector specific council be empowered to meet quarterly and implement the following functions:

- Create a shared understanding of key market challenges and opportunities facing the sector;
- Set goals and targets that, if achieved, will strengthen the sector's competitive position and enhance Pakistan's overall capacity to meet markets' changing demands;
- Propose key policy changes to be undertaken and promote them among national decision makers;
- Support the coordination, implementation and monitoring of activities in the sector by the government, private sector, institutions or international organizations to ensure alignment to goals and targets, as required to contribute to resource identification and alignment.

As part of the Strategic Trade Policy Framework (STPF) and the sector strategy design process, it has been recommended that an *inter-ministerial and multi-industry private sector* council be organized and structured to address overall challenges to and opportunities for Pakistan's trade performance. It is recommended that chairs of the sector specific council be members of the council to consult on key trade thematic areas ranging from policy to regulations and trade negotiations.

KEY SUCCESS FACTORS FOR EFFECTIVE IMPLEMENTATION

The presence of the sector specific council to oversee this strategy's implementation is a key success factor, but it is not sufficient to effectively fulfil its assigned functions.

Private sector support and participation in implementation

The private sector clearly expressed its willingness to contribute, directly or in partnership with public institutions, to the strategy's implementation. Their implementation efforts can range from providing business intelligence to institutions to contributing to project design, promotion and branding, and policy advocacy, etc. In brief, the private sector's practical knowledge of business operations is essential to ensuring that the strategy remains aligned to market trends and opportunities.

Proactive networking and communication

The key implementing institutions detailed in the PoA need to be informed of the strategy's content and the implications for their 2022-26 programming. This networking and communication is essential to build further ownership and provide institutions with the opportunity to confirm the activities they can implement in the short to long term. It will be important for the TDAP, MoC and members of the sector specific council to reach out to relevant institutions nationally to create awareness and support for the leather industry's development.

Resources for implementation

The sector specific council, in collaboration with the TDAP and the Secretariat at MoC, will need to leverage additional support for efficient implementation. Effective planning and resource mobilization is indispensable in supporting strategy implementation. Resource mobilization should be carefully planned and organized.

As the leather and leather goods industry is a priority sector strategy of the STPF, the Government of Pakistan should define annual budget allocations and support to drive the industry's growth. This commitment will demonstrate clear engagement towards strengthening the sector and encourage private partners to support development. In addition to national budget support, resource identification will require the Board of Investment to effectively target foreign investors in line with the strategy's priorities, such as the attraction of more commercial farmers. Investment flows to Pakistan should also be considered as a valuable driver of strategy implementation and overall industry development.

The various implementation modalities detailed will determine the success of the strategy's implementation. However, high-level support from the government, in collaboration with strong championship by the private sector, will be the real driver of successful strategy implementation.

The PoA is structured along the three strategic objectives and the operational objectives described above. For each objective, the PoA outlines detailed activities and their implementation modalities, which include:

- Priority level: Priority 1 being the highest and 3 the lowest.
- Period: The desired time-frame of the activity.
- Reform or project: Defines whether the activity entails a legal action.
- Targets: Quantifiable targets that allow completion monitoring of the activity during the implementation stage.
- Leading implementing partners: One single accountable lead institution per activity. (The institution can also have a technical role or can solely have an oversight and coordination role.)
- Supporting implementing partners: Any institution that should be involved at any stage of the activity's implementation.

PLAN OF ACTION (2023-2027)

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
1: Improve the input quality standard	1.1 Spread awareness and stimulate good animal husbandry practices	1.1.1 Build awareness through TV and radio programmes, and workshops among the livestock holders concerning the value of the hides and skins which can be increased by proper treatment of the animal.	1						Project	• At least 10 workshops on awareness building organized each year. At least 50% of farmers engaged. • TV advertisements and radio announcements in Urdu and other local languages.	Pakistan Tanners Association (PTA)	• University of Veterinary and Animal Sciences (UVAS) • National Institute of Health (NIH) • Ministry of National Health Services Regulations and Coordination, Government of Pakistan (MNHSRC) • Ministry of National Food Security & Research (MNFSR) • Livestock and Dairy Development Board • Provincial authorities
		1.1.2 Disseminate a guide to good transport practices of cattle. The guide should be designed referring to the FAO[32] or European Union[33] best practices modules.	2						Project	• Guide on transportation practices developed in English, Urdu and other local languages • At least 500 guides distributed among livestock owners ove the span of 3 years	PTA	• MNSFR
		1.1.3 Upgrade the University of Veterinary and Animal Sciences (UVAS) curriculum in collaboration with the Corporate Dairy Farmers Association (CDFA) on the training of trainers' programmes for farmers, on good husbandry practices for animal production, and food safety, including farm management; animal health management; veterinary care and medicines; animal feeding and watering; environment and infrastructure; and animal and product handling.[34]	1						Project	• UVAS curriculum updated • Training of trainers (ToT) programme created and conducted each year	University of Veterinary and Animal Sciences (UVAS)	• Corporate Dairy Farmers Association (CDFA) • Ministry of National Food Security & Research • Provincial livestock departments • Ministry of National Health Services Regulations and Coordination • Livestock & Dairy Development Board

32.– FAO. 'Transport of slaughter animals'. Available from http://www.fao.org/3/y5454e/y5454e05.pdf.

33.– EU 'Guide to good practices for the Transport of cattle'. Available from http://animaltransportguides.eu/wp-content/uploads/2016/05/D3-Cattle-Revised-Final-2018.pdf.

34.– Intervention areas as defined by the FAO and OiE World Organisation for Animal Health in their 'Guide to good farming practices for animal production food safety'. Available from http://www.fao.org/3/i0482t/i0482t00.pdf.

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
1: Improve the input quality standard	1.1 Spread awareness and stimulate good animal husbandry practices	1.1.4 Fast-track the implementation mechanism of financing to promote technology upgradation and equipment modernization.	1						Project	• Financial mechanism established. At least 60% of farmers report improvement in obtaining loans	State Bank of Pakistan	• Ministry of Finance • Ministry of National Food Security & Research • Provincial public sector banks
	1.2 Improve the quality of hides and skins at the field and farm level	1.2.1 Develop training of trainers (ToT) programme to provide training and education to slaughterhouses involved in the hides and skins value chains through video and animation tutorials. This training should focus on improving production and preservation techniques of hides and skins, and to provide participants with knowledge and practical skills on animal slaughtering, bleeding, ripping, flaying and processing of hides and skins.	1						Project	• ToT programmes created, and training sorganised quarterly to build awareness among farmers, livestock keepers and herders.	PTA	• Ministry of Commerce • Ministry of Industry and Production • Provincial authorities
		1.2.2. Circulate the existing campaign material developed by UVAS – Department of Leather & Fiber Technology - two months before the Qurbani season to communicate the best practices for conserving the hides and skins after the animal sacrifice.	1						Project	• Yearly communication campaign through adverts on television, social media, newspaper, video tutorials and radio campaigns two months before Qurbani	University of Veterinary and Animal Sciences (UVAS)	• PTA • Ministry of Commerce • Ministry of Communications
	1.3 Improve the operations of slaughterhouses	1.3.1 Encourage the clustering of slaughterhouses near tanneries and/or combined effluent treatment plants in all provinces.	1						Project	• At least 5 clusters each in all provinces formed each year	Pakistan Environmental Protection Agency	• Ministry of Industry and Production • Provincial Environmental Agencies • Ministry of Planning, Development and Special Initiatives
		1.3.2 Introduce and enforce regulations that legally empowers inspectors and grants them permission to prohibit street slaughter in government slaughterhouses in all provinces.	2						Reform	• Regulation enforced	Provincial Government	• Pakistan Agricultural Research Council (PARC) • Municipal government
		1.3.3 Build through public-private partnership co-operative slaughterhouses with effluent treatment plants in villages (both government owned and private) as an attempt to reduce street slaughters.	3						Project	• At least one cooperative slaughterhouse created per largest rural production area • Street slaughter reduced by at least 50% by 2023 and 100% by 2026	Ministry of National Food Security & Research	• Provincial livestock departments • Ministry of Climate Change

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
1: Improve the input quality standard	1.3 Improve the operations of slaughterhouses	1.3.4 Sensitize owners of both private and government slaughterhouses to the best practices (through external trainers, educational video clips in local languages,[35] and guidance manuals) for operating slaughterhouses and on the value of quality hides and skins to increase their revenue, by rewarding slaughterhouses with premiums on better-quality, machine-flayed hides without holes or cuts.	2						Project	• Video and training manuals created (in Urdu and local language) and disseminated among private and government slaughterhouses • At least 60% tanneries report improved cutting/flaying quality • At least 70% of slaughterhouses report receiving a premium for better-quality cuts	Ministry of National Food Security & Research	• Pakistan Agricultural Research Council (PARC) • PTA • PLGMEA
		1.3.5 Enforce service-level agreement in slaughterhouses to equip them with basic amenities such as washable tile-protected walls, halal slaughter boxes, drinkable running cold and hot water, overhead rails, and processing equipment such as dedicated knives for meat cutting and hide flaying (Static Flaying Frame ©)	1						Reform/ project	• Service-level agreements enforced • At least 50% by 2023, and 75% by 2026 slaughterhouses equipped with the amenities	Ministry of National Food Security & Research	• Pakistan Agricultural Research Council (PARC)
		1.3.6. Conduct a cost–benefit analysis along with the PTA for upgrading government slaughterhouses.	3						Project	• Slaughterhouse update study conducted and published in Urdu and other local languages • Study publicized in traditional and social media, and presented to 100% of the government-owned slaughterhouses	Ministry of National Food Security & Research	• Ministry of Commerce • Board of Investment • PTA • Pakistan Council of Research in Water Resources • Animal Quarantine Department
2: Build sustainable growth in the leather industry to expand access to markets	2.1 Improve tanneries' abilities to stimulate socially compliant and green sectoral growth	2.1.1. Conduct targeted capacity-building and awareness programmes for tanners to mainstream sustainable production practices. These can be done by the following: • Collaborate with international brands to facilitate site visits for policymakers and tanners wherein they can visit compliant production facilities to learn sustainability practices and regulation hands-on.	1						Project	• Two job and career opportunities workshops held annually • At least five collaborations with international brands	Ministry of Industry and Production	• PTA • TDAP • Trade missions

35.– Such as the UNIDO–Hüni–Mongolia initiative. Disclaimer: The Hüni–UNIDO animation is copyrighted, and the Static Flaying Frame (SFF) is a copyright by Sam Setter. Neither may be used commercially.

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
2: Build sustainable growth in the leather industry to expand access to markets	2.1 Improve tanneries' abilities to stimulate socially compliant and green sectoral growth	2.1.2 Provide appropriate financial incentives for improving production techniques. This can be done in the following ways: • Encourage MoC to support in the form of a refinance of 50% of the funds deposited in the Export Development Fund (EDF) for setting up LWG- and SLF-compliant tanneries. Benefits should be given to everyone, including those who are already LWG certified. • Provide green subsidies to resource-efficient production facilities with a good compliance record with waste and chemical management guidelines. • Provide concessional financing through SBP linked to incentives for better performance.	1						Project	• MoC agrees on a refund of 50% of the funds deposited in the EDF on the condition that firms invest in SLF/LWG certification • New dedicated financial incentives introduced (green subsidies and/or commercial loans). At least 40% of the firms benefitted from the programme • Dedicated SBP financial incentive set up for top performing companies.	Ministry of Commerce	• PTA • Ministry of Finance and Revenue • State Bank of Pakistan (SBP)
		2.1.3 Prepare a booklet to be disseminated among small and medium tanneries to support them in improving the factory working conditions to improve their retuen on investment. Areas covered should include production organization, cleanliness, and proper working environment with dedicated rest areas, restauration, kindergarten and first-aid facilities.	1						Project	• Booklet prepared with a segement on return on investments in English, Urdu and other regional languages and disseminated among all tanneries	PTA	• Ministry of Industry and Production
		2.1.4 Develop an annual call for training of trainers programme for tanneries to upgrade their technical skills and certification practices that will allow them to become compliant with LWG or SLF protocols with the objective to be able to be successfully audited.	2						Project	• Annual call for Training of Trainers programme held • At least five tanneries selected to receive trainings per year	Ministry of Industry and Production	• PTA
		2.1.5 Provide business and administration skills training on costing and marketing, etc. for tanners, to improve performance.	2						Project	• At least one training a year with at least 30 participants	Small and Medium Enterprises Development Authority (SMEDA)	• Ministry of Industry and Production • PTA • Provincial Department of Industries and Commerce (DoIC)
		2.1.6 Hold a factual demonstration of ERP software to plan and manage purchases, sales, production and costings for the PTA members in their office.	1						Project	• Introduction of ERP in all Pakistani tanneries • Product traceability increased by 40% among firms	PTA	• Ministry of Federal Education and Professional Training

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
2: Build sustainable growth in the leather industry to expand access to markets	2.2 Increase skills for leather and leather goods manufacturing	2.2.1 Allocate an Export Development Fund (EDF) request fund to conduct pilot training of trainers programme on how to make leather goods, with the use of correct machinery, and correct production techniques for small and medium-sized enterprises.	1						Project	• Training of trainers programme created and a minimum of 20 trainees trainer each year.	Ministry of Commerce	• NILT • GILT • PLGMEA • Provincial government • Technical Educational and Vocational Training Authority (TEVTA)
		2.2.2 Update the curriculum at the National Institute of Leather Technology (NILT) and the Government Institute of Leather Technology (GILT) to include both, practical apprenticeship training programmes and theoretical coursework in short term certification courses on leather tanneries, leather goods manufacturing, leather design and technology, and marketing.	1						Project	• Curriculums updated or created with apprenticeship programme • Batches to start by 2023	Higher Education Commission, Pakistan	• Ministry of Commerce Ministry of Industry and Production • NILT • GILT • PTA • PLGMEA
		2.2.3 Introduce Bachelors and Masters of Science in Leather Technology at GILT and NILT. The curriculum should provide on-the-job experience (through practical exam) blended with delivery of theoretical knowledge on the premises of manufacturers, thereby enabling certification/diplomas for the workers.	1						Project	• Bachelors and, Masters programme in leather technology launched • Batches to start by 2024	Higher Education Commission, Pakistan	• GILT • NILT • PTA
		2.2.4: Manufacturers/firms should be encouraged to hire certified/qualified persons from NILT, GILT, by the government providing a fiscal incentive, e.g. tax credit against salaries paid. Hiring and training of female workers (in the case of leather goods manufacturing) should be especially encouraged and incentivized	1						Project	• At least 30 people each year get hired from NILT/ GILT, including women.	Higher Education Commission, Pakistan	• NILT • GILT, • PTA • PLGMEA
	2.3 Reduce environmental impact through improved effluent treatment and waste reduction	2.3.1 Complete a full assessment of the environmental impact on tanneries, including effluent treatment (physical, chemical or biological) to define a baseline and forecast of possible reduction of pollution loads of all tanneries. This can be done by: • Conducting a gap analysis of the existing environmental regulations (SRO 549 (I)/2000 by the National Environmental Quality Standards) for the tanneries and their compliance, bringing to the attention of the regulatory bodies any lack of compliance, resulting in penalties.	1						Project	• Assessment completed • Recommendations for corrective action provided to each tannery	Ministry of Industry and Production	• Pakistan Environmental Protection Agency • Ministry of Climate Change

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
2: Build sustainable growth in the leather industry to expand access to markets	2.3 Reduce environmental impact through improved effluent treatment and waste reduction	2.3.2 Call for proposal to develop, under public-private partnership, common effluent treatment plants in leather clusters, which is mandatory for enrolment in the LWG and SLF.	1						Project	• Common effluent treatment plant (CETP) established and operating in major leather production clusters	Ministry of Industry and Production	• Ministry of Commerce • Board of Investment
		2.3.3 Promote the adoption of cleaner and more efficient technology through the development of partnerships with international leather research institutes and the promotion of joint ventures.	3						Project	• At least three new partnerships with international institutes • At least three joint ventures	TDAP	• PTA • Ministry of Industry and Production • Pakistan Council of Research in Water Resources
	2.4 Innovate through new products and processes	2.4.1 Pilot a demonstration with tanners and leather product manufacturers to reuse waste in secondary productions such as cardboards, gelatine, glue and clean sludge in cement, etc.	2						Project	• A pilot demonstration to collect waste conducted • Waste and by-product usage increased by 60%	Ministry of Industry and Production	• PTA • Ministry of Industry and Production • Export Development Fund
		2.4.2 Strengthen the leather sector's environmental image by developing eco-labelling (with guidelines) for leather tanners and goods manufacturers. Apply the label to enterprises that comply with the guidelines.	3						Project	• An eco-labelling (with guidelines) for leather tanners and goods manufacturers created	Ministry of Science and Technology	• Ministry of Climate Change • PTA
		2.4.3 Organize an annual leather innovation awards event to promote the most innovative and environmentally friendly enterprises in the sector.	3						Project	• Innovation award set up. Independent jury with international expert set up.	TDAP	• PTA
		2.4.4. Incentivize firms through a scheme similar to the Technology Upgradation Fund Scheme (TUFS) to invest in advance technology for duty-free import of machinery such as wooden drums.	1						Reform/project	• TUFS scheme for leather sector introduced	Ministry of Commerce	• PTA • PLGMEA • State Bank of Pakistan (SBP)
	2.4 Innovate through new products and processes	2.4.5. Encourage the setup of ancillary/allied units needed as inputs for leather manufacturing, especially trimming/hardware.	1						Project	• Clusters of ancillary units formed	Ministry of Industry and Production	• Ministry of Commerce • PTA • PLGMEA • TDAP
	3.2. Reform tax systems applicable to the sector (aligned with the STPF)	3.2.2. Include finished leather products in the drawback on local taxes and levies (DLTL) list of products. *(Activity linked to STPF 2020-25.)*	1						Reform	• MoC to reconsider the inclusion of the following finished leather products in the DLTL scheme: 410712, 410792, 410791, 4112, 411390 and 411310	MoC	• State Bank of Pakistan (SBP)
		3.2.3. Negotiate preferential trade arrangements with Japan and the Republic of Korea resolving duty anomalies and identifying competitive market entry conditions for Pakistani leather sector.	1						Reform	• Duties and tax anomalies resolved with Japan and the Republic of Korea	MoC	• PTA • Ministry of Foreign Affairs

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
3: Strengthen the business climate for the development of the leather and leather goods sector	3.3 Improve market development capacity	3.3.1. Develop and implement a detailed single-market penetration plan for the product and market combinations identified in the strategy to decrease reliance on select export destinations in Europe and reduce seasonality.	2						Project	• Single-market penetration plan completed and publicized	TDAP	• PTA • PLGMEA
	3.3 Improve market development capacity	3.3.2. Organize single-country delegations to focus markets to meet leather buyers, or invite to business-to-business meetings using e-commerce platforms or digital channels. These can be organized with the support of the sector association and the trade attachés abroad.	1						Project	• At least five single-country delegations to be organized each year. At least 60% of the firms to report that they benefitted from these business-to-business meetings	TDAP	• PTA • PLGMEA • Ministry of Commerce
		3.3.3. Increase subsidy from 25% to 50% for PTA and PLGMEA for EDF supported international fairs.	1						Project	• Subsidy increased to 50%	EDF	• TDAP • PTA • PLGMEA
		3.3.4. Increase subsidy of TDAP supported international fairs from 50% to 75% for both PTA and PLGMEA.	1						Project	• Subsidy increased from 50-75%	TDAP	• PTA • PLGMEA
		3.3.5. Develop a communication strategy for the leather sector with a view to changing the sector's perception and professionalism (link to international trade fairs, dissemination of brochures, leather magazines/catalogues, newsletters and use of media).	3						Project	• Strong communication strategy developed. Increased use of social media, brochures, and advertisements in international leather magazines.	PTA PLGMEA	• Ministry of Commerce • Ministry of Industry and Production

ANNEXES

Annex I:
Detailed value chain assessment

Value chain mapping

The value chain mapping for leather is broadly classified below under the main stage. It is pertinent to mention here that, at every stage of the leather value chain, R&D is equally necessary in achieving efficiency, economy of scale and innovation in production to keep pace with changing trends of the global economy and environmental considerations.

Today, Pakistan's leather sector is composed of suppliers of raw hides and skins, abattoirs, tanneries and producers of leather products in varying sizes. Each phase stages both directly and autonomously as well as through agents and/or traders. Broadly, the sector is divided into the formal and informal sector. Total employment in the leather industry is estimated to be 500,000[36] in peak times. Almost all leather and leather goods manufacturers that operate in Pakistan today are considered small and medium-sized enterprises.

This chapter maps the structure and organization of Pakistan's leather sector. It deals with both leather and leather products production.

Inputs along the value chain: There are numerous types of inputs required for the production of leather and leather products. Upstream activities of the value chain concern animal husbandry and the inputs needed to keep livestock. The key livestock production inputs include breeding techniques for calves, veterinary services, immunization and animal foodstuffs. The Pakistan Agricultural Research Council (PARC) plays a critical role in promoting breeding technologies, with the scope to breed superior-quality cattle. Access to affordable finance is an important aspect of animal husbandry, because several years are needed before the cattle are ready for slaughter.

Typically, inputs for slaughter slabs, houses and abattoirs should include storage materials such as warehouses and salt and tools such as flaying implements. However, in the case of Pakistan, slaughter facilities do not take the necessary steps to conserve the hides and skins after the process of slaughtering the animals. Tanneries require inputs in the form of machinery, which is imported, chemicals, which are also imported, knowledge, qualified labour and finance. While the materials and labour are relatively easily accessible, stakeholders identified the difficulty in finding qualified leather technicians.

Leather manufacturers also require several inputs, such as machinery and tools, design skills and marketing channels.

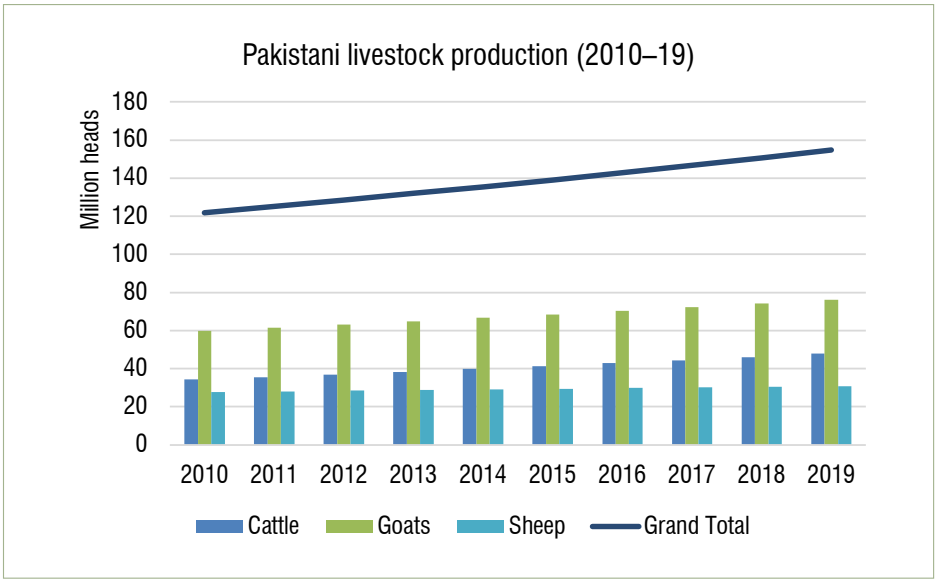
Animal husbandry: The raising of animals (except in professional feedlots) is first to provide for milk and to work in the fields. Only after an animal becomes too old to work or unable to produce milk does it enter the food chain. Animal husbandry is estimated to provide the livelihood for an estimated 30 million people, the vast majority of whom live in the country's rural areas (Rehman, 2017). Pakistan is the sixth-largest producer of hides and skins in the world, representing a formidable supply of H&S, based on an animal population consisting of 76.1 million goats, 47.8 million cattle and 30.9 million sheep (FAO, 2019). Most smallholder farmers keep a small inventory of livestock. Commercial ranching is almost negligible.

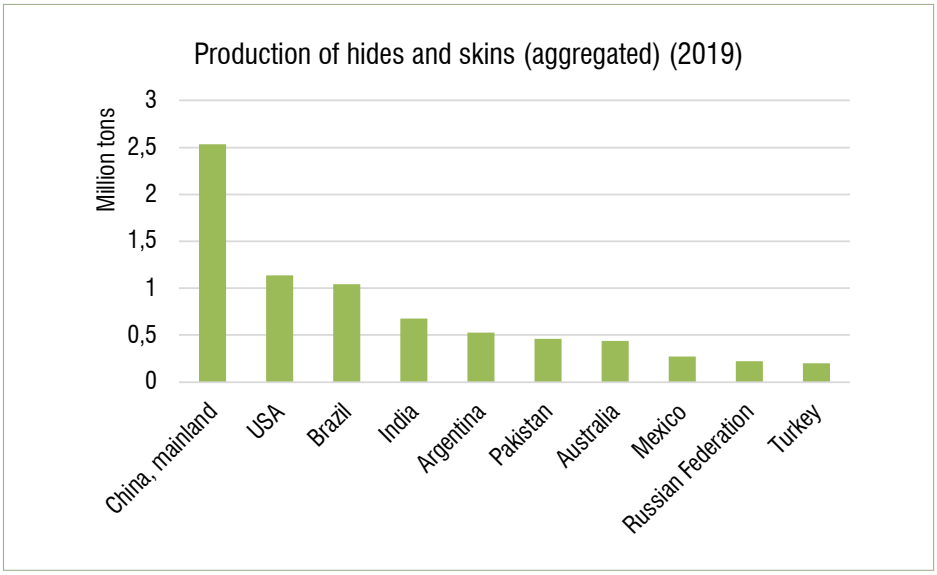
The Pakistan Tanners Association states that large quantities of live animals are smuggled out of the country to neighbouring countries such as Iran and Afghanistan, which causes a shortage of available raw materials to produce leather.

Due to the lack of industrially produced local animal feed, most farms depend on what is locally available as the source of feed for their farms. The health monitoring of the animals at farms or at home sheds is done by professional veterinarians at requirement, but not in an organized way. Few animals are identified for traceability.

36.– Trade Development Authority of Pakistan (2016). 'Sectoral Competitiveness and Value Chain Analysis'. Leather gloves value chain analysis in Pakistan. Available from http://www.trtapakistan.org/wp-content/uploads/2016/05/leather-final-report.pdf.

Figure 1: Livestock and its by-products production in Pakistan





Source: Food and Agriculture Organization of the United Nations (FAO), http://www.fao.org/faostat/en/#data/QL.

Figure 2: Animal husbandry

Source: ITC.

Slaughter slabs, slaughterhouses and abattoirs: Most slaughter slabs are small scale, with usually rudimentary sites made up of a concrete platform with a simple corrugated iron roof for shelter. The informal slaughter sector for livestock is very strong in the country. There is no official estimate on the size of the informal market, although there are currently 35[37] approved private sector slaughterhouses in Pakistan that are in major urban centres. Slaughterhouses are estimated to be operating at one-quarter of their peak capacity (Board of Investment, 2020). Most of these facilities usually lack basic equipment such as hoisting facilities, a lighting system and a regular water supply. The standard of hygiene, and both liquid and solid waste disposal, are poorly managed, leading to several situations where some slaughterhouses have faced forced closure by public health authorities.

Slaughter facilities provide only a service of the slaughter of the animal and the cleaning of the carcass from the hide or skins as well as intestines. The smallholder who raised the animal remains the proprietor of the carcass as well as the hide or skin. The smallholder sells the meat and the hide or skin to the relevant trader (*arthis*), who brings the meat or by-product to the market and, in the case of the hide or skins, takes care of the conservation/salting.

None of the slaughter facilities fleshes the hide or skin or takes the first steps of conservation by salting the hides or skins. Meat is consumed 'hot' or fresh on the same day of slaughter and, apart from exceptions in selected butcheries in the major cities, is not refrigerated.

Figure 3: Food processing

Source: Meat slaughter and sales in Pakistan, Ralph Arbeid.

Collection of hides and skins: The hides and skins are sold to collectors, who cure them with salt. Hides and skins are mostly traded via collectors, from the meat processing facilities to the tanneries in wet salted condition. Due to the climate and the lack of refrigeration, the time of effective conservation is rather limited. Export of raw hides and skins is strictly prohibited since the 1970s and it is perceived that there are no illegal exports. Due to the lack of demand and the consequent reduced productivity, particularly in the Qurbani season, some hides and skins are wasted and do not enter the leather production chain.

According to data from the Food and Agriculture Organization (FAO), the number of livestock slaughtered in Pakistan is estimated to be 16.4 million cattle and 56.7 million goats and sheep (FAO, 2019). A major issue relating to the quality of hides and the value lost in selling the skins is slaughterhouse practices, with respect to the flaying and curing of skins. Flaying of the skins is usually carried out haphazardly, without the use of mechanical flaying devices, because the primary focus is to get the meat to the market as fast as possible, as opposed to the preservation of the quality of the hides and skins. This leads to flay-cut damage, flay holes, misshapes and damaged grain due to putrefaction setting in because of late salting.

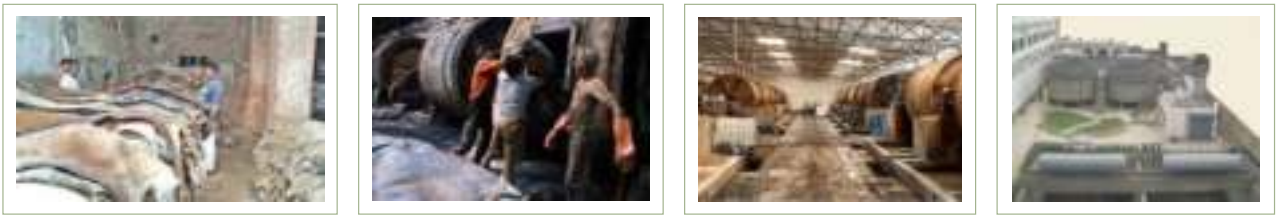
Another key issue regarding the skins obtained from slaughterhouses and slaughter slabs is that, once an animal is killed, both the meat and hide are usually returned to the smallholder (*arthi*). The skins are then prone to putrefaction due to late preservation, reducing their commercial value for the tanneries. In a hot climate, it is critical to preserve the skins through either salting or drying within 60–120 minutes from slaughter to ensure that the quality of the skins and hides can be maintained after salting over time. Some of the other causes of the poor quality of the available skins and hides are diseases in animals (pox lesions, tick and mite infestation, ring worm, lice and warble fly, etc.) and the management of animals, including horn racks, rope marks and branding, etc.

37.– Pakistan Economic Survey, 2020, Chapter 2: Agriculture. Available from https://www.finance.gov.pk/survey/chapter_20/02_Agriculture.pdf.

Semi-processed hides – finished leather sheets: There are approximately 800 tanneries[38] in Pakistan. Their supply comes mostly from Pakistan itself and for a small part from abroad, where Europe, the United States and Australia are the main actors. Raw hides and skins undergo a sequence of processes called tanning, resulting in a first stage of permanent conservation, which can be the wet blue, wet white or vegetable stage, followed by re-tanning to produce the first dry stage called crust leather for ultimately reaching the stage of finished leather. More precisely, the raw hides and skin pass through a series of actions, namely soaking, liming, fleshing, bating, pickling, splitting, neutralizing and filling out to attain a semi-processed form. The tanning stage results in wet blue or wet white leather. Wet blue tanning is based on a process using chromium salts Cr2O3 and vegetable tanning uses vegetable tanning extracts such as mimosa, quebracho, chestnut, oak or others. A third process is called wet white, as it uses neither chromium salts nor vegetable tannins and is mostly used for automotive leathers. A fourth process is called 'metal-free', which excludes the use of chrome salts, but also excludes the presence of other heavy metals such as aluminium, titanium and zirconium, which can be used in the chrome-free certified processes in the tanning process. Export of wet blue and crust is subject to 20% duty and is, hence, inhibiting, resulting in practically no unfinished leathers leaving the country.

The PTA states that some of the challenges facing tanneries relates to the high costs of investments made for equipment without sufficient availability and quality of raw H&S. However, from desk research, it seems Pakistan has a large production of raw hides and skins. Of these, some may not be of the right quality, for example, if a tannery wants to produce upholstery or automotive leather, they would need to import, because Pakistani hides are not suitable for this purpose. However, the quantity is not a constraint. In addition, the trade data from official sources as well as the ITC Trade Map indicate very few imports of raw hides and skins. One of the main reasons Pakistani tanners are unable to export to their potential is because they have little influence over the intermediary production; i.e. the raw hides and skins suppliers. Most of these suppliers lack traceability and are not compliant with the buyers' demands for sustainability. Other challenges include growing requirements in terms of environmental compliance and standards, chemical controls (including REACH regulations) and dealing with buyers' delivery requirements (e.g. grades and timings, etc.). These challenges make tanneries operate well below capacity.

Figure 4: Leather production



Source: PTA-shared images of hides and skins processing in Pakistan.

Light manufacturing: Pakistan has moved gradually from being a leather exporting country to becoming an exporter of value-added products. Statistics show that leather exports are gradually reducing, whereas the export of finished leather goods is increasing in numbers and value. This signals that the government policy introduced in the 1970s to reduce export of raw materials, where semi-finished and finished leathers are considered raw materials for finished leather products, has succeeded in its intent. Tanneries that have adopted the vertical integration of the value chain components see the benefits of this policy.

The finished leather sheets obtained by tanning and crusting processes are cut in patterns to match the final product design, after which these are stitched to give the final shape of different leather products such as leather garments and apparel, footwear, gloves, handbags, suitcases, trunks and other accessories. There are approximately 461 leather garments/apparel making units, which produce approximately 5 million leather products annually against a capacity of 7 million, and 348 leather glove manufacturing units that produce 5 million pairs against a capacity of 10 million pairs annually (Asian Development Bank, 2015).

38.– Source : Pakistan Tanners Association: https://www.pakistantanners.org/index.html.

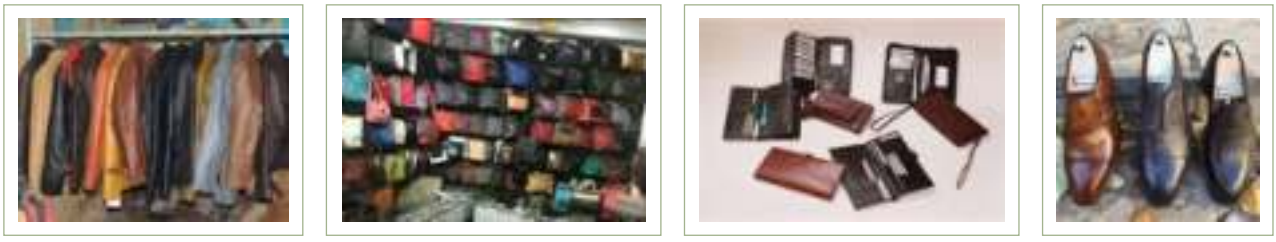
The major tanneries have vertical integration, meaning that they have their own trading houses for the raw material supply, as well as their own leather goods production plant, whether that is shoes, garments, gloves or others.

Marketing and exports: The final stage in the value chain involves marketing the products. Almost all these leather products are exported internationally (90%), with very few sold to local markets.[39] This includes a series of activities such as product placement, branding and packaging, repairing and reworking, and policy initiatives to diversify the market and enhance market share. Products that cannot be repaired are often sold to local market at a cheaper price. Some finished goods are also returned by international customers for either repairs or as rejected goods, which are also then sold in the local market at a cheaper price.

Exports of leather and leather products occur at different levels of the value chain. Exports of crust are rare, but are usually done directly by tanneries like for finished leathers by export to a buyer in the destination market. Exports of leather products are usually executed by tanneries, which are vertically integrated and own a manufacturing unit.

The quality of the finished leather products is appreciated worldwide, but Pakistan is in close competition with other markets such as China, India, Bangladesh and Viet Nam, etc. This is because the Pakistani leather industry focuses on quantity rather than authenticity, meaning bringing a locally designed product into the market. Products are either copied or designed in collaboration with foreign partners, which gives more benefits to buyers than to the Pakistani leather value chain. European leather and leather goods producers have been able to maintain their dominant position in the world market by focusing on quality and authenticity rather than competing against the mass production markets.

Figure 5: Leather goods production



Source: ITC.

39.– 'An Assessment of Environmental Concerns in the Leather Industry and Proposed Remedies: A Case Study of Pakistan'. Available from https://d3pcsg2wjq9izr.cloudfront.net/files/0/articles/2226/2045.pdf.

Annex II:
List of participants in the public-private consultations

Name participant	Name of the organization	Designation
Mr. Abdullah Aman	Hafiz Tannery	Partner (Chairman PTA)
Mr. Anjum Zafar	Pakistan Tanners Association (PTA)	Immediate Past Chairman
Mr. Fawad Ijaz Khan	Pakistan Leather Garments Manufacturers & Exporter Association (PLGMEA)	Immediate Past Chairman, founding member
Mr. Muhammad Asghar Mughal	Pakistan Gloves Manufacturers & Exporters Association (PGMEA)	Secretary general
Mr. Qasim Mehmood	PGMEA	Senior vice chairman
Mr. Ali Muqaddas	PGMEA	Research and development
Ms. Deborah Taylor	Sustainable Leather Foundation	Managing director
Mr. Irfan Iqbal	Nova Leathers	Managing director
Mr. Faraz Ali	Hundal Group	Partner
Mr. Asad Hassan	Dada Enterprises	Executive director
Mr. Raheel Hanif	Bruno International	Director
Ms. Ayesha Ahmed	Pelle Classics	Marketing lead
Mr. Atif Ashraf	Muhammad Ashraf (Pvt) Ltd	CEO
Mr. Nadeem Abdullah	Nadeem Leather Industries	Proprietor
Mr. Hassan Bhatti	Zulfiqar Brothers	CEO
Mr. Yasrub Mehmood	Nova Leathers	Testing lab in charge
Mr. Basharat Nadeem	Leather Coordinators	Partner
Mr. Danish Khan	Highway Creations	Managing director
Mr. Agha Saiddain	Royal Leather	Marketing director
Mr. Rashid Zahoor	Noor Leather	Director
Choudhary Zulfiqar Hayat	Leather Field Private Limited	Director
Mr. Asfandyar Farrukh	Hub	Managing director
Mr. Muhammad Raheel Sheikh	Hub	Merchandise (product development)
Mr. Amanullah Aftab	Hafiz Tannery	Managing partner
Mr. Muhammad Musaddiq	Siddiq Leather Works (Pvt) Limited, Lahore	CEO
Mr. Muhammad Nasim	Hamid Leather Pvt Ltd	Production manager
Mr. Mubashir Salam	Jeaman Leather and Leather Clothing	Director
Mr. Syed Safwan	Syed and Sons Industries	Proprietor
Mr. Tasawar Hussain	Manawar Industries	CEO
Mr. Irfan Arshad	Leather Coordinator	IT manager
Mr. Shahid Malik	Impo Expo International	CEO
Mr. Sumair Ahmad	MoC	Research associate
Mr. Sheheryar Khan	TDAP	Associate director
Mr. Khurram Ikram	TDAP	Deputy director
Dr. Zain	TDAP Sialkot	Assistant director

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