



Watch Your Step!

Study on the Social and Environmental Impacts of Tanneries in Uttar Pradesh and Tamil Nadu, India

1. Overview

The process of turning animal skin into leather is called tanning. The leather industry is one of the most labour intensive sectors in India, providing employment to 2.5 million people in formal and informal settings. There are around 2,000 tanneries in India, of which the majority (75 per cent) are small-scale units. Between April 2016 and March 2017 India had exported US\$ 5,665.91 million worth of leather products, making it the fourth largest exporter of leather goods in the world. 81 per cent of that was finished leather products such as footwear and footwear components, leather articles, and leather garments. The exports were mainly to USA, Germany,

UK, Italy, Spain, France, Hong Kong, UAE, China, The Netherlands and Belgium.

The North Indian State of Uttar Pradesh and the South Indian state of Tamil Nadu are hubs for leather production in the country. India's leather industry is known to have poor working conditions and low environmental standards, characterized by lax enforcement of rules and regulations. The use of outdated technology, non-compliance with safety norms, ineffective handling of tannery effluent and solid waste, and occupational health hazards to workers and local communities are some of the major problems plaguing the leather industry in this country.



2. Chrome Tanning and Environmental Hazards

During tanning the raw hide of the cattle and livestock is converted into semi-finished or finished leather. The skin is salted so that it does not decompose and the flesh and hair are removed. Then it is tanned with either vegetable extracts or chemicals. Chromium tanning is the most common form of tanning: it takes only a few hours for the chromium-tanned leather to be finished, compared to a few days for vegetable-tanned leather. The tanning process produces large amounts of wastewater and solid waste. Processing 1,000 kg of raw hide requires 500 kg of chemical substances, and leaves approximately 600 kg of solids and 15 to 50 cubic metres of effluent as residue.

Chromium commonly occurs in two forms. Trivalent chromium or chromium III (Cr(III)), a naturally occurring element that is relatively stable and does not cause health problems in general; and hexavalent chromium or chromium VI (Cr(VI)). Cr(VI) is not intentionally used in tanning, but may be formed during the process through the use of an intermediate chemical, or by indirect oxidation, ageing or UV exposure, and it can form in ageing leather.

The tanning processes contribute significantly to chemical oxygen demand (COD), total dissolved solids (TDS), chlorides, sulfates and heavy metal pollution in water bodies.

An estimated 50,000 tonnes of solid waste are generated from chromium tanning in India every year. It includes flesh, trimmings, chrome shavings and buffing dust, and is either dumped or crudely processed into glue, chicken feed and manure.

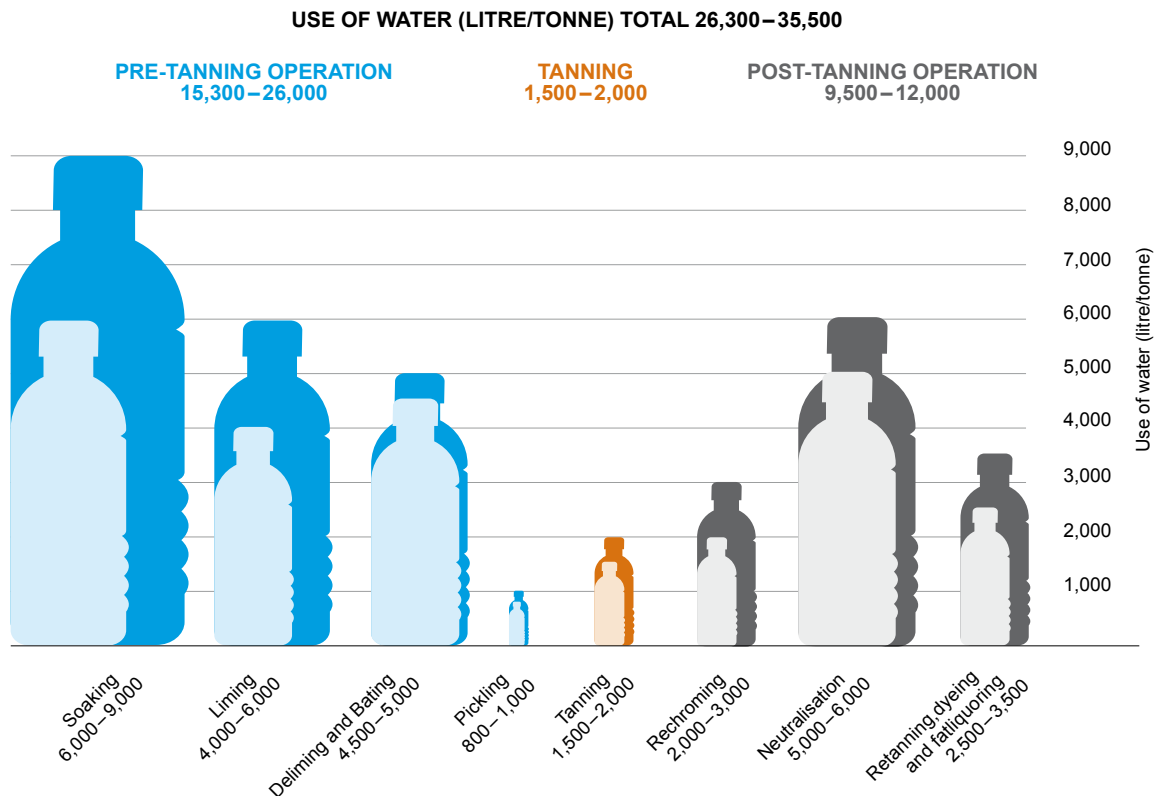
Impacts on Water and Soil

- In tanning, 40 to 45 litres of water are required to process only 1 kg of raw hide or skin. Many tanneries are located on riverbanks, for access to surface water. Groundwater reserves in India have also been exploited extensively by the industry.
- Chromium can contaminate surface water and groundwater, through poorly treated or untreated wastewater and by leaching from improperly dumped solid waste.
- It is possible that chromium also reaches water bodies through the application of toxic sewage sludge and irrigation water on fields.
- The use of contaminated sewage sludge and wastewater on the fields also has adverse effects on crop growth, which affects the livelihood of the rural population near tanneries. Soil and water contaminated with hexavalent chromium pose severe threats to the health of local communities.

3. Working conditions in the tanning industry in India

The majority of workers employed in the leather sector in India work under precarious conditions.

Fig. 1 Water requirement for tanning process



SOURCE: Sundar, V. J. et al. (2001). Water Management in Leather Industry, In: Journal of Scientific & Industrial Research, Vol.60, 443-450. [http://nopr.niscair.res.in/bitstream/123456789/26498/1/JSIR%2060\(6\)%20443-450.pdf](http://nopr.niscair.res.in/bitstream/123456789/26498/1/JSIR%2060(6)%20443-450.pdf)



- The leather sector is characterised by low wages, casualization of labour, lack of Employee State Insurance (ESI) and Employee Provident Fund (EPF) cover, and long working hours.
- Workers in the sector, especially those in tanneries, are often paid even less than the legal minimum wage (ranges between 50 and 100 € per month depending on the State). Most workers in the tanneries work on a piece rate basis, and workers' incomes are directly proportional to their daily productivity.
- A large number of internal migrant workers are employed in leather clusters, such as Ranipet and Chrompet in South India. The working conditions of these migrants, who are usually accommodated within tannery premises, are even more precarious.
- Tannery workers are prone to a variety of occupational health and safety hazards associated with toxic chemicals, dangerous machinery and equipment, with little or no training provided.



Tannery worker in Uttar Pradesh
PHOTO: STELLA HALLER

4. Field Research carried out in North and South India in 2017

During two field visits to Uttar Pradesh and Tamil Nadu as part of the international “Change your Shoes” campaign, the research teams found that local tanneries often do not handle effluent and solid waste according to legal and environmental norms. Our research has shown that workers in tanneries are systematically exploited and have no means to improve their working conditions.

Summary of Results: Environmental Impacts

The soil and water samples collected during our field trip to Kanpur and Agra helped to identify two main environmental problems strongly affecting the people living near the tanning industry. The first is the indiscriminate disposal of COPR¹ to open land, contaminating water bodies in a wide radius around the dump sites. Hazardous Cr(VI) keeps leaching out of the waste for decades, poisoning the environment and local communities. The second main problem we witnessed was the pollution and destruction of agricultural soils by applying chromium-rich irrigation water and sewage sludge – thus making the soils unfit for cultivating and damaging the crops that ensure the rural population's survival. Earlier studies also report on chromium contamination of groundwater around tanning clusters. Residents and farmers interviewed at all locations confirm that the quality of groundwater in these areas had deteriorated due to the tanneries, leading to a severe shortage of drinking water in some areas in periods of drought.

Improper disposal of solid waste and ineffective treatment of tannery effluent have caused damage to soil, crop growth and water resources. Even though the Indian environmental regulations for the tanning industry are as stringent as international regulations, there is a wide gap between those regulations and their implementation by the tanneries.



Water pollution related to chrome tanning
PHOTO: VIJAY SENTHIL KUMAR



Disposal of solid waste on river banks
PHOTO: STELLA HALLER

¹ When producing the tanning agent Basic Chromium(III) Sulfate (BCS) which is used for chrome tanning, the waste product Chromite Ore Processing Residue (COPR) is generated.



Tannery worker suffering from skin disease
PHOTO: PRADEEPAN RAVI

Summary of Results: Impacts on Workers

Interviews with tannery workers in North and South India have shown that the majority of workers employed in the leather sector in India are male daily wage earners who work under precarious conditions. Low wages of about 100 Euro per month, lack of regular employment relationships, lack of Employee State Insurance (ESI) and Employee Provident Fund (EPF) coverage, and long working hours are among the main problems they face. Workers are mostly employed on a temporary basis with no hope for regular employment. Although Indian law (Contract Labour Act) stipulates that an employer must issue identity cards to their workers, none of those interviewed possessed identity cards or any other proof of employment. Moreover, none of the respondents were granted paid annual leave.

In addition, workers experience a number of work-related health problems, such as cold and fever, pain in the muscles and joints, skin diseases, respiratory problems, and eye irritation. These occupational health problems are directly linked to the lack or inadequacy of personal protective equipment. None of the workers interviewed had received formal safety training to handle chemicals and operate machinery. Trade unions were notably absent at all tanneries observed.

Finally, workers are exposed to a social stigma associated with tanneries, as traditionally only the socially most backward castes (Dalits or scheduled castes) and Muslims have been employed in this sector in India.

5. Recommendations to European Shoe Brands

The results of interviews and soil and water samples clearly document that tanneries cause significant damage to the environment and the health of workers and local communities living around them.

International shoe brands must:

1. Report on efforts to increase use of tanning alternatives. If chrome tanning is used, companies must use state of the art technology;
2. Take responsibility for their suppliers' adherence to health and safety standards and environmental performance;
3. Support multi-stakeholder initiatives for implementing better working conditions in the leather sector, acknowledge the importance of unions for collective bargaining and encourage company level grievance mechanisms;
4. Offer long-term business relationships to their suppliers to encourage best practice, and collaborate with other brands to increase their leverage for effective action;
5. In line with the UN Guiding Principles, and together with sustainability initiatives in the leather and footwear industry, have in place a due diligence strategy and system which analyses and prevents human rights risks along the supply chain. This includes supply chain mapping, to increase transparency within the supply chain and to identify human rights challenges. Unions and civil society should be involved in the implementation of companies' due diligence on an eye-level basis.

Only through stringent action by all stakeholders including the European Union, international shoe brands, the Indian authorities and the leather tanneries themselves can working and environmental conditions in the leather sector be improved. The immense profits of this industry must not come at the cost of those furthest down in the supply chain and the communities close to tanneries.

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Change Your Shoes is a partnership of 15 European and 3 Asian organizations. We believe that workers in the shoe supply chain have a right to a living wage and to safe working conditions, and that consumers have a right to safe products and transparency in the production of their shoes.

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