



**UNITED
NATIONS
INDUSTRIAL
DEVELOPMENT
ORGANIZATION**

Fourteenth Session of the
Leather and Leather Products Industry Panel
Zlin, Czech Republic 13-15 December 2000

OCCUPATIONAL SAFETY AND HEALTH IN THE TANNING INDUSTRY IN SOUTH EAST ASIA

Prepared by

Mr. A. Sahasranaman

REGIONAL PROGRAMME FOR POLLUTION CONTROL
IN THE TANNING INDUSTRY IN SOUTH EAST ASIA

* This document has been prepared without formal editing.

Table of content

INTRODUCTION	3
The Emerging Scenario	3
Problem Areas.....	3
Safety in use of chemicals at work.....	4
Machine safety.....	4
Control of workplace parameters	4
Personal protection and emergency preparedness	5
Some Findings	5
Framework Conditions	5
Limitation of small tanners	5
Attitudinal and other factors	6
Positive Approach.....	6
STRATEGY AND INTERVENTION	8
Ongoing Endeavors.....	8
UNIDO and OSH in Tanneries	8
CONCLUSION.....	10

INTRODUCTION

The Emerging Scenario

The 1980's and 1990's have witnessed growing concern of global community on environmental issues, the industrialised countries of the western Europe and the USA providing the impetus. In the context of globalization of business, such issues have acquired international dimensions. While environmental protection and consumer safety have been already accepted as part of the standard framework of current international trade, the safety and health of workers in manufacturing units are gaining increasing attention in the recent past. One significant concomitant of globalisation of business has been that manufacture of various consumer products is carried out in different parts of the world according to dictates of comparative cost advantage. However much of the consumption of these products is found to take place in the rich industrialised countries that have enormous personal purchasing power.

International trade in leather and leather products has grown dramatically in the past 15 years. The value of global import of leather and leather products has increased from about US \$ 16 billion in 1984 to about US \$ 98 billion in 1998. The present pattern of global trade reflects the current global realities in this industrial sector. While manufacture of leather and leather products predominantly takes place in the developing countries of south and east Asia and central and south America, an overwhelming percentage of consumption of these products takes place in the industrialised countries of the world, in west & central Europe, the USA, Japan and Australia. In the context of the existing vast difference in cost of production of these products between industrialised and developing countries it is believed that this trend is likely to intensify.

However, the conditions governing international trade in leather and leather products have undergone notable changes. Today, the first parameters checked by any reputed international company desirous of sourcing leather or leather products from a manufacturer in a developing country, are not merely confined to quality and price, but also to aspects such as compliance of the potential supplier with national labour safety standards, occasionally even with international standards and recommendations, provision of adequate welfare facilities to workers and the like (e.g. clean toilets, washing facilities, etc.). One may recall the recent outcry in the media of the USA, when a reputed international supplier of branded sports shoes was found to have sourced products made under unacceptable work conditions from a developing country of South East Asia.

This paper dwells upon the aspect of occupational safety and health standards at work in tanneries in the developing countries of south east Asia. The findings presented are based on experience gained in south east Asian countries under UNIDO's Regional Programme for Pollution Control in the Tanning Industry in South East Asia.

Problem Areas

The implementation of UNIDO's Regional Programme for Pollution Control in the Tanning Industry in South East Asia commenced in December, 1995 when the Regional Programme Office was set up in Chennai, India. One key objective of this programme is *"Improvement of occupational safety and health at work standards in the tanning industry in the countries participating in the*

regional programme". In order to obtain first hand information on the current situation in this regard in the participating countries, UNIDO conducted sample surveys in the tanneries of these countries through national experts specially engaged for this purpose. Based on the surveys conducted in 1996 and 1997 on the prevailing occupational safety and health standards at work in tanneries in China, India, Indonesia and Nepal, the key challenges faced by the industry in all these countries were found to be:

- *lack* of awareness of existing health hazards & safety risks and their impact;
- *limited* know-how on how to deal with these in an appropriate way.

Manufacture of leather from hides and skins involves use of a large number and variety of chemicals, machinery and equipment. Floor in typical traditional tanneries in this region is generally found to be wet. The problem areas pertaining to occupational safety and health of workers have been identified with specific reference to potential sources of hazards. The specific problem areas identified include:

Safety in use of chemicals at work

The level of knowledge about proper storage and handling of particularly hazardous chemicals is very low. Measuring and mixing of chemicals is done manually in the small-scale tanneries. Process control is generally absent.

Access to safety information on hazardous chemicals is limited by prevailing selling and distribution practices by local and international suppliers, the latter only catering directly to large-scale customers. Even in the latter case, material safety data sheets are not automatically provided with the chemicals as is the common practice and requirement in the industrialised countries. At the same time, when provided, information from material safety data sheets is not translated into preventive or protective measures nor adequately explained to the storage and handling personnel.

Machine safety

Machines locally manufactured generally lack basic safety installations such as active and passive safety devices. But these machines are used by most small- and medium-scale tanners because they are inexpensive. Standards of machine safety therefore are particularly low in these segments. Manufacturers supply these machines of old unsafe designs as these are demanded by their customers. Besides the safety risks, these machines do not allow achievement of high quality standards too.

Improper design and poor maintenance practices result in exposure to high levels of noise. Survey on hearing impairment among tannery workers conducted by UNIDO indicates a significant percentage of workers and supervisors having partial hearing impairment.

Equally, poor quality and unsatisfactory maintenance of electrical installations, inadequate for the corrosive and humid work conditions in tanneries, leave workers at high risk of electric shocks and fatal accidents.

Control of workplace parameters

Apart from high noise levels, missing or inadequate local extraction systems for spraying vapours, mist and dust result in exposure of workers to such hazards beyond established or recommended occupational threshold limit values.

At the same time, little attention is paid to measures which might contribute to improved quality or productivity, for example proper lighting, workplace layout, alternative means of handling material, improved house keeping, etc.

The above conditions are aggravated by the fact that many tanneries have grown in an unsystematic manner in many countries of the South East Asia region. At present these leave little room for carrying out improvements to achieve overall better natural ventilation or illumination, without major capital investments.

Personal protection and emergency preparedness

The limited knowledge and awareness about the existing health hazards and safety risks at work result in a corresponding inadequate protection of tannery workers as well as unsatisfactory preparedness for fire or medical emergencies.

Some Findings

Though it is not possible to conclusively relate any particular ailment of a worker to the working conditions of a tannery mainly due to the high turnover of workers, generally the following health hazards or impairments have been reported among some tannery workers of the developing countries of South East Asia:

- Loss of limb due to machine accidents;
- Loss of life due to exposure to H₂S particularly in the Effluent Treatment Plants (ETPs);
- Full or partial loss of hearing;
- Skin irritation and ailments due to direct contact with chemicals;
- Burns due to contact with / spillage of corrosive chemicals on skins of workers;
- Respiratory disorder due to inhalation of dust / vapour.

Framework Conditions

Limitation of small tanners

Despite their importance in the context of the country's economy (e.g. contribution to country's export revenue, employment, etc.), many small and medium scale tanneries face problems such as

- Non-availability of funds, in terms of fixed and working capital and inadequate access to bank loans;
- Non-availability of raw material of proper quantity and quality;
- Competition in product markets, demanding higher quality at lower price;
- Infrastructure bottlenecks such as power failure or erratic power supply, break-down of transport and communication;
- Old plant and equipment, limitation of space for proper lay-out, need for frequent maintenance and repair (however with limited or poor outside facilities available);

- Limited access to labour market, as work in tanneries is often seasonal and has an unflattering image and lower social standing.

Besides these, leather manufacture in many cases is considered a craft with long tradition, which is handed down from generation to generation in the same family. Production methods and process flow have virtually not changed for decades, except for introduction of some new chemicals or improvements in machines and mechanical equipment used. Tanning communities are often found to be insular.

The day-to-day problems, as pointed out above, with which the management of small scale tanneries has to cope and the long traditions inherent in the tanning sector pose particular challenges to persons who have the responsibility of improving occupational safety and health standards and practices at work in this sector in these countries.

Attitudinal and other factors

A combination of factors, many of these unhelpful, exist in these countries which inhibit speedy adoption of improved practices. Some important factors, as identified by the UNIDO survey, include:

- Many small and medium-scale tanners usually do not perceive occupational safety and health at work as a real issue;
- In view of its insularity, the tanning community is less likely to look for outside help;
- The tanners may be even hostile or lukewarm in their response to training and outside assistance; with little trust in academic lectures and lessons;
- The tanners main concern is to maintain business or solve routine problems, with limited time and resources for activities which are not directly linked with production, marketing and short-term profit;
- They may have a low awareness and limited knowledge of ways for improving occupational safety and health standards at work;
- Being often small companies, the owner-tanner may have an autocratic management style, in which motivating or training worker is considered a waste, in view of high labour turnover (due to the seasonality of work and unsatisfactory image of the sector).

Positive Approach

The framework conditions and attitudinal factors indeed pose serious challenges. At the same time, there are some positive features too. Success can be achieved faster in introduction of improved practices if special efforts are made to identify such positive factors and harness these to the advantage of the industry. Some of the factors observed in the reference countries include:

- Overall productivity and particularly labour productivity are generally low and are responsive to simple and low-cost improvements;
- In view of the prevalent competition and global trade requirements tanners may be interested to adopt measures which give immediate and visible results and increase their short-term profits at the same time;
- Small-scale tanners are accustomed to accepting information through informal approaches and particularly from persons within the community;
- Tanners seem to be more responsive when within their own community and in vicinity of their accustomed work environment;

- Tanners in general have been found in the region to be usually very practical and action oriented people.
- Tanners are likely to have more respect for advice from other independent tanners than external specialists and experts or formal programmes.

STRATEGY AND INTERVENTION

Ongoing Endeavors

Keeping the framework conditions in mind, it was realised by UNIDO that any endeavour which aims at overcoming the lack of awareness and lack of knowledge would have to be built around the following principles:

- **Build on local practices and problems**: Change is best stimulated by starting from the real problems and conditions in the work areas instead of the priorities of outsiders. Approaches have to be flexible and informal. Exchange of experience among tanners can be used to create enthusiasm for positive attitude to change.
- **Focus on local achievements**: Emphasize simple improvement measures which are already in use locally, and highlight, when they were particularly designed and implemented on tanners' own initiative.
- **Link between occupational safety and health conditions with other management goals**: Explain and highlight the link between improved occupational safety and health standards and practices and improved profit situation, cost savings, etc. again using examples from within the tanning community.
- **Transfer know-how through show-how**: Promote and explain improvement measures by actual demonstration on-site. Ideally, let the person on-site (e.g. another tanner) explain the improvement measure.
- **Include practical exercises**: Learning by doing – particularly action or measures which directly contribute to solving existing problems.
- **Sensitizing the tanners** to global trade requirements. This is particularly relevant in situations where tanners are export-oriented or export dependent.

UNIDO and OSH in Tanneries

UNIDO's approach has been to look at enhancing productivity, environmental performance as well as safety and health standards at work in the tanneries of the participating countries simultaneously. With particular reference to the aspect of promoting occupational safety and health at work, the approach is based on a network of demonstration sites in working tanneries as well as effluent treatment plants and supporting institutions including R&D and training institutes.

After assessing the prevailing safety and health standards at work in selected tanneries, using a standardised audit checklist developed by experts working under the Regional Programme, UNIDO jointly with its national counterparts and the tanners implemented improvement measures on-site in these tanneries and effluent treatment plants. At the same time, the team of UNIDO experts, tanners and representatives from national specialised agencies prepared a comprehensive training programme together with training tools. At present, training workshops are being organised in the different tannery clusters of the participating countries. These training workshops particularly aim at the managers and supervisors of tanneries as key agents of change of work conditions and practices.

Particularly, in India and Indonesia, a supporting infrastructure concerning occupational safety and health related services has been established through agreements between tanner's

associations, R&D institutions and UNIDO. Under these agreements, the tanners can access professional services pertaining to work place monitoring and auditing, industrial hygiene measurement and expert guidance on on-site improvement measures.

Achievements after 2 years

- 15 OSH demonstration sites have been established in tanneries in China, India, Indonesia and Nepal.
- 1100 tanners have been trained on occupational safety and health requirements in tanneries.
- A tannery specific OSH manual has been prepared which is available in English, Bahasa-Indonesia and Chinese.
- OSH related service centres have been established in two countries.

CONCLUSION

The activities initiated by UNIDO in the field of occupational safety and health standards at work in the tanning industry in South East Asia can be seen only as a beginning. The existing facilities consisting of OSH demonstration sites, training packages, support services and a roster of available experts may be used by the R&D institutions and industry associations for disseminating the ideas further.

Possible further steps include the replication of the successful initiatives in the leather industry of other countries in Asia, Africa and South America.

At the local level, the designated agencies and industry associations should constantly strive for further dissemination of ways for improved occupational safety and health of tannery workers. In India, the CENTRAL LEATHER RESEARCH INSTITUTE has taken the initiative to include occupational safety and health as a separate theme in its “Vision Beyond Mission” proposal which attempts to define the future path of development for the Indian leather industry in the coming 7 – 10 years.

There is no gainsaying the fact that a lot has been achieved. However today tanners in all major leather producing countries of South and East Asia are well aware of the various aspects of OSH in tanneries and agencies and experts they could access for implementation of improvement measures. Permanent institutional arrangements created under the programme in India and Indonesia, it is believed, will help propagate the cause further.

No doubt continuous efforts towards regular dissemination are called for. Given the current context of global trade requirements and local pressures, it stands to reason that the small and medium tanners will necessarily fall in line and ensure that the OSH of workers is enhanced.

UNIDO will consolidate its achievements in this very important sphere and spread the message of OSH in tanneries far and wide in the countries of South and East Asia under its Regional Programme.