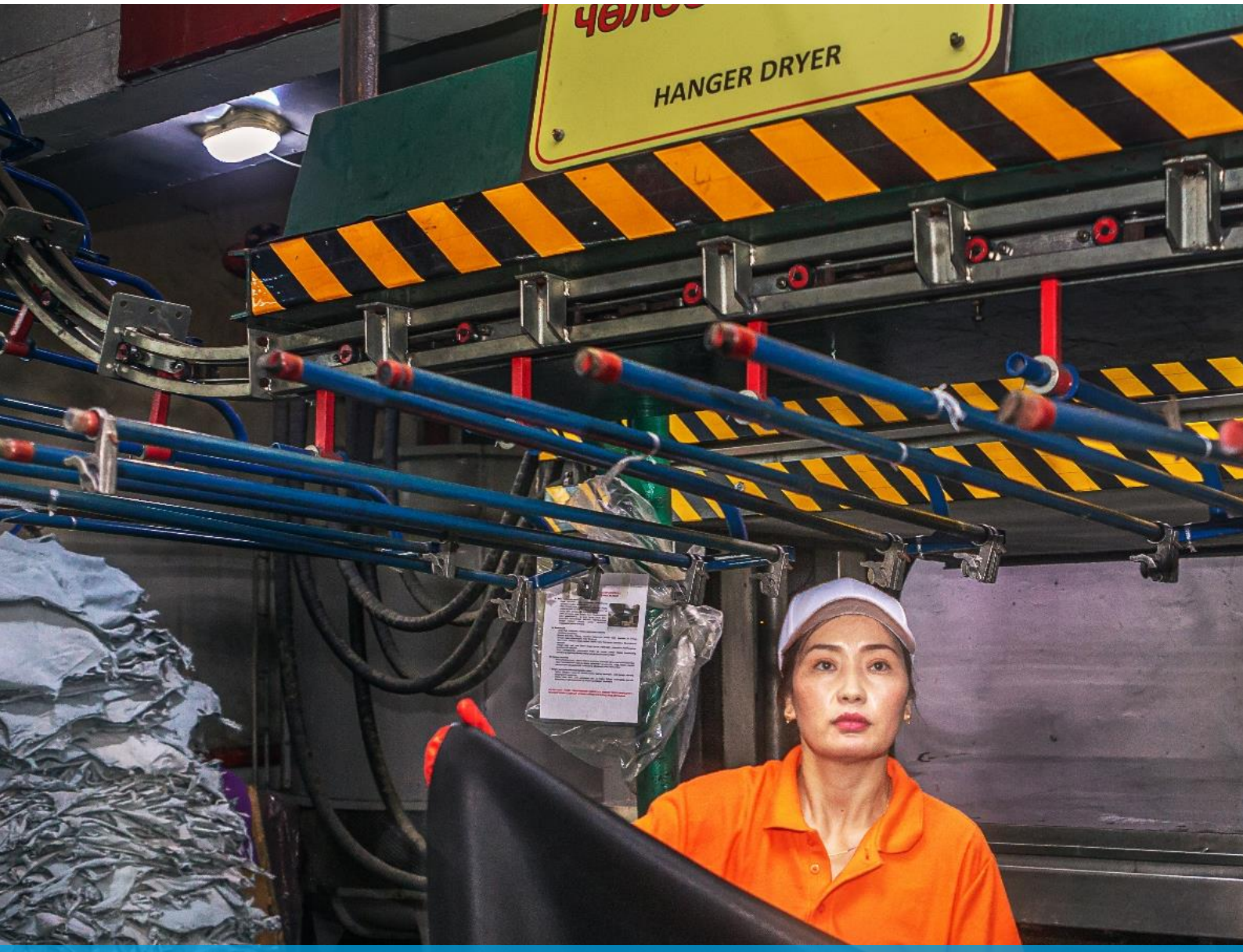
UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE DEVELOPMENT GOALS



Annex 2: ETHICAL LEATHER INDUSTRY

UNIDO's approach to promote sustainable leather value chain

UNIDO Support Systems for Sustainable and Ethical Leather Sector Development

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability.

Countries have committed to prioritize progress for those who're furthest behind.

The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context. Leather value chain and work over past decades can show how all actors contributed to such goals. United Nations Industrial Development Organization (UNIDO) has been contributing to these goals.

KEY INDICATORS

Institutions enhanced

50+

Effluent treatment plants supported

75

Courses/Users@year

18/50,000+

Publications

200+

www.leatherpanel.org

The leather and its related downstream industries can claim to be the world's largest industrial sector based upon a by-product. In the case of leather, the raw material is a by-product of the meat industry. Hides and skins and their downstream products are vital earners of foreign exchange and they compare very well with the other agricultural commodities and, in fact, with any internationally traded commodities. This industry converts a putrescible material into a stable and marketable product.

As raw hides are natural by-products of milk and meat production, the demand for leather has no impact on the number of animals slaughtered. So, upcycling these hides into leather is not only an appropriate use of an available, renewable resource, it can also substitute products made from non-renewable raw materials such as petroleum-based plastic sheets and textiles.

Leather is currently the best way to up-cycle hides and skins from the meat industry; every year the leather industry converts around 7.3 million tons of hides that otherwise would go to landfill. Leather is so versatile that it is used in a range of products from soft gloves to comfortable footwear, and from long lasting furniture and automotive seating to contemporary clothing.

As a specialized agency of the United Nations is contributing to the 17 Sustainable Development Goals (SDGs) and focusing on Inclusive and Sustainable Industrial Development (ISID), UNIDO has proven worldwide experience in assisting member states to enhance the leather value chain; introducing cleaner leather production techniques, Occupational Safety and Health (OSH) measures, deploying ~~Central~~ Common Effluent Treatment Plants (CETPs), effectively handling solid waste, starting by-product manufacturing, managing leather/products estates and establishment and/or enhancement of support and training institutions.

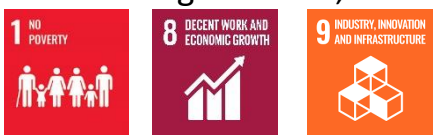
UNIDO has outstanding references with regard to institutional and human resource development in developing countries. These projects have focused on improving capabilities and performances in the collection of hides and skins, in leather processing (tanning), and in the manufacture of footwear and other leather products such as leather garment, upholstery and sports goods.

It is possible to link UNIDO's activities involvement in the leather value chain to the Global Compact Principles and SDGs and assesses the contribution in the relevant areas. There are four main areas: Industry (economy); Planet (environment); people (society) partnership (cooperation).

			
Industry	**People**	**Planet**	**Partnership**
Good manufacturing practice	Skills development	Environment	Global Forums
Efficiency	Safety and working conditions	Resource efficiency	UNIDO Leather Panel
Quality	Gender equality	Effluent treatment	Cooperation with stakeholders
Transparency	Social compliance	Environmental compliance	Publications
Relevant SDG			
1; 8; 9; 10; 11	4; 5; 8; 10	6; 7; 11; 12; 13; 14; 15	17

Prosperity & jobs: Enhancing Competitiveness of the leather value chain

Contributing to SDG 1; 8 and 9



The main aim of Technical Cooperation with the leather value chain was focused on enhancing the leather value chain and the leather sector and providing new job opportunities and income. UNIDO has been providing direct assistance to industrial units primarily private, small- and medium-scale enterprises, or SMEs in evaluating business opportunities, finding or establishing markets, building product ranges, improving production methods and product quality, enhancing productivity, and developing labour and managerial skills.

During its first decade, UNIDO concentrated on helping developing countries to make maximum use of their valuable raw materials hides and skins, by processing them into semi-processed and finished leather products for export as well as domestic consumption rather than simply exporting them as a raw material. In 1974, for example, UNIDO conducted major leather projects in India, Mongolia, Pakistan, and Uruguay, as well as smaller-scale projects in many other countries. The type of project ranged from the tanning of skins in Malaysia to mohair production in Mongolia.

Later, the footwear and leather products industries of developing countries gained increasing attention, and UNIDO has provided services to this sector along the whole processing cycle, from tanning to production, design and marketing, including the use of technologies and processes to minimize pollution.

During the 1980s, development in some parts of Africa had virtually ground to a halt and as a result the quality of raw hides and skins had deteriorated, skins were being wasted and despite plentiful raw materials, productivity was low; the lack of trained personnel did not help matters. This was the challenge in late 80's when UNIDO launched an ambitious programme to launch ~~project~~ East Africa into the world leather market and, at the same time, maximize the value added of one of Africa's most renewable natural resources.

Several Common Facility centers have been established to help SME's to upgrade their production. One example of such shared facility for shared prosperity

Leather Finishing Centre – Kasur tannery cluster, Pakistan

In the 1990s a large tannery cluster Kasur using very simple technologies were keen to produce some finished leather; many of those involved had neither seen a modern tannery nor finishing equipment in operation. UNIDO helped with planning of a Common Finishing Centre, CFC, provided the key equipment and combination of basic theoretical and practical training of staff while the local authorities and tanners took care of construction and utilities. Tanners brought their crust for finishing but more importantly they familiarized themselves with modern finishing methods, including equipment operation and maintenance. Within a few years finishing departments became standard features in all larger factories while CFC still services smaller units against charges introduced from the very beginning to ensure sustainability. The CFC is fully operational also after 30 years. CFC management was capable from income procure additional essential machines such as rotopress and modern measurement machine.

Figure 1; 2: Common Facility Center; Kasur Pakistan

People and Human resources

Contributing to SDG 4;5 ; 8 and 10

People have been main focus and in centre of all activities provided in the leather value chain, whether skills development, improving working conditions, gender equality and assistance to vulnerable groups.

This was achieved through human resources development of the leather-related industries through (i) elaborating and implementing comprehensive professional training systems; (ii) establishing and/or rehabilitating national, (sub)regional and international training-cum-service institutions; (iii) implementing experts meetings, workshops, seminars and special (training) courses in design, technology and management related areas; (iv) initiating, organizing and monitoring cooperation among training, service and R&D centres operating in developing and industrialized countries.

Skills development

Core activity and main part of technology transfer is transfer of knowledge and know-how. With new technology especially communication, IT, internet etc., one may say that technology is only as far as your mouse and google. In other words access to the latest technology (machines, equipment, auxiliaries) is very easy and perhaps only as far as your computer mouse. Nevertheless we should have in mind that behind each machine is a human being. And similarly as even the best and most

advanced car would be not able to drive without properly trained driver, also and perhaps especially latest technology needs properly trained managers, operators.

While UNIDO is not an educational institution, and main aim is technology transfer, supplementary training and capacity building tailored to specific needs of local counterparts of different backgrounds is an essential part of technology transfer. Apart from training activities also enhancement and upgrading of various support R&D and training institution is very important integral part of the UNIDO activities. UNIDO's main aim, objective and effort is to increase the industrial competitiveness of its client countries and reduction of poverty. The growing pace of technological change, the need for specialized technical skills has become more pressing. The patters of skills required to be employed in modern manufacturing have changed, as well as the institutional structures around them. Competitive industry requires skilled and properly trained and flexible operators and managers. In spite of the fact that UNIDO is not formal training or technical education institution, in their activities as an integral part of technology transfer are training activities tailored based on actual needs.

The typical training and capacity building forms are:

i. Lectures combined with practical, shop-floor/hands on work, for example industrial scale demonstration of hair-save liming, chrome recycling or various aeration or sludge dewatering methods
ii. National, regional and international workshops and seminars, with visits to industrial and pilot and demonstration plants
iii. Fellowship training with partner institutions (well established training or R&D)
iv. Participation in fairs, exhibitions, congresses
v. Enhancement of local training institutions, including training of trainers
vi. Preparation and distribution of publications and technical papers, videos, CDs, posters, leaflets, manuals etc., some of them translated into local vernaculars
vii. Webinars and on-line-Learning courses

Figure 3; 4: Training provided under within Technical Cooperation

In the past, employability was correlated with improvements in basic education levels. In the emerging competitive setting and new technology development, there is a greater emphasis on specialized high-level training, which stems not only from formal training but mainly from the close interaction between the industrial private sector.

In spite of huge progress in technology, automation over last decades and use of microprocessors and various advanced technologies in almost all machines, similarly Information and Communication

Technology (ICT) should make visible impact on the present status of professional training with main aim to improve efficiency of the professional training. However there are initiatives in use of ICT for training (BLC training, EU funded Eureka programme etc.). At the moment still only few such training tools/packages are available for leather industry/institutes and there are rather exemptions than a standard. However due to Covid-19 pandemic advantages of virtual and distance learning was recognized.

In order to increase efficiency of training UNIDO launched in 2011 “Animated Visual Training Tool (AVTT)” to supplement the booklet “Introduction to the treatment of tannery effluents”. Five modules of AVTT have been made available for wider public and use. It has been recognized as a usefull tool by several organizations and institutions and it become part of trainings.

Meantime New training and teaching methods and innovation in training aid for trainers and trainees was implemented by UNIDO. Online animated e-Learning courses with narratives and self tests were launched. Since 2012 UNIDO has designed and rolled out online courses to provide free technical resources to practitioners to strengthen the leather industry across the various parts of the value chain. Courses are prepared and updated integrating advantages of new digital technologies. Online courses are suitable for both on-line learning and classroom teaching.

Material is divided in separate lessons and can be used for classroom training to supplement practical training and same time also for self-learning.It is also easy to be modified by institutes.

Some on-line available courses:

i. How to deal with hydrogen sulfide gas
ii. Introduction to treatment of tannery effluents
iii. Introduction to leather testing
iv. Occupational safety and health aspects of leather manufacturing
v. First aid at the workplace
vi. Leather manufacturing technologies
vii. Footwear pattern engineering
viii. Hides and skins flaying and preservation

Courses are in English, however many are already localized and available in Spanish, Hindi, Farsi, Tygrinya, Mongolian and other languages

All courses are available at https://learning.unido.org/course/index.php?categoryid=16

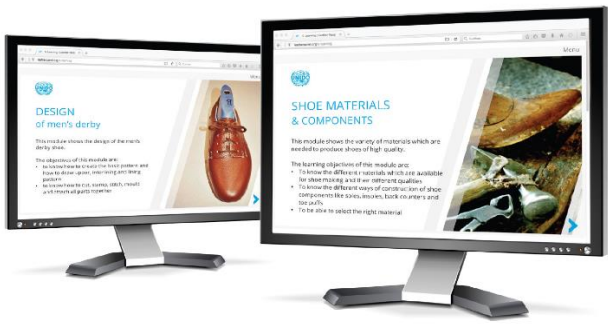


Figure 5: Available on-line resources for learning

Working conditions and occupational safety and health

Safe and healthy work is a fundamental human right. Attending to workplace safety and health is important for legal, economic and moral reasons. By providing a solid base for good standards,

proposing a structure for safety management, giving some practical insight into OSH and indicating room for improvements, this OSH guideline will contribute to the following aspects:

- Economic savings
- Legal obligations
- Image
- Right investment
- People

UNIDO has been promoting the concept of “Safe leather”, the concept of leather as a sustainable (as long as there is livestock to produce meat and milk) and safe material. To be classified as safe, it has to be:

Safe for operators and a safe working environment (OSH)

Safe for communities and ultimate users (all emissions treated and considered safe)

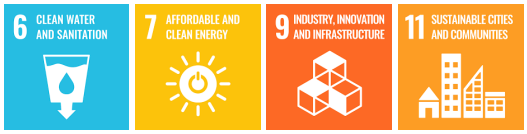
Safe for consumers - finally, a tanner (producer) also has to design the leathers in a way that will facilitate its handling and disposal at the end of life. This includes avoiding the use of restricted substances and chemicals which may be harmful to a user and/or to anyone else.

Therefore, occupational safety and health aspects should be understood as an integral part of leather manufacturing.

Figure 6: Safety culture as integrated approach

There have been many trainings to promote and enhance safety culture in companies. Among others also many trainings and publications prepared and disseminated. Among other also manual on Occupational Safety and Health Aspects in leather manufacturing. This manual has been primarily prepared for use by tanners and tannery supervisors. It has been designed to provide guidance and ideas on how to improve the occupational safety and health standards at work in tanneries and effluent treatment plants by presenting the sources of hazards in a tannery and pointing out simple measures, in a practical and easily understandable manner, for ready implementation on-site. A special attention is given to risks associated with hydrogen sulfide gas, H_2S.

Planet and Environment



Pollution control with special reference to implementation of cleaner technology has been and continues to be, the main focus of UNIDO's activities in the field of leather processing.. Cleaner production applications include green hide and skin processing, water management ~~recycling~~, hair saving (to reduce heavy pollution load from the beamhouse ~~dissolved solids in effluent~~), chromium recycling and recovery (after tanning), application of environmentally friendly chemicals etc. Special attention is also given to occupational health and safety (OHS) in tanneries.

Figure 7: Effluent treatment plant; Shanghai, China

The first comprehensive environmental project was implemented in a Brazilian Tanning School and R&D institute of leather technology. A pilot effluent treatment plant, ETP was set up to study and demonstrate various treatment technologies and to optimize and fine-tune processes to be used in case of different leather processing methods. Tannery pollution control was an important part of the regional leather industry development programme involving 10 East-African countries between 1990 and 2002. A special programme was implemented in eight South-East Asian countries (Bangladesh, China, India, Indonesia, Nepal, Pakistan and Sri Lanka with headquarters in Chennai) between 1993 and 2002. One of the major results of these programmes is the fact that some developing countries acquired the know-how of tannery pollution control and now provide valuable services locally and to other developing countries as part of the South-South cooperation.

UNIDO has assisted be it in designing, upgrading and/or in construction of more than 50 effluent treatment plants in some 20 countries. Most of effluent treatment plants are in operation contributing to better living environment for many people. One such example is described bellow.

Renewable energy and low carbon footprint solutions, such as solar water heating or solar air heating and drying process were implemented in several countries.

Working conditions and occupational safety and health have been integral part of each Technical Cooperation. To harmonize approach, there was prepared comprehensive package for the leather industry, which is regularly updated for the leather industry. As part of the learning package, there is an innovative on-line courses available for industry, which has been used by participants from more than 80 countries.

The Ranipet Common Effluent Treatment Plant; India

The Ranipet Common Effluent Treatment Plant (RANITEC) received assistance from UNIDO in the form of design, selected equipment like mechanical screen, decanter centrifuge, floating aerators for degassifier etc., besides continued technical assistance from national and international experts.

RANITEC was part of the UNIDO Regional Prgramme for South-East Asia and was considered as a model CETP.

The CETP has been properly maintained and operated during last 20 years. Based on new requirements it has been upgraded to meet new National Environmental quality Standards.

Figure 8&9: Common Effluent Treatment Plant; Ranipet, India

Ranipet is an industrial town in the state of Tamil Nadu. It is one of the important leather tanning centres of India. There are about 280 tanneries operating in and around this town. To treat the effluent from these tanneries several common effluent treatment plants were planned in the area. RANITEC at V.C. Mottur is one of such successful facilities catering to the needs of 82 tanneries.

Partnership

UNIDO's Leather Industry Panel is one form of partnership and dialogue with all relevant stakeholders.

The original objective of the Leather Panel Meeting (LPM) was to elaborate topics and to produce discussion papers for the consultations focusing on environmental and social issues, training and technical assistance and many others.

Figure 8: Participants of the 18th Leather Panel Meeting, Shanghai, Chine 2012

Meantime Leather Panel has been transformed into more technical forum to discuss various topics transformed and several documents produced for and discussed in panel meetings are now used as reference materials worldwide. A special feature of the Leather Panel is a mix of invited experts and Panel members covering the whole leather value chain and representing various stakeholders. It provides an opportunity to have various views from different angles and partnership among different regions and levels of the value chain. The outcome of such a set-up and composition provides valuable recommendations and resource materials. Some resulted also in ISO standards

Leather Panel portal as knowledge hub

This portal www.leatherpanel.org is a depository of technical information generated through UNIDO technical assistance and global forum activities that are considered as useful sources for those associated with or interested in the development of leather-related industries and technology.

The aim is to disseminate information on best practices in the leather and leather products industry. The portal includes the following information:

Publications
An extensive collection of UNIDO's publications, manuals and reports that have are the result of more than 50 years of UNIDO's involvement in the Leather Value Chain (LVC). These reports and publications provide an opportunity to see the main issues addressed by the leather sector over past decades. For easy reference, the publications are divided into several categories: Trends (in the leather value chain), leather processing, leather products, cleaner technologies, solid wastes, tannery effluent treatments, training and trade

There are also sections covering different projects and highlights, including useful links to different organizations.

Yearly there are more than 50-60,000 users from all countries.

Conclusion

UNIDO not only focuses on the development of technical skills, but also addresses environmental issues and the incorporation of innovative technologies. In order to coordinate, monitor and manage

the knowledge transfer most efficiently. UNIDO strives to create more added-value elements such as *creating synergies among training and technical institutions, establishing tailor made and up to date training programmes for the leather industry and SMEs, introducing cleaner production technologies and overall improved production efficiency and implementation of innovative equipment.*

Over decades the Organization has established up a variety of tools, guidelines, techniques, approaches and strategies to improve the social, economic and environmental sustainability of the leather industry and communities at large. In previous projects technical assistance was successfully delivered using the following modules and packages:

Innovative on-line learning and knowledge platform: tailor made packages/components

packages supporting SMEs to tackle their problem

eLearning and training guidelines/manuals

Replication/dissemination/campaign: multiplication and dissemination is a crucial aspect in the implementation of new technologies; reaching hundreds of smaller enterprises poses a challenge and different strategies to address this problem have been established:

Train consultant, Research Centres, or other technical institutions to lead dissemination campaigns

Technology Transfer Centre within existing institutions or specialized departments within the associations to plan and organize national/regional events

The Leather Panel and special Leather Panel portal – www.leatherpanel.org . Especially the dissemination via the specialized Leather Panel portal has proven to be very efficient and user friendly. UNIDO had identified the need for such a specialized portal, which is now widely used by regular users in more than 180 countries.

Cooperation with well-established training institutions and twinning arrangements: twinning arrangements with leading technical/training institutions are beneficial for both sides. The integration of training institutions that can provide the necessary level of technical capability and vocational training increases the efficiency of local capacity building and creates synergies between targeted institutions.

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LEATHER INNOVATION CENTERS

Assisted by UNIDO

TECHNOLOGY, DEVELOPMENT AND TRAINING CENTRES

ASSISTED BY UNIDO

Development Centres

Established by UNIDO (projects)

1. Applied Research and Experimental Centre for Leather and Leather Goods Industry – Ulan Bator, Mongolia
2. Centre National du Cuir et de la Chaussure (CNCC) – Tunis, Tunisia
3. Centro de Tecnología del Cuero (CETEC) – San Jose, Costa Rica
4. Footwear Fashion and Design Service Centre (FFDSC) – Moscow, Russia
5. Footwear and Leather Industry Service Centre (FLISC) – Cairo, Egypt
6. Footwear and Leather Industry Centre (FLIC) – Manila, Philippines
7. Freya Leather Goods Product Development Centre – Kolkata, India
8. Hyderabad Leather Footwear Centre (HLFC) – Hyderabad, Pakistan
9. Industrial Development and Service Centre (IDSC) – Asmara, Eritrea
10. Leather Development Centre (LDC) of the Kenya Industrial Research and Development Institute (KIRDI) – Nairobi, Kenya
11. Leather Research Institute (LRI) – Haziribagh/Dhaka, Bangladesh
12. Process cum Product Development Centre for Sports Goods (PPDC) – Meerut, India
13. Rubber Technology Centre (RTC) – Yangon, Myanmar
14. Effluent Testing Laboratory of the Federal College of Chemical and Leather Technology (CHELTECH) – Kano, Nigeria

Upgraded/assisted by UNIDO (projects)

15. Calcutta College of Leather Technology (CCLT) – Kolkata, India
16. Central Leather Research Institute (CLRI) – Chennai (Madras), India
17. Centro Tecnológico do Couro (CTC) of Serviço Nacional de Aprendizagem Industrial (SENAI) – Estancia Velha, Brazil
18. Footwear Design and Development Institute (FDDI) – Noida/Delhi, India
19. Hides and Skins and Leather Productivity Centre – Addis Ababa, Ethiopia
20. Institute for Research and Development of the Leather and Allied Industries (IRDLAI) – Yogyakarta, Indonesia
21. Institute of Leather Technology (ILT) – Gujranwala, Pakistan
22. **Instituto Nacional de Tecnología y Normalización (INTN) – Asunción, Paraguay**
23. Laboratorio Tecnológico, Sistemas de Calidad, Comercio, Exposiciones (LATU) – Montevideo, Uruguay
24. Leather and Leather Products Technology Institute (LLPTI) – Addis Ababa, Ethiopia
25. Leather and Leather Technology Institute (LLTI) – Khartoum, Sudan
26. Leather Industry Research Centre (LIRC) – Hanoi, Vietnam
27. Leather Institute of Zimbabwe (LIZ) – Bulawayo, Zimbabwe
28. Leather Research and Training Institute – Pendik, Turkey
29. Leather Research Institute of the Shanhai Leather Corporation (SLC) – Shanghai, China
30. Leather Sport Goods Centre – Sialkot, Pakistan

31. National Research Institute for Chemical Technology (NARICT) – Zaria, Nigeria
32. Prototype Development and Training Centre (PDTC) – Chennai (Madras), India
33. Tanzanian Leather Industry Institute – Mwanza, Tanzania

Training Institutes

34. Central Footwear Training Institute (CFTI) – Agra, India
35. Central Footwear Training Institute (CFTI) – Chennai (Madras), India
36. Footwear and Leather Products Training Centre (FLPTC) – Colombo, Sri Lanka
37. Indian Institute of Leather Products (IILP) – Chennai (Madras), India
38. Production and Training Centre of the Manufacture of Leather Footwear and Leather Goods – Aden, Yemen (PDR)
39. Training and Common Facility Centre (TCFC) – Kampala, Uganda
40. Training and Production Centre for the Shoe Industry (TPCSI) – Thika/Nairobi, Kenya
41. Dar Es Sallam University of Technology; Mwanza Campus (DIT) – Mwanza; Tanzania

Common Facility Centres (CFC)

Established by UNIDO (projects)

42. Garment and Leather Products Facility Centre – Aba, Nigeria
43. Leather Finishing Centre – Kasur, Pakistan
44. Leather Products Common Facilities – Dar-Es-Salaam and Morogoro, Tanzania
45. Leather Products Common Facility – Windhoek (Namibia)
46. Leather Products Development Centre (LPDC) – Karachi, Pakistan

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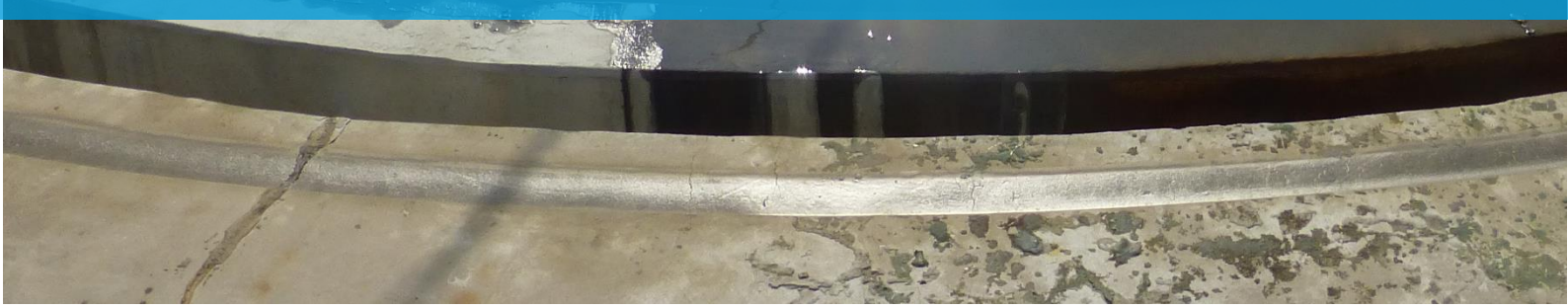
TANNERY EFFLUENT TREATMENT PLANTS

Designed and established through UNIDO



Effluent Treatment Plants

Designed, Established and/or Upgraded
through the UNIDO Leather-based Industry Programme

PLANT	PLACE/ COUNTRY	VOLUME, m^3/day	SERVICES PROVIDED	REMARK
Pilot & demonstration plant, Tannery School	Estancia Velha, Brazil	≈ 120	Design, construction, start up & operation	Full treatment, several parallel systems, including DAF, lagooning, trickling filter, membrane filtration etc.
Pilot & demonstration plant, LEATHER DEVELOPMENT CENTRE, KIRDI	Nairobi, Kenya	≈ 10	Design, construction, start up & operation	Mainly for training purpose
ALPHARAMA TANNERY	Athi River, Kenya	= 300	Design for upgrading	
NAKURU TANNERY	Nakuru, Kenya	500	Design and purchase of equipment	Primary treatment
SAGANA TANNERY– also served as a training & demonstration plant	Sagana, Kenya	≈ 420	Design, construction, start up & operation	Primary treatment and design of secondary treatment
BATA TANNERY	Lusaka, Zambia	≈ 180	Rehabilitation/ upgrading	
SINTRAPEL TANNERY	Tete, Mozambique	≈ 100	Design, construction, start up & operation	Full primary and biological system
LIWONDE TANNERY	Liwonde, Malawi	≈ 50	Design, construction, start up & operation	Primary (physical-chemical) treatment only
BURTAN	Bujumbura, Burundi	≈ 100	Upgrading, operation	Primary treatment
MOSHI TANNERY	Moshi, Tanzania	1,000	Design and purchase of equipment	Primary treatment

PLANT	PLACE/ COUNTRY	VOLUME, m^3/day	SERVICES PROVIDED	REMARK
LAKES TANNERS	Dar-Es-Salaam	500	Design	Primary treatment
AFROTAN	Dar-Es-Salaam	1,000	Design and purchase of equipment	Primary treatment
MOROGORO TANNERY	Morogoro, Tanzania	1,000	Design and purchase of equipment	Primary treatment
MWANZA TANNERY	Mwanza , Tanzania	1,000	Design	Primary Treatment
CETP Kasur	Kasur, Pakistan	= 13,000	Design, equipment, construction, advice in start up	Primary treatment and lagoons
CETP San Benito	San Benito, Columbia	≈ 5,000/ 10,000	Design	Primary treatment
CETP Sukaregang	Garut – Jawa Bart, Indonesia	≈ 300	Design	Full primary and biological treatment (SBR)
GAMBIRAN	Jogyakarta, Indonesia	≈ 100	Design	Full primary and biological treatment
CETP Magetan	Magetan – Est Java, Indonesia	≈ 250	Design	Full primary and biological treatment
(C)ETP Da Chang	Shanghai, China	≈ 8,000	Rehabilitation & upgradation	Full primary and biological treatment
Nanjing	Nanjing, China	≈ 1,400	Upgradation design, operation	Full primary and biological treatment
Xian	Xian, China	≈ 2,400	Upgradation, operation	Full primary and biological treatment
CETP Zablatani, tannery cluster	Damascus, Syria	≈ 5,000	Design	Primary treatment
CETP Pallavaram, tannery cluster	Tamil Nadu, India	≈ 3,000	Design, start up & operation	Full primary and biological treatment

PLANT	PLACE/ COUNTRY	VOLUME, m^3/day	SERVICES PROVIDED	REMARK
CETP Ranitec, tannery cluster	Ranipet – Tamil Nadu, India	≈ 4,000	Design, some equipment, start up & operation	Full primary and biological treatment
PRESIDENCY KID LEATHER	Kannivakam – Tamil Nadu, India	≈ 120	Upgradation, start up & operation	Full primary and biological treatment; Reed beds
MEERA HUSAIN	Tamil Nadu, India	≈ 60	Up gradation design, some equipment, start up & operation	Full primary and biological (lagooning) treatment
CETP Sidco Ranipet, tannery cluster	Tamil Nadu, India	≈ 2,500	Upgradation	Full primary and biological treatment
CETP Amburtec, tannery cluster	Ambur – Tamil Nadu, India	≈ 2,200	Upgrading, start up & operation	Full primary and biological treatment (oxidation ditches-carrousel)
CETP Vishtec, tannery cluster	Melvisharam – Tamil Nadu, India	≈ 3,400	Upgrading	Full primary and biological treatment; Reed beds
CETP Vanitec, tannery cluster	Vaniyambadi – Tamil Nadu, India	≈ 2,800	Some equipment	Full primary and biological treatment
CETP Kolkata, tannery cluster	Kolkata/Karai danga – West Bengal, India	≈ 5,000/ 30,000	Design	Full primary and biological treatment
CETP Hazaribagh	Hazaribagh – Dhaka, Bangladesh	= 21,600	Design	Full primary and biological treatment
CETP Bata Atha	Bata Atha, Sri Lanka	= 1,500	Design, equipment, start up & operation	Full primary and biological treatment

PLANT	PLACE/ COUNTRY	VOLUME, m^3/day	SERVICES PROVIDED	REMARK
TAN-ALIZ TANNERY	Ouagadougu, Burkina Faso	≈ 800	Up gradation design, Cr-recovery	Full primary and biological treatment
AWASH TANNERY	Addis Ababa, Ethiopia	≈ 1,000	Design	Primary treatment and Cr-recovery unit
WALLIA TANNERY	Addis Ababa, Ethiopia	1,000	Design and purchase of equipment	Primary treatment
MODJO TANNERY	Modjo, Ethiopia	?	Design, Pilot Plant	Advanced Integrated Wastewater Ponding System
DIRE TANNERY	Addis Ababa, Ethiopia	1,000	Design and purchase of equipment	Primary treatment
ETHIOPIA TANNERY	Addis Ababa, Ethiopia	1500	Rehabilitation and laboratory equipment	Primary and Secondary treatment
DESSIE TANNERY	Dessie, Ethiopia	700	Design and purchase of equipment	Primary Treatment
HAFDE TANNERY	Addis Ababa, Ethiopia	700	Design	Primary Treatment
BLUE NILE TANNERY	Addis Ababa, Ethiopia	500	Design and purchase of equipment	Primary treatment
NAKARA TANNERY	Windhoek, Namibia	1,000	Design and purchase of equipment	Primary Treatment
IMPONENTE TANNERY	Harare, Zimbabwe	1,000	Design and purchase of equipment	Primary Treatment
MASAKA TANNERY	Masaka, Uganda	700	Design	Primary Treatment
UGANDA FISH SKIN TANNERY	Jinja, Uganda	≈ 30	Design	Primary treatment
CETP Birgunj	Birgunj, Nepal	≈ 500	Design, equipment, start up & operation	Primary treatment

PLANT	PLACE/ COUNTRY	VOLUME, m^3/day	SERVICES PROVIDED	REMARK
NAKURU TANNERY	Nakuru, Kenya	≈ 160	Design	Primary treatment
KEMBE ESTATE	Kembe, Zambia	?	Design	Full primary and biological treatment
D'ANJEVA TANNERY	D'Anjeva, Madagascar	≈ 600	Design	Full primary and biological (lagooning) treatment
TANORTH TANNERY LTD. (TTL)	Sharada Industrial Estate – Kano, Nigeria	≈ 10,00	Conceptual design	Primary treatment
HUFAWA TANNERY (HF)	Sharada – Kano, Nigeria	≈ 2,000	Conceptual design	Primary treatment
UNIQUE LEATHER	Sharada – Kano, Nigeria	≈ 2,700	Conceptual design	Primary treatment
TRENDS VENERATE LTD.	Challawa Industrial Estate – Kano, Nigeria	≈ 600	Concepptual design	Primary treatment
AFRIMPEX	Sharada – Kano, Nigeria	≈ 750	Conceptual design	Primary treatment
FATA TANNING	Kano, Nigeria	≈ 800	Conceptual design	Primary treatment
CETP Industrial Estate (La Zone Industrielle du Cuir)	Grand Tunis – Tunis, Tunisia	≈ 1,500	Conceptual design	Primary treatment
Sialkot Tannery Zone	Pakistan	~12,000	Design, equipment, start up & operation	Full primary and biological treatment