



GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project

TYPE OF TRUST FUND: GEF TRUST FUND

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PART I: PROJECT INFORMATION

Project Title: Transforming the Leather Processing Industries towards Low Emissions and Climate Resilient Development Paths in Pakistan			
Country(ies):	Pakistan	GEF Project ID: ¹	9585
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	160069
Other Executing Partner(s):	Ministry of Climate Change (MOCC); Pakistan Tanners Association - Southern Zone (PTA - S.Z) Environmental Society;	Submission Date:	06/27/2018
GEF Focal Area (s):	Climate Change	Project Duration (Months)	36
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP <input type="checkbox"/>	
Name of Parent Program	[if applicable]	Agency Fee (\$)	190,000

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Co-financing
CCM-1 Program 1	Outcome A. Accelerated adaptation of innovative technologies and management practices for GHG emissions reduction and carbon sequestration	GEFTF	2,000,000	12,198,000
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
Total project costs			2,000,000	12,198,000

B. PROJECT DESCRIPTION SUMMARY

Project Objective: Transform industrial processing zones in Sindh Province through the widespread adoption of low-carbon technologies.						
Project Components/Programs	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 1 – Strengthening the guiding framework to facilitate the transformations towards low emission and climate resilient industrial processing	TA	Outcome 1.1 – Guidelines and recommendations fine-tuned to enable the scale-up of the Leather Environmental Footprint and/or Corporate Carbon Footprint (CCF) approach and increased access to	1.1.1 Tools and guidelines for Leather Environmental Footprint and Carbon Footprint Calculation methodology for the local leather industry reviewed/developed 1.1.2 Guidelines and documentation on	GEFTF	300,000	1,000,000

¹ Project ID number remains the same as the assigned PIF number.

² When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETF, LDCF and SCCF](#) and [CBIT programming directions](#).

³ Financing type can be either investment or technical assistance.

		clean-and-low carbon technology financing	<p>improvements and extensions of existing regulations encompassing the application of innovative clean-and-low- carbon waste technologies and practices, environmental management and regulatory responsibilities prepared</p> <p>1.1.3 Disseminate and inform responsible regulatory authorities on core elements and benefits of the CCF approach and sound waste management.</p> <p>1.1.4 Guidelines elaborated on the enhanced utilization of agri-food by-products and waste streams for industrial applications</p>			
Component 2 - Capacity building on the CCF approach following the determined guidelines and information dissemination on proper waste management initiatives.	TA	Outcome 2.1 - Capacities of key players on the Leather Environmental Footprint, CF and CCF approach for reduced GHG emissions strengthened and information made available to market enablers and major stakeholders on BAT/BEP for waste management within the leather processing sectors.	<p>2.1.1 Capacity of decision-makers, BMOs' representatives, and other stakeholders, on best practices in leather production to minimize industrial, environmental and carbon footprints built up (KPI: at least 50 participants trained);</p> <p>2.1.2 Information disseminated on environmentally sound management of solid waste and by-products, as an alternative to unregulated disposal, for the leather sector. Technical trainings for industries on using and applying the guidelines and tools developed (KPI at least 350 technicians, managers trained).</p>	GEFTF	128,182	1,500,000

			2.1.3 Capacity of BMOs enhanced: Training and capacity building for associations' representatives on the use of CCF tool and on NEQS (National Environment Quality Standards) compliance to disseminate among associations' members. (at least 150 users)			
Component 3 - Pilot of CCFs and sound waste management and practices within KLA processing sectors of Sindh Province demonstrated	Inv	Outcome 3.1 - Low emissions and climate resilient development path is demonstrated and scaled up through the CCF approach and sound waste management procedures for the leather processing industries	3.1.1 Carbon Footprint - Accounting, evaluating and monitoring inputs, production and processing efficiencies for leather processing transparency and reduced carbon footprint emissions 3.1.2 Low-carbon waste technologies and practices selected and demonstrated within the leather processing industries of Sindh Province 3.1.3 Access to clean and low- carbon waste technology financing for the leather processing sector facilitated	GEFTF	1,300,000	9,300,000
Component 4 - Project Monitoring and Evaluation (M&E)	TA	Outcome 4.1 - Progress towards project objectives are continuously monitored and evaluated	4.1.1 Quality control and effective monitoring of project activities, impacts and results achieved; 4.1.2 Mid-term and terminal evaluation conducted	GEFTF	90,000	100,000
Subtotal					1,818,182	11,900,000
Project Management Cost (PMC) ⁴				GEFTF	181,818	298,000
Total project costs					2,000,000	12,198,000

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

⁴ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

Please include evidence for [co-financing](#) for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount (\$)
GEF Agency	UNIDO	In-kind	150,000
GEF Agency	UNIDO	Grants	48,000
Private Sector	Pakistan Tanners Association - Southern Zone PTA(S.Z)Environmental Society	In-kind	5,400,000
Private Sector	Pakistan Tanners Association - Southern Zone PTA(S.Z) Environmental Society	Grants	6,600,000
Total Co-financing			12,198,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee ^{a)} (b) ²	Total (c)=a+b
UNIDO	GEFTF	Pakistan	Climate Change	(select as applicable)	2,000,000	190,000	2,190,000
Total Grant Resources					2,000,000	190,000	2,190,000

a) Refer to the [Fee Policy for GEF Partner Agencies](#)

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁵

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>Hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>Hectares</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	<i>Direct 1,360,000 metric tons Indirect 3,600,000 metric tons Total 4,960,000 metric tons</i>
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and main into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries.	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

F. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? No

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/CBIT Trust Fund) in Annex D.

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF⁶

⁵ Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

⁶ For questions A.1 –A.7 in Part II, if there are no changes since PIF, no need to respond, please enter “NA” after the respective question.

1. There are no changes in outcomes and outputs in comparison with the PIF.
2. The updated CF calculation is based on the data gathered during PPG inventory. Moreover, the original CO_{2e} reduction in the PIF was calculated for 1 year and not 20 years.
- 3.

A.1. *Project Description.* Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline projects, 3) the proposed alternative scenario, GEF focal area⁷ strategies, with a brief description of expected outcomes and components of the project, 4) [incremental/additional cost reasoning](#) and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and [co-financing](#); 5) [global environmental benefits](#) (GEFTF) and/or [adaptation benefits](#) (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

1) *The global environmental and/or adaptation problems, root causes and barriers that need to be addressed*

4. Climate change affects almost all the sectors of a country particularly impacting upon its water resources, energy, health, forestry, biodiversity and with a major impact on agricultural productivity. Global climate change has been shown to be predominately caused by emissions of greenhouse gases (GHGs) to the atmosphere.
5. The Paris Agreement set landmark goals for taking action on climate change. To achieve this, countries agreed to reduce emissions rapidly to reach net-zero GHG emissions in the second half of the century. Through an enhanced transparency framework all countries will be required to regularly report on their emissions and track progress on achieving their nationally determined contributions.
6. The waste industry occupies a unique position as a potential reducer of GHG emissions. As industries and countries worldwide struggle to address their carbon footprint, waste sector activities represent an opportunity for carbon reduction which has yet to be fully exploited. The global direct GHG emissions resulting from waste management activities are around 1.3Gt CO₂ eq. or approximately 3 – 5% of total anthropogenic emissions in 2005 (IPCC 2007).
7. On regional and city scales worldwide, the waste sector has the opportunity to change from a net emitter into a net reducer of GHG emissions (International Solid Waste Association (ISWA, 2009). Through the careful selection and use of existing proper waste management systems and technologies, many regions and cities around the world can work to achieve an internationally significant reduction of GHG emissions.
8. According to calculations, Pakistan’s waste and subsequent GHG emissions are set to rise from 6 to 15 MtCDE (Metric Tons of Carbon Dioxide Equivalent) (NEEDS, 2010-11). One of the major factors driving this is Pakistan’s population growth, which is expected to increase from the current level of 200 million to more than 300 million by 2050 (UNDESA, 2015).

Global environmental and/or adaptation problems: Leather production and CO₂ emissions

9. UNFCCC data (2015) shows that Pakistan’s GHG emissions are at 405.07 MT CO₂ equivalent, of which energy makes up 45% and waste and industrial processes make up 8.4%. GDP (2016) is 283.7 Billion USD.
10. Leather and leather products play a prominent role in the world’s economy with an estimated global trade value of approximately US\$134 billion in 2014 (ITC, 2016).
11. Being the second largest foreign exchange earning industry in Pakistan, the leather sector has a very strong export orientation. Thus, besides meeting local regulations, it is also required to comply with the strict standards of the developed world and meet the requirements of its overseas buyers on highly competitive international markets. In terms of raw material supply, domestic markets, labor cost, and the environment, the sector demonstrates: i) good supply of raw material; ii) well established tanning centers in Karachi and Lahore with

⁷ For biodiversity projects, in addition to explaining the project’s consistency with the biodiversity focal area strategy, objectives and programs, please also describe which [Aichi Target\(s\)](#) the project will directly contribute to achieving..

strong exports; iii) some clusters for gloves and garments (Karachi and Sialkot); iv) lower- quality garments made from imported, lower-grade African raw materials; and v) some significant environmental issues. Thus, although the leather sector and tanning industries have a positive effect on employment and economic growth rates in Pakistan and Karachi-Korangi, their effect on the environment is a serious threat for future development.

12. Leather's contribution to carbon footprint and CO2 equivalent emissions are calculated according to the following ratio: 1 sq. meter of leather is estimated to produce 7 – 15 kg CO2 emissions. This figure includes energy, chemicals used in the process and proper treatment of tannery effluents and solid waste. In cases where all waste from leather processing is used as raw material, CO2 equivalent emissions is 0 kg/m2. From properly landfilled solid wastes can be approx. 1.7 – 3.36 kg CO2 equivalent emissions. In case of decaying and burning of solid waste, CO2 equivalent emissions are 10 – 20 times higher.
13. Due to less efficient leather manufacturing processes like those used in Pakistan, it is estimated that CO2 equivalent contribution is 20 – 150% higher than efficient tanneries for example in Europe. This can be seen when comparing Asian versus world emission factors: Asia is 0.729 kg CO2/kWh and for World 0.507 CO2/kWh (the database of the International Energy Agency). The result of these inefficiencies in Asian leather manufacturers is a CO2 equivalent emission roughly 40% higher than European manufacturers.
14. To calculate the carbon footprint the project is using the methodology prepared by ECO2L, which is a model based on ISO 14067 Greenhouse Gases – Carbon Footprinting of Products – Requirements and Guidelines for Quantification and Communication. The ECO2L label encompasses the world's first calculation and auditing model for determining the energy efficiency and CO2 emissions of a tannery. ECO2L was developed by Leather Research Association in Germany together with ITG Environmental Technology as an active contribution towards climate protection. ECO2L audit provides an easier way to determine CO2 emission in terms of kg CO2 per unit area of finished leather by simplifying the much-complicated calculations of CO2 emissions in a clear defined boundary.

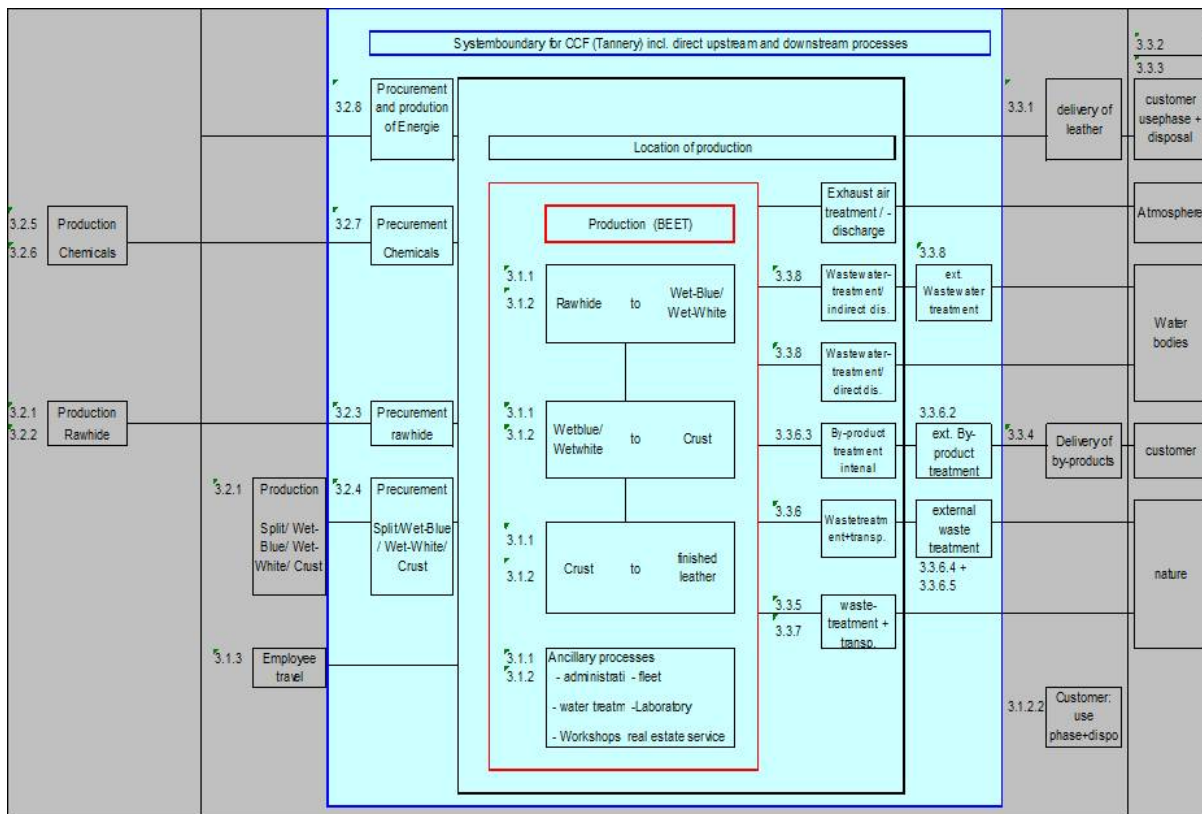


Figure 1 System boundaries for Carbon Footprint

15. In the boundary conditions for CO₂ emission, the following are included:
- a. Upstream processes – transportation of input materials (raw materials, chemicals, hides and skins)
 - b. Production processes
 - c. Downstream processes – wastewater treatment and solid waste treatment

Barriers and root causes

16. The leather industry faces a number of barriers that also represent some of the root causes of the emissions-related problems in Korachi-Korangi Leather Area (KLA). These include but are not limited to:
- a. Overlapping mandates and weak (if any) coordination among the institutions implementing environment and energy laws and sub-laws that could force a shift to a more resource efficient and low carbon manufacturing sector;
 - b. Lack of appreciation of the technical feasibility and economic viability of low-emissions technologies that are applicable on a small-scale;
 - c. Lack of guidelines and recommendations (frameworks in general) that would create a level playing field for the introduction of low-emissions technologies;
 - d. Weak institutional support for market players involved in promoting low-emission technologies;
 - e. Lack of capacity by market players and enablers to effectively function including entrepreneurship skills for potential project developers etc.;
 - f. Limited understanding and awareness at what section of the value chain GHG emissions are significant and consequently the inability to properly target their reduction
 - g. Limited capacity and technology to systemically manage waste at city and industrial sector level.
 - h. Lack of technical know-how to properly design and manage sector-level services such as the CETP and its conveyance system and waste treatment.
17. Several root causes and barriers to the adoption of sound waste management approaches and utilization have been identified and include:
- a. Weak enforcement of environmental regulations and a lack of incentives to comply with environmental laws has created an environment of non-compliance;
 - b. Insufficient awareness of the financial benefits of more waste efficient production led managers to opt for short-term profitability over the additional costs that often come with implementing waste efficient techniques;
 - c. Lack of private-sector capital for investment in waste efficient technologies or lack of willingness of managers to spend money on clean energy or production investments because of the greater concern over short-term profits;
 - d. Low levels of skills among Pakistani workforce needed to implement technical recommendations;
 - e. Lack of understanding of the negative effects of unregulated solid waste, lack of institutional capacity to properly manage solid waste, lack of understanding of the usefulness of solid waste (e.g. by-products);
 - f. Karachi city does not have a proper solid waste management system right from collection of solid waste up to its proper disposal. Because of the lack of adequate disposal sites, much of the collected waste finds its way to dumping grounds, open pits, ponds, rivers and agricultural land;
 - g. Accounting and reporting GHG emissions from waste management is particularly challenging. Waste sector activities generate emissions of methane (CH₄), carbon dioxide (CO₂) and nitrous oxide (N₂O), amongst others. However the industry is also responsible for reducing impacts through materials recovery and energy generation;

2) *The baseline scenario or any associated baseline projects*

The baseline scenario

18. Notwithstanding the fact that while Pakistan's contribution to global GHG emissions may be relatively small on a global scale, the country is one of the most vulnerable to climate change and has taken a strong stance towards the mitigation of GHG emissions. Pakistan's role as a responsible member of the global community in combating climate change has been highlighted by giving due importance to mitigation efforts in sectors such as energy, forestry, agriculture and livestock.
19. Pakistan is planning to reduce its greenhouse gas emissions by 20 % from 2008 levels by 2030.
20. Pakistan's GHG inventory of 2008 was updated in 2012. However, the work on Second National Communication is in progress. For this purpose, as per Inter-governmental Panel on Climate Change (IPCC) guidelines, a fresh exercise will be carried out for preparation of up to date GHG inventory. Pakistan's INDCs, submitted to the UNFCCC in preparation for the December 2015 Climate Summit, identified the following technical needs/priorities:
 - a. GHG inventory
 - b. Data management, modelling and tools
 - c. Technology transfer and development
21. Visible carbon cutting policies identified in Pakistan include boosting renewable energy, cutting electric power loss during transmission, more efficient water use in agriculture to reduce diesel-powered pumping, minimizing farm tillage to keep carbon in the soil and using manure to generate biogas.
22. Under the business as usual assumption, Pakistan's carbon emissions are projected to reach 400 million tons of CO₂ equivalent per year by 2050. GHG emissions from the industrial sector are expected to increase manifold according to the business as usual assumption. Exacerbation of GHG emissions could occur if the country moves towards rapid industrialization as its economy expands, i.e. due to developments such as the China Pakistan Economic Corridor. A close watch will therefore be kept on developments in this sector as they have a direct bearing upon the national emissions.
23. The Export Development Fund (EDF) plays an important role to support the leather industry and provide soft loans or grants for the projects enhancing the leather sector. EDF will provide part of the co-funding for the project through PTA SZ (see annex I and H).

Manufacturing and waste management

24. Several Pakistani environment and energy laws and sub-laws have the potential to force a shift to a more resource efficient and low carbon manufacturing sector. However, these laws and sub-laws have resulted in overlapping mandates and weak (if any) coordination among the implementing institutions. More importantly, these laws and sub-laws, plans and strategies are missing specific resource efficiency targets for the manufacturing sector and sub-sectors, programs to support the manufacturing sector achieve targets and programs to monitor progress in meeting specific targets.
25. Pakistan generates approximately 50,000 tons of solid waste daily and it is estimated that around 40% of the generated waste remains uncollected in major cities like Karachi while the waste that does get collected is not properly treated. Landfill sites, if any, are often designed poorly leading to incomplete decomposition, methane production, and contamination of ground and surface water with environmental and social consequences. Fermentation of organic matter in informal waste dumps and industrial organic effluents also has the potential to generate significant quantities of methane which makes up 45-60% of the landfill gas mixture (the GHG effect of methane is 20-times higher than that of carbon dioxide). Environmental degradation is not only well advanced already, but also is getting progressively worse as urbanization, industrialization and the country's population increase and as its economy develops generally.
26. Furthermore, industrial processing zones in Sindh Province are outdated and lack the correct technology, financing mechanisms and know-how to transition to a low-carbon set up.

Karachi and KLA

27. The tanning industry of Karachi is primarily concentrated in Korangi since most of the operating tanneries are located there. The leather sector in Karachi comprises of two types of manufacturing activities: wet processing

factories (tanneries); and value addition units (garments making and stitching). Total leather exports are comprised of ~ 48% tanned leather and ~52% value added products.

28. Tanneries are involved in processing raw material (partially or fully) to finished leather: from raw hide or skin to finished leather; the tanning unit might only process from raw to wet blue; from wet blue to finished leather; or from raw to finished.
29. Value addition units typically convert the finished leather into garments, gloves and other value added products. There are around 60 formal units, besides an estimated equal number working in the informal sector. Around 50% of these value addition units are located in sector 7/A, and the remaining are located in other sectors of Korangi Industrial Area and other industrial areas of Karachi.

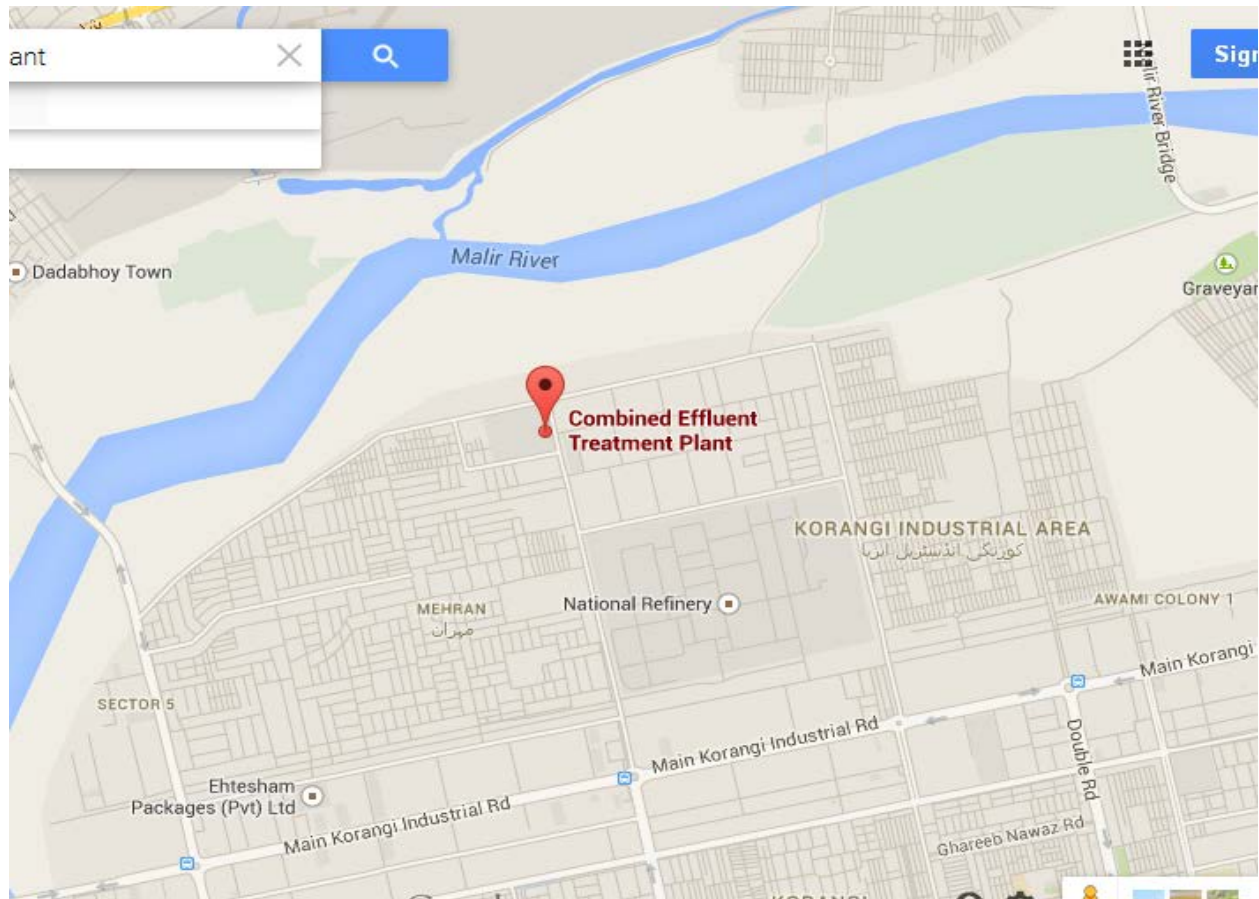


Figure 2 Map of KLA

30. The tanning process requires large quantities of water. The Pakistan Tanners Association Southern Zone (PTA SZ) (project partner) members require approx. 27,000 m³ of water daily. Since it is not being provided by Karachi Water & Sewerage Board (KW&SB), the tanneries have to source their own water. Approx. 27,000 cubic meter of effluent is generated every day. Currently, the treated effluent from the CETP (Central Effluent Treatment Plant) is discharged in a storm water drain, ultimately reaching the Arabian Sea.
31. In Karachi, the unique feature of leather industry is that most units (both wet processing and garments) are located in a specific sector. This gives rise to very high potential for sector specific, combined or joint services. Hence, a CETP was previously established in this sector. Also, a Conveyance System carrying Wastewater from individual tanneries is an integral part of the CETP. Around 12 km of open concrete drains were constructed to serve the purpose.
32. A description of the scenario and current problems experienced in Karachi and KLA are as follows:

- a. **Karachi city:** At present, there is practically no proper waste management system that collects, segregates, transports, recycles, reuses and/or correctly disposes of solid waste in Karachi city or any other industrial zones. The Karachi city dumpsite offers space for dumping and landfilling, but is currently not operating according to basic environmental and social standards: its poor design causes incomplete decomposition, methane production, and contamination of ground and surface water. Additionally, the garbage transfer station is not suitably equipped to deal with waste. For more details on the Karachi dumpsite kindly refer to annex L.
- b. **Karachi Korangi CETP and conveyance system:** A large-sized CETP to treat the effluent being generated by around 120 tanneries located in Korangi Industrial area Sector 7/A was commissioned in August 2005. The CETP has a treating capacity of 43,000 m³ wastewater per day, while currently it is treating 16,500 m³ of tannery effluent and 26,500 m³ of domestic wastewater per day. The fully functional CETP has the unique distinction of being the largest environmental project of the Private Sector with participation of GoP (Government of Pakistan). Because of its nature, the project is being followed as a model environmental project of the industry in Pakistan. If the service quality of the CETP depreciates for any reason, it will have a direct implication on exportability of leather by the tanneries connected with the CETP.

The CETP plant is based on Upflow Anaerobic Sludge Bed (UASB) technology. Currently however, the current technology used (UASB) in the CETP has limitations due to an inappropriate mix of municipal waste for proper anaerobic treatment. It also has high O&M cost. The PTA SZ has expressed plans to modify the CETP to activated sludge to increase efficiency, but does not have the capacity and technology to do so.

A Conveyance System carrying wastewater from individual tanneries is also an integral part of the CETP. Around 12 km of open concrete drains were constructed to serve the purpose. However, these drains are also not functioning well as they were not properly designed to deal with peak discharge loads. They are also often clogged as they are not properly cleaned leading to stagnating water, which increases disease spread and pollution of groundwater.



Figure 3 CETP Karachi Korangi

- c. **Leather industry:** The tanneries in KLA's southern zone annually produce approx. 33,700,000m² of leather

Raw material	Input (t/year)	Output (m ² /year)
Bovine	47,700	8,100,000
Goat	12,000	9,600,000
Sheep	17,400	16,000,000
Total	77,100	33,700,000

Table 1: Average production in Karachi Korangi 7/A

The leather manufacturers in KLA are currently using inefficient technologies and processes that require higher inputs (energy, chemicals, etc.) than necessary for production; they also produce high levels of waste that can be reduced, reused and/or recycled. It is estimated that CO2 equivalent emissions from energy alone used in tanneries is 90-100,000 t/year.

- d. **Solid waste management Korangi (KLA):** In total (including salt), tanneries generate approximately 126,576 t/year of solid waste, roughly 350 tons of per day. CETP sludge is estimated at an additional 41,750 tons per year.

Waste Description (based on 2017)	Korangi 7A Tanneries: 120 tanneries		Korangi 7A all 120 tanneries	
	ton waste & Byproducts/year: Korangi 7A	Sheep&Goat	bovine	Total t/year
rawhide waste (trimmings, head, tail..)		1.103	4.775	5.878
fleshing / trimmings, rawhide & pickled		3.493	0	3.493
fleshing / trimmings, limed		-	10.504	10.504
trimming pickle		122	0	122
Trimming waste, tanned		852	1.188	2.040
Shavings, tanned (WB+Crust)		2.362	8.399	10.760
Buffing dust, tanned		5	45	50
Finished & Crust leather waste		982	143	1.125
Cr-contaminated sludge 40% dry matter (after Dry-beds in CETP 20% DS assumed)		78000		78.000
Drainage waste 40% dry matter (after drainage cleaning, 10% DS assumed)		500		500
wooden pallets, wood scrap wasted		867		867
Used oil,		5		5
Commercial paper waste		73		73
plastic (barrels, foil)		81		81
metal waste (containers, metals)		114		114
Household garbage / other		970		970
Special hazardous waste: chem. Contaminated packing, textiles etc.		197		197
salt (if it would be shaken/brushed etc.)		2350	4476	6.826
wool		4.973	0	4.973
Total waste				126.576
Total waste, but without salt				119.750
Total waste, but without salt/CETP Sludge				41.750

Table 2 Waste generated in Karachi Korangi 7A tanneries

However, the KLA lacks the capacity and does not have the equipment to properly collect, transfer, reutilize and store waste products generated as part of the leather production process. Unregulated disposal of solid waste from leather processing activities and illegal landfill sites without any appropriate measures presents a high risk of groundwater pollution. Much of the uncollected waste poses serious risk to public health through clogging of drains, formation of stagnant ponds, and providing breeding ground for mosquitoes and flies with consequent risks of malaria and cholera. In addition, because of the lack of adequate disposal sites, much of the collected waste finds its way in dumping grounds, open pits, ponds, rivers and agricultural land. It is also an additional step for the manufacturers in KLA to dispose of their waste as there are no methods to collect and transport waste to the dumpsite. Obsolete and defective waste air purification technology, transfer centres and inappropriate production and waste management processes mean that leather industrial units emit significant quantities of harmful substances, many of which can be reused to improve efficiency. Decaying biological materials create highly objectionable odours as well as harmful GHGs such as methane (the GHG effect of methane is 20-times higher than that of carbon dioxide).



Figure 4 Typical uncontrolled disposal of solid waste and burning in streets within Karachi Korangi 7/A

Referring to Table 2 Waste generated in Karachi Korangi 7A tanneries, data gathered in PPG phase indicates that in case all waste is sent to a government dumpsite, CO₂ equivalent emissions is approx. 170,000 tonnes in maximum production and worst scenario. In case of uncontrolled decaying and/or disposal, CO₂ equivalent emissions would be 10-20 times more: 1,700,000 -3,400,000 tonnes of CO₂ equivalent emissions per year.

CO2e-emission if all waste would be send to to (government) dump site	CO2 emissions	CO2 emissions	CO2 emissions
	from transportation	from total	total:
	by truck: 0,075 kg CO2/km*t	disposal	transportation + disposal
	kg CO2/year	kg CO2/year	kg CO2/year
rawhide waste	19.838	11.838.292	11.858.130
fleshing / trimmings, rawhide	11.789	7.034.902	7.046.691
fleshing / trimmings, limed	35.451	21.155.056	21.190.507
other hide or skin waste	412	245.708	246.120
Trimming waste, tanned	6.885	4.861.320	4.868.205
Shavings, tanned	36.248	21.995.520	22.031.768
Buffing dust, tanned	169	202.550	202.719
Finished leather waste	3.797	4.557.488	4.561.284
Cr-contaminated sludge 40% dry matter	263.250	89.778.000	90.041.250
Cr-free sludge 40% dry matter	1.688	503.750	505.438
Commercial wood waste	2.926	5.058.078	5.061.004
Used oil	17	13.200	13.217
Commercial paper waste	246	341.202	341.448
Commercial plastic waste	273	0	273
Metal	385	0	385
Household garbage / other	3.274	1.746.000	1.749.274
Special hazardous waste	665	354.600	355.265
salt (not yet, but if salt would be brushed	23.038	0	23.038
wool (not to landfill)	0	0	0
0,00	0	0	0
SUM:	410.349,38	169.685.666	170.096.015

Table 3 CO2 equivalent emissions for different waste fractions

Baseline projects

33. The *Framework for Implementation of Climate Change Policy (2014-2030)* (see annex M) outlines several sectors in which the Government of Pakistan are tackling climate change through mitigation activities; two of these sectors are industries and waste. Within this framework, several important strategies are laid out:
 - a. Incorporating economic incentives to promote emission reduction by upgrading the industrial processes and technologies.
 - b. Promoting the integrated “Cleaner Production” strategy in the Industrial sector by making more efficient use of inputs such as energy, water, raw material etc.
 - c. Developing capacity to monitor and estimate emissions locally for each industry.
 - d. Encouraging the industrial sector to have periodical “Energy Efficiency Audit
 - e. Legislating and enforcing laws related to industrial and domestic waste management
34. Additionally, *Policy and Regulations on Solid Waste Management - Pakistan* (2010) provides a legal framework for solid waste management in which guidelines for solid waste disposal are outlined (annex N).
35. Nevertheless, industry and waste management sectors have in the past not functioned according to these guidelines minimizing the potential for climate change mitigation.
36. Thus, very broadly, and in accordance with the above guidelines, the proposed baseline project concerns the entire leather production industry, waste management at city level as well as some related environmental activities within KLA to mitigate climate change. The following figure serves as an overview of the envisioned baseline projects. Each component is described below the figure.

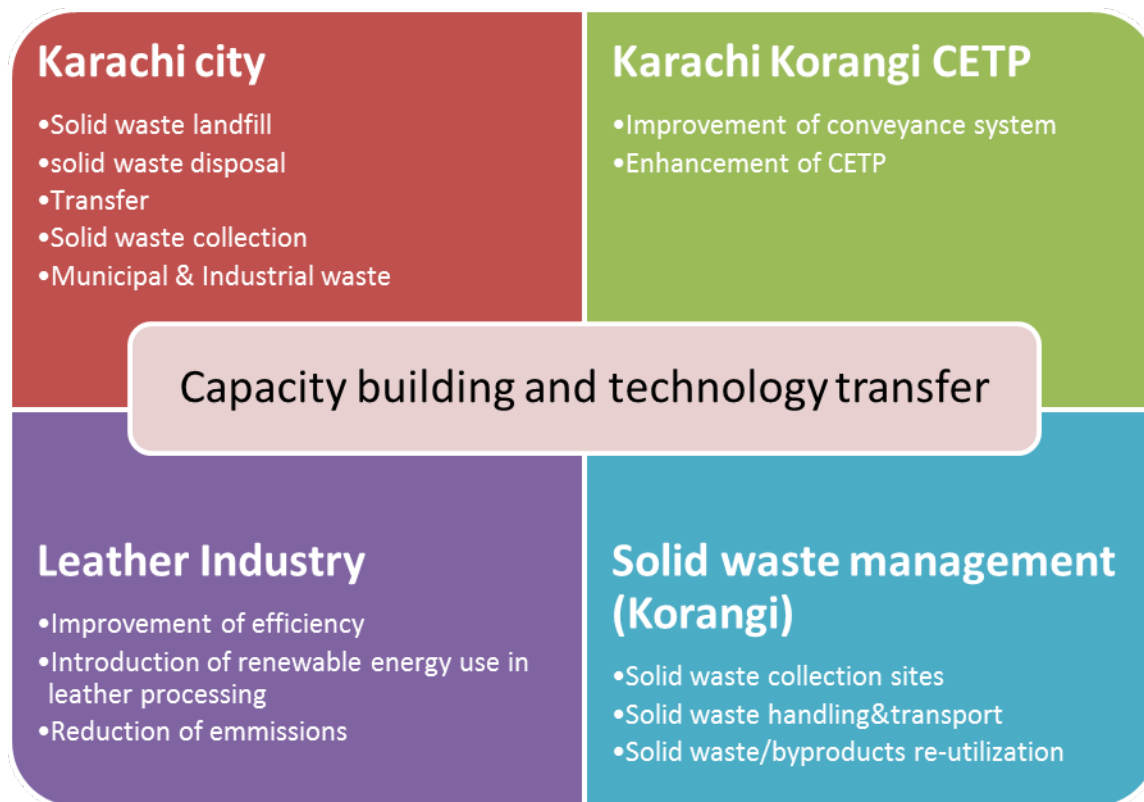


Figure 5 Overview of baseline projects

37. **Karachi city:** To correct the issues with the current dump- and landfill site and deal with the issue of municipal and industrial waste at city level, Karachi’s current dump/landfill site will be upgraded and capacity building will ensure that it is properly managed in the future. More specifically, the project aims to improve the collection, transportation, transfer and landfilling of solid waste from leather manufacturers as well as municipal and industrial waste by procuring the appropriate equipment and training necessary stakeholders. The Government of Pakistan is providing land for the landfill site, which will be for accessible for all industries in the area. In order to ensure the project reduced GHG emissions, proper landfilling of waste from leather manufacturing will be carried out. This component of the baseline project is naturally connected to the Korangi solid waste management component, which will be discussed shortly.
38. **Karachi Korangi CETP:**
- To overcome the issue of the inefficient anaerobic treatment of mixed municipal and industrial waste water currently experienced in the CETP, one of the components of the project is the change to the CETP to activated sludge to improve efficiency and lower O&M costs. Switching from anaerobic to activated sludge will ensure that the mix between municipal and industrial waste will provide better results for the treatment of effluent, and it is this process in which the capacity of the PTA S.Z. is lacking. Kindly refer to annex I for more detail.
 - To tackle the issues with the conveyance system, the baseline project will also improve the design and properly reconstruct the conveyance system and drains to ensure that effluent during peak loads are suitably carried thus reducing pollution.
39. **Leather industry:** To reduce the GHG emissions in leather production facilities, the baseline project will making leather production more efficient in terms of inputs (energy, water, salt, chemicals, etc.) and outputs (better products, greater leather output, better use of waste). Renewable energy will be introduced to the production facilities and more efficient equipment and processes will be installed and/or established to reduce GHG emissions while at the same time making the leather industry more competitive through saving on costs in the long term. For more detailed information on some of the types of technology and processes that will be introduced see annex L

40. **Solid waste management Korangi:** Since there is no waste management system in the KLA, the current unregulated disposal and burning of leather waste in the KLA has been known to be a major cause of GHG emissions. To circumvent this, the project aims to establish a solid waste management system for leather production units including collection, segregation, possible reutilisation, transportation, and/or, as a last resort landfill at Karachi landfill site. This will involve procuring appropriate equipment for each step above as well as capacity building. Concerning the reutilization of solid waste, to make the waste management system and its by-products more lucrative for the industry and developing additional revenue streams, another important part of this component will be the preparation of investment options underwritten by feasibility studies for different waste-management scenarios (solid waste fractions).
- 3) *The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project*
41. Globalization and industrialization are trends that are projected to directly attribute to the increasing GHG emissions in Pakistan. The transfer of sustainable technology and effective mitigation options for the industrial sector to Pakistan is crucial to reducing GHG emissions (ISWA, 2009). Using less energy saves money and reduces GHG emissions. Many win-win situations are already exploited, but there is much more to be done.
42. As a response to the need to reduce emissions while maintain profitability, the project is aimed at the deployment, demonstration and financing of low-carbon technologies and GHG emission mitigation options not yet present in Pakistan, while also enhancing the competitiveness and acceptability of Pakistani leather products in international markets. These benefits present a win-win scenario for KLA tanneries: reduced GHG emissions and higher possibility of increased export earnings.
43. The overall objective of the project is therefore to transform the industrial processing zones in Sindh Province through the widespread adoption of low-carbon technologies. To achieve the overall aim, the project will contribute to strengthening the technical and management operations of the KLA cluster: production processes, cleaner production facilities, sector level facilities (such as the CETP for KLA and proper waste management) and technical and professional capacities will be established and/or optimized to improve tannery efficiency and reduce GHG emissions. If identified during project implementation, feasible add-ons will be initiated to further reduce GHG emissions.
44. In line with the GEF-6 Climate Change Mitigation focal area strategy, the project will i) contribute to the support of integrated approaches combining policies, technologies, and management practices with significant climate change mitigation potential. The project will: i) promote innovation, technology transfer, and supportive policies and strategies; ii) demonstrate mitigation options with systemic impacts; and iii) foster enabling conditions to mainstream mitigation concerns into sustainable development strategies. In line with GEF-6 CCM Program 1, the project will promote and demonstrate: i) technologies with transformational potential; ii) the acceleration of low emission technology innovation and uptake through demonstration, deployment, transfer using policies and mechanisms, and iii) collaborative initiatives with stakeholders, including the private sector, to adapt technologies to user needs. The project will contribute to both the CCM focal strategy and Program 1 in the following ways:
- a. Providing fine-tuned guidelines and recommendations to upscale the CCF/Leather Environmental Footprint and increasing access to low-carbon financing;
 - b. Provide technical and managerial support to the leather product sector of Karachi/Sindh, in cooperation with executing and project partners: the areas of interest are individual industrial units and combined sector specific facilities through building up capacities to enable local government and its partners like PTA, Environmental Society to reduce GHG emissions.
 - c. Providing examples of how innovative technical solutions, such as tallow recovery, use of renewable energy – solar water heating, proper effluent treatment – can improve efficiency by reducing inputs, reusing items and maximizing outputs;
 - d. Technology transfers and demonstration of proper waste management systems and how it can lead to additional/alternative revenue streams, reduced costs and improved efficiency;
 - e. The preparation of investment proposals based on the feasibility of different waste streams;

- f. Capacity building on the CCF/ Leather Environmental Footprint approach, waste management system and best practices in leather production to minimize industrial, environmental and carbon footprint;
 - g. The improvement of practices under the UNFCCC and development of global environmental management indicators as part of the national energy and environmental management systems of Pakistan.
 - h. Develop capacities of the local communities to better face the climate change challenges and to take benefits from the development initiatives carried out in the region.
45. The project will also assist the KLA to enhance product exportability and international acceptability by acquiring international sustainable certificates, labels and other brand requirements and to ensure that the sector establishes measures to comply with international/local standards.

Component 1 - Strengthening the guiding framework to facilitate the transformations towards low emission and climate resilient industrial processing

46. According to the strategy proposed in 2015, the government is committed to reduce GHG emissions and has set a goal of reducing emissions by 20% from 2008 levels by 2030 under a new global climate deal.
47. The parties to the convention are required to achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Under articles of the convention, the developed countries are required to take actions for mitigation, finance and technology transfer to developing countries while the latter are required to take actions that include adaptation, mitigation, capacity-building and sustainable development
48. In order to achieve this goal and reduce GHG emissions, proper calculation including methodology and contribution of each contributor needs to be prepared. This will lead to proper inventory and data of GHG emissions. Based on this data, an action plan and measures to reduce GHG and CF emissions from the industry can be properly prepared. In case of the leather manufacturing, the recent Leather Product Environmental Footprint Category Rules (Leather PEF⁸) were officially approved by the Environmental Footprint Steering Committee. The establishment of the Leather PEF⁸ represents a major milestone in coming to a harmonised methodology for the calculation of the environmental footprint of leather made from hides and skins of animals slaughtered for the production of meat, which represents more than 95% of all leathers traded worldwide.
49. A zero-allocation of GHG emissions to hides and skins, as a by-product of animals slaughtered for meat production, is fully acknowledged in the CEN Standard EN 16887 (approved in Nov 2016, published in March 2017, applicable not later than Sept 2017) Leather – Environmental footprint – Product Category Rules (PCR) – Carbon footprints. It sets the Product Category Rules for the Carbon Footprint of leather. The Product Environmental Footprint (PEF) looks, however, not only at the issue of Climate Change but addresses also many more environmental impact categories, thus providing users with a comprehensive approach for the ecological design of their leathers.
50. Methodologies of the GHG and CF calculation are new and thus the project will support local government and institutions with the regard of the calculation, methodology and optimization of the process to reduce GHG and CF emissions.
51. The application of the Leather Environmental Footprint and/or Corporate Carbon Footprint and calculation of energy consumption and conversion into (Corporate) Carbon Footprint will be a new in Pakistan. This will be also encouraged for decision makers to spread as part of the policy into the leather sector and among other industrial sectors, as it has not been used in Pakistan yet. The methodology prepared for the leather processing will be used to strengthen the national framework and possible use of the CCF in additional industrial sectors.

Outcome 1 - Guidelines and recommendations fine-tuned to enable the scale-up of the Leather Environmental Footprint and/or Corporate Carbon Footprint (CCF) approach and increased access to clean-and-low carbon technology financing

⁸ The PEF⁸ is embedded within the ECO2L methodology.

52. According to data collected during the PPG phase, among other factors, emissions from solid waste is an important contributor to pollution and GHG emissions within Korangi 7A.
53. Existing tools, guidelines, programmes and recommendations with regard to solid and effluent waste management in KLA will be assessed as part of this project component and proposals put forward as to how these guidelines may be improved and expanded. The relevant authorities will be informed and prepared of the core elements of the leather industrial cluster transformation. To date, no national programme includes these planned activities. The authorities, however, require information about how to improve the environmental situation.
54. This project outcome will help government agencies fit existing guidelines to the planning, development and management of the KLA sector in close cooperation with MoCC (for national ownership). Guidelines and recommendations may be used as a basis for promoting innovative resource- and energy-efficient technologies and production practices for intelligent waste management.
55. To achieve the outcome 1, the following output and activities envisaged for the leather sector:

Output 1.1 – Tools and guidelines for the Leather Environmental Footprint and Carbon Footprint Calculation methodology for the local leather industry reviewed/developed.

- Activity 1.1.1 Review existing tools for the Leather Environmental Footprint in Pakistan and prepare recommendations for improvement and possible harmonization with other such guidelines;
- Activity 1.1.2 Develop documentation on improvements and methodology for the application of innovative clean-and-low-carbon waste technologies and practices, environmental management including training tools;
- Activity 1.1.3 Workshops – seminars: Disseminate and inform responsible regulatory authorities on core elements and benefits of the Leather Environmental Footprint toolkit and the Corporate Carbon Footprint (CCF) and or Product Environmental Footprint Category Rules (PEFCR) and use for calculation of the Carbon Footprint and environmental footprint especially related to solid waste. Recommendations made on the enhanced utilization of waste streams for industrial applications.

Output 1.2 - Guidelines and documentation on improvements and extensions of existing regulations encompassing the application of innovative clean-and-low- carbon waste technologies and practices, environmental management and regulatory responsibilities prepared.

- Activity 1.2.1 Review existing tools and guidelines, programmes related to the selected industrial sectors and prepare recommendations for national considerations;
- Activity 1.2.2 Develop documentation on improvements and extensions of existing regulations encompassing the application of innovative clean-and-low-carbon waste technologies and practices, environmental management and regulatory responsibilities;
- Activity 1.2.3 Workshops – seminars: Disseminate and inform responsible authorities on core elements of regulatory documents.

Output 1.3 Disseminated and informed responsible regulatory authorities on core elements and benefits of the CCF approach and sound waste management.

- Activity 1.3.1 Workshops – seminars: Disseminate and inform responsible regulatory authorities on core elements and benefits of the Leather Environmental Footprint toolkit and the Corporate Carbon Footprint (CCF) and or Product Environmental Footprint Category Rules (PEFCR) and use for calculation of the calculation especially related to solid waste. Recommendations made on the enhanced utilization of waste streams for industrial applications.
- Activity 1.3.2 Guideline for practitioners including training and capacity building on methodology how to use PEFCR calculation

Output 1.4 Guideline elaborated on the enhanced utilization of waste streams for industrial applications

Activity 1.4.1 Preparation of recommendations for sound waste management and especially waste utilization either as source for other products or other industrial applications as part of the Circular Economy

Component 2 - Capacity building on the CCF approach following the determined guidelines and information dissemination on proper waste management initiatives.

56. Policymakers must raise awareness of the benefits of efficient and cleaner production technology, facilitate the scale up of financial products offered by banks to finance energy efficiency, train the workforce and technology service providers and enforce environmental laws.

Outcome 2: Capacities of key players on the Leather Environmental Footprint, CF and CCF approach for reduced GHG emissions strengthened and information made available to market enablers and major stakeholders on BAT/BEP for waste management within the leather processing sectors

57. To facilitate the awareness-raising process, numerous training manuals and tools will be developed for use by different institutions such as universities, research organizations and industry associations. Ownership of the various training modules will rest with the appropriate national institute so as to ensure post-project training continuity and sustainability. The project will help local training institutions to adapt these training manuals into curriculum for their institutions. For each target sector, at least 500 people will be trained (technical managers, MOCC, leather associations, companies and other identified/relevant stakeholders). A blended learning approach (online and classroom learning) with a modular structure will be adopted (for a full explanation see Annex E) to ensure that institutions have high-quality training material and that users can access these training courses at any point in time. Integral to this is to build the capacity of trainers through a training of trainers approach. The dissemination of activities to other regions (e.g. through the Leatherpanel Portal www.leatherpanel.org.) will reach approximately 30-40,000 users globally per year.
58. A Green Productivity team will be formulated under the KLA to be trained and supported in putting in place measures for compliance with international standards.
59. To achieve outcome 2, the following outputs and activities are envisaged:

Output 2.1 - Capacity building for decision-makers, BMOs' representatives, and other stakeholders, on best practices in leather production to minimize industrial, environmental and carbon footprints built up (KPI: at least 50 participants trained)

Activity 2.1.1 Preparation and development of new training tools (e.g. animated presentations) for on-line and blended trainings with topics such as Leather Environmental footprint – Sustainable Leather Manufacturing including solid waste

Activity 2.1.2 Workshops – seminars – online courses: Disseminate and inform responsible regulatory authorities on the best practices in leather manufacturing to reduce environmental footprint with a focus on solid waste management;

Output 2.2 - Information disseminated on environmentally sound management of solid waste and by-products for the leather sector as an alternative to unregulated disposal. Technical trainings for industries on using and applying the guidelines and tools developed (KPI at least 350 technicians, managers trained). New tools developed and disseminated yearly to more than 30-40,000 users).

Activity 2.2.1 Preparation of training curricula for local institutions to include topics such as sustainable leather manufacturing into the training of leather technicians. Training will utilize existing and newly developed training tools (whenever possible translated into Urdu).

Activity 2.2.2 Blended training course: Implementation of the blended training course in cooperation with the local institute or organization.

Activity 2.2.3 Workshops - seminars: Dissemination of technologies prepared under component 3 to leather managers and technicians

Output 2.3 - Capacity of BMOs enhanced: Training and capacity building for associations' representatives on the use of CCF/PCEFR tool and on NEQS (National Environment Quality Standards) compliance to disseminate among associations' members. (at least 150 users)

Activity 2.3.1 Workshops and seminars for BMOs including Service centers and training institutions on the use of CCF/PCEFR tools.

Activity 2.3.2 Exposure and knowledge exchange with international users of CCF/PCEFR tools

Component 3 - Pilot of CCFs and sound waste management and practices within KLA processing sectors of Sindh Province demonstrated

Corporate Carbon Footprint (CCFs)

60. Carbon footprints provide an estimate of the total amount of GHGs that are emitted during the life cycle of goods or services. Businesses, governments and other stakeholders use carbon footprints in order to gain an understanding of the GHGs emissions from consumer products and companies. Product Carbon Footprints (PCFs) can be used for different purposes, which in turn influence the level of detail, accuracy and therefore complexity required when conducting an assessment of the GHG impact of the product (The International Reference Life Cycle Data System (ILCD) Handbook, 2010). Quantifying the carbon footprint of a product such as for leather products can be used as the basis for reducing its GHG emissions. The so-called 'hot spots' in terms of energy consumption and the associated CO₂ emission in the production cycle can be identified and mitigated.
61. During the PPG phase, an inventory of waste generated in Korangi was prepared including estimation of the Environmental and Carbon footprints, GHG emissions and mitigation potential of the project (global environmental benefits). Capacity building, information exchange and more in-depth activities on CCF will be undertaken during the project implementation phase for the leather sector.
62. Waste policies and regulations can be strong national drivers to reduce GHG emissions. It is important to focus on waste policies and regulations which are practical and sustainable, but that take the local context into account such as local waste composition and quantities, infrastructure, preferences, economic resources, and climate waste policies and regulations containing precise long-term and intermediate targets for better handling of waste. Where implemented, such waste management policies and regulations can create significant GHG emission reductions.

Outcome 3 - Low emissions and climate resilient development path is demonstrated and scaled up through the CCF approach and sound waste management procedures for the leather processing industries

63. The existing Korangi Leather Area Industrial Zone will be transformed into an Environmental Industry Park (EIP) for the leather sector. Under the cluster development concept this will enhance exportability and international acceptability of the sector's output by acquiring international sustainable certificates, labels and

other brand requirements; strengthen and support and the sector's sustainability; and enhance the viability of sector-level initiatives previously undertaken.

64. During PPG phase some major problems related to solid waste management within Karachi Korangi areas were identified:
- a. Lack of proper collection points and collection devices within individual industries/tanneries and also within Korangi cluster;
 - b. Inadequate handling equipment and transport equipment for proper handle of solid waste (collection and transport) to reduce environmental threats and also health risks for those involved (operators and workers);
 - c. Lack of knowledge on possible options for solid waste re-use.
65. The main part of the GEF funded project will be to prepare investment proposals and a business model for sound and a profit-enhancing waste management system including utilization and/or proper collection and disposal of solid waste. The following is envisioned:
- a. Equipment required to establish a sound waste management system, such as collection units, specialized equipment – vans/trucks for transportation of waste and reusable waste and segregation equipment (with minimal risk to environment), will be procured and demonstrated as part of the project.
 - b. Training in techniques that reduce the GHG emissions of uncontrolled solid waste disposal e.g. composting and landfilling will be prepared to the KLA management service providers/training centers.
 - c. Training in techniques that turn waste into useful by-products e.g. leather board production, tallow recovery will also be given to leather producers and other relevant counterparts.
 - d. The technical and professional capacities of persons operating and managing sector level facilities that also relate to solid waste, such as the CETP, will be enhanced.
 - e. The project will prepare a business model outlining the extent to which different solid waste scenarios (e.g. landfill, landfill and composting, landfill, composting and tallow recovery, etc.) can reduce GHG emissions and be profitable through reutilization, disposal and by-product sales to other industries.
66. PTA S.Z. will execute the project and coordinate activities and inputs from all partners and ensure smooth financing and co-financing of all STZ utilities, infrastructure. PTA S.Z. will establish operational policies for the provision and O&M of the CETP, solid waste management and collection and whole Korangi industrial area and necessary services, including setting of tariffs to finance operations and power and enforcement of collection thereof. Revenue collected by PTA S.Z. from the companies (tanneries) will be based on the basis of tariff on metered water (for CETP) consumption with possible tariffs reflecting specific parameters (e.g. Chrome content, suspended solids, COD etc.) and volume of solid waste. For collection of solid wastes it will be based on weight and solid waste fractions. PTA S.Z. should prepare also sets of compulsory measures in tanneries and companies within KLA e.g. installation of water meters, segregation of streams, list of compulsory cleaner technologies and solid waste fractions.
67. Any necessary add-ons will be initiated to further reduce CO2 emissions.
68. To achieve outcome 3, the following output and activities are envisaged separately for the leather sectors:

Output 3.1 - Carbon Footprint - Accounting, evaluating and monitoring inputs, production and processing efficiencies for leather processing transparency and reduced carbon footprint emissions

Activity 3.1.1 Detailed assessment and CF calculation for selection of the best option for reduction of CF from solid waste and also manufacturing process

Output 3.2 - Low-carbon waste technologies and practices selected and demonstrated within the leather processing industries of Sindh Province

- Activity 3.2.1 Detailed assessment of possible collection points and transfer points including handling and transport of solid waste from source to manufacturing units and/or proper disposal and treatment site
- Activity 3.2.2 Preparation of plans for collection and transport of solid waste from source to manufacturing units and/or proper disposal sites
- Activity 3.2.3 Selection and deployment of proper tools and equipment for collection, transportation and storage of solid waste

Activity 3.2.3 Selection and deployment of proper tools and equipment for reduction of CF from leather manufacturing

Activity 3.2.4 Preparation of a business model for sound waste management on the cluster level, in order to sustain the project results

Output 3.3 Feasibility plans for clean and low-carbon waste technology for possible access to financing prepared

Activity 3.3.1 Preparation of different options for solid waste utilization including comparison of CF

Activity 3.3.2 Interaction with investors to attract manufacturers of by-products to reutilize solid waste based on investment proposals guided by feasibility studies

Component 4 – Project Monitoring and Evaluation (M&E)

Outcome 4 - Progress towards project objectives are continuously monitored and evaluated

69. The project will be undertaken in accordance with established UNIDO and GEF standard M&E procedures for GEF funded projects, consisting of a mid-term review and independent final evaluation as well as defined periodic project implementation reporting based on the GEF/UNIDO templates (PIRs).
70. The objective of this component is to facilitate a detailed and extensive M&E structure to be put in place under the project in compliance with UNIDO and GEF procedures. This will not only allow the monitoring of the project's progress but also the construction of an overall project impact assessment on a rolling periodic basis, built-up from the project's different components. The analysis of the M&E and impact assessment results of the different components will allow for periodic reviews of the project's 'Theory of Change' and subsequent implementation strategies and work plans.
71. To achieve the project outcomes, and in accordance with UNIDO and GEF procedures, the following outputs are envisaged for the leather sectors:

Output 4.1 - Quality control and effective monitoring of project activities, impacts and results achieved

Activity 4.1.1 Project monitoring – monitoring missions at least 1 or 2 per 12 months

Output 4.2 - Mid-term and terminal evaluations conducted

Activity 4.2.1 Project evaluation (for more detail see Section C).

- 4) *Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing*

Incremental/additional cost reasoning

72. Pakistan's development needs are expected to grow necessitating the requirement of affordable and sustainable sources of infrastructure development. Industry needs to take a lead role in meeting the transformation towards a low-carbon and climate resilient development path.
73. After reaching peak levels, Pakistan is committed to reducing its emissions. However, the extent to which the leather sector can mitigate climate change is dependent on the affordability of CC mitigating options, provision of international climate finance, transfer of technology and capacity building.
74. If only low-carbon technologies are used, the critical discharge of solid waste, which has been shown to be a cause of high GHG emissions, from the leather industrial zone may only be reduced significantly in the mid-term.
75. Most new investors are attracted by incentivizing suitable personnel and lease conditions within industrial parks. Environmental concerns have been subordinate to these efforts, with the result that no extensive

environmental management system was introduced into the KLA. Without the proposed project, cooperation between companies, such as for material and energy exchange, could not be actively supported and only have occurred by chance.

Expected contributions from the baseline

76. In addition to the baseline project, solid waste management is one outstanding issue that without proper action creates significant emissions and could create problems in the future development of KLA and Pakistan's entire leather sector. Thus, reduction and proper disposal of solid waste including its collection, transportation and by-product use will assist in GHG reduction.
77. The incremental project will enhance the capacity of the KLA to deal with solid waste in a way that reduces GHG emissions and is profitable. This will be done by providing equipment (collection units, vehicles for transportation of waste and reusable waste and segregation equipment) to establish a proper solid waste management system (collection, disposal, reutilization); training in techniques that reutilize solid waste (leather board production, etc.) developing a viable business model for the management of solid waste; developing investment proposals for different waste fractions and scenarios (landfill, landfill and composting, landfill, composting and tallow recovery, etc.) with possible GHG reductions and cost-benefit analyses (see annex J).
78. Due to a lack of knowledge and equipment, at present the drainage canals are not being cleaned properly leading to blockages, pollution of groundwater etc. To rectify this, appropriate equipment will be procured and training will take place to educate counterparts on how to clean and prevent issues in the future.
79. GEF support for incremental costs and overcoming barriers to reduce and properly manage solid waste allows for the competitive benefits of CCF and industrial zone/cluster approach to be highlighted, optimum framework conditions to be created and broad implementation of proper waste management systems to occur as required in Pakistan in the long term. Unlike current national practice and thinking, internationally-relevant improvements in solid waste management are targeted to achieve transformational change including a significant reduction of GHGs, increased efficiency in terms of energy and water consumption and less pollution and waste. Thus, in the absence of this GEF project, low-carbon technology applications will remain marginal in number and scope, and at best, limited to a small number of applications in large-scale industries. The transformation of KLA industrial cluster will be much slower and only geared for the medium term: certain critical problems e.g. solid waste management will not be addressed. Therefore, the potential for environmental protection would not be fully exhausted in 120 companies within KLA.
80. The project will also have a noteworthy impact on the improvement of GHG accounting, reporting and verification as well as the planning, implementation and management of eco-industrial and pro-poor cluster development approaches. This could therefore have a ripple effect on all industrial applications in reducing GHG emissions on a national scale.
81. The project objectives will be achieved through a combination of technical assistance and investment support.

Co-financing

82. The co-financing arrangement is that the PTA leverages the support of UNIDO through GEF funds to tap into additional funds from the private sector and government. This will raise the necessary funds to co-fund the required activities. This financing method is foreseen to maximize the triggering effect for low emission applications to be introduced.

5) *Global environmental benefits (GEFTF)*

83. Climate change will be felt by many future generations because the country has low adaptive capacity, high vulnerability to natural hazards and poor forecasting systems and mitigating strategies.

84. Through introducing technologies and improving and/or establishing more efficient manufacturing processes there is substantial opportunity for undertaking "win-win" mitigation activities in the selected sectors corresponding to national agricultural priorities which can lead to cost savings, conservation of valuable inputs such as water as well as effective GHG reductions.
85. The waste sector offers a portfolio of proven, practical and cost effective technologies which can contribute to GHG mitigation. When adapted and deployed according to local traditions and needs, they can help secure significant global GHG emission savings (ISWA, 2009). Well-managed waste offers a significant source of energy as well as income and additional streams of revenue and value chains from by-products.
86. For the leather sector, preliminary assessments indicate that from waste alone KLA could reduce CO₂ emissions by 170,000 tons/year. Overall, the project is expected to facilitate a 40-50% reduction in GHG emissions based on the improved utilization of waste and leather processing methods including treatment of tannery effluents. At this stage, a direct target is estimated at 1,360,000 t CO₂ over 20 years.
87. Recycling of treated effluent will help to fulfil the water requirements of the tannery areas. It will also decrease the operational expenses of the CETP as less quantities of water will be required for dilution. Recycling of treated effluent has a potential to become a model project for the whole country.
88. The proper waste management strategy will reduce the discharge of unregulated waste from tanneries in and KLA, which will have positive environmental effects on the rivers and agricultural land surrounding the site as well as improving air and water quality for residents and workers alike.

6) *Innovativeness, sustainability and potential for scaling up*

Innovativeness

89. The alternative scenario is anchored to the overarching ISID approach of UNIDO, which encompasses the principles of green industry, eco-industrial and the pro-poor growth cluster development approach (highly innovative and replicable approaches). The eco-industrial and the pro-poor growth cluster development approach connects different factories or enterprises through material or energy flows, to form industrial combinations sharing resources and exchanging by-products, so that the wastes or by-products generated from one factory can become the raw material or energy for another factory. Simulating the natural system, a circular process involving producers–consumers–decomposers is established in the industrial system, in order to promote the circulation of material in a closed loop, a multi-stage use of energy, and a minimization of waste.
90. No single policy initiative or technology will achieve the GHG emission reductions required to achieve climate stabilization. Rather, it will require a portfolio of mitigation solutions. The applied approaches within the project (CCF, value chain approach, proper waste management), together pave the way towards a systematic innovation model.
91. Calculations of the carbon footprint for leather production have not been widely used so far. It provides an opportunity to reduce the carbon and environmental footprint and serves as an invaluable GHG mitigation methodology and decision-making tool. Carbon footprinting provides an opportunity for transparency and transparent information on the environmental – carbon footprint of a unit of production (e.g. m² of leather).
92. The project encourages innovation within the leather processing sectors while enhancing competitiveness by providing examples of how innovative technical solutions, such as tallow recovery, use of renewable energy – solar water heating, proper effluent treatment – can reduce environmental impact.

Sustainability

93. By operating in close consultation with partners and stakeholders, and identifying national champions to promote the objectives of the project, national ownership of the entire project will be strengthened. The project's executive partners will be involved in the implementation of the project and some representatives from each institution/organization will take part in capacity building training and workshops so that they will have

- the means and the knowledge to take over the project once delivered. Also, access to financing and implementing resources that will allow the leather sector to continue its transformation will be facilitated.
94. Through highlighting the nexus between the economy and environment, the project will leverage the economic/profitability gains of GHG reduction solutions that exist within low-carbon technologies and proper industrial waste management and common facilities (CETP, conveyance system) under a cluster approach. By doing so, the leather private sector will be more likely sustain the new processes and technology proposed by the project.
 95. The favorable regulatory and policy climate that will be established will also promote the uptake and long-term use of CCFs and reduction of GHGs through low-carbon technologies, sector-level services and intelligent waste management technologies and systems within industrial clusters. Combined with the economic viability mentioned above the favorable climate will greatly improve project sustainability.
 96. All low-carbon and waste management equipment procured as part of the project will reside with PTA SZ or designated company.
 97. The workshops, training courses, seminars, training curricula and tools that will be prepared as part of the project will be developed in such a way so as to create a solid knowledge foundation to ensure that training courses are applicable now and in the near future. Ownership of training materials will reside with the Government of Pakistan and relevant institutions so as to ensure life-long access to courses. Furthermore, once up to date with the latest approaches in the industry, free access to the leather panel will also ensure that institutions and Government can keep abreast of any further developments.
 98. The project will also create and demonstrate opportunities to accurately account for GHG emissions and apply the methodology in decision making for improved environmental profiles of products and the industry at large.
 99. PTA SZ has been managing the CETP since its establishment in 2005. Additional services such as collection, handling and transportation of solid waste would be a logical step towards environmental sustainability, and therefore the sustainability of the changes made during the project. PTA SZ also has experience in operating plants and fee collection from polluters according to the polluter pays principle. They are therefore seen as capable of managing the CETP maintaining equipment and operate on a no profit/no-loss basis.

Potential for scaling up

100. The replication potential is significant: based on the initial estimates of the theoretically available potential and the forward-thinking concept of industrial clusters a large number of similar investment opportunities are expected to be unlocked and thus initiate a low-carbon transformation of the agro-industrial sector.
101. Within Pakistan, there are several tanning clusters with similar challenges as in Karachi. As the Ministry of Climate Change will be fully involved in the project, including Pakistani Tanners Association, they will disseminate project result into other clusters (Kasur, Lahore, Sialkot). UNIDO will also prepare guidelines and disseminate the project results e.g. via www.leatherpanel.org and project results and methodology will be used also in different regions.
102. The leather panel in general is a platform that can increase project scale up as it is free and updated with the training, trends and topics in leather production.
103. The online courses that will be developed are exponentially scalable as they require little additional inputs relative to the number of students enrolled. Thus, they can be rolled out quickly and effectively on a large scale.
104. Other countries in the region (e.g. China, India and Indonesia), which, for example, together can boast a significant number of leather industrial zones, could also be linked in terms of exchanging expertise, consequently, guaranteeing a further leveraging effect and broad, regional application. The project proposed will, therefore, result in the significant up-scaling of environmental improvements and a sustainability effect in the leather value chains throughout Asia.

A.2. *Child Project?* If this is a child project under a program, describe how the components contribute to the overall program impact.

N/A

A.3. *Stakeholders.* Identify key stakeholders and elaborate on how the key stakeholders engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes /no)? and indigenous peoples (yes /no)?⁹

105. The project will be executed under the MoCC of Pakistan, with one technical execution partner: the PTA (S.Z) Environment Society. Due to the cross-cutting nature of the intervention, the importance of national ownership and in support of the project’s effectiveness and sustainability, the project will be carried out in cooperation with other national and local stakeholder government agencies. The below highlights the stakeholders that will be coordinated with throughout the project.

Stakeholder	Description
Implementation/Execution Partners	
UNIDO	As the GEF Implementing Agency, UNIDO will lead the process of project preparation and development with the participation of key stakeholders from the Government and Private Sector. The project execution will be undertaken through multiple contractual arrangements between UNIDO and national governmental entities, industry associations as well as targeted technical assistance and administrative execution supported by UNIDO.
Ministry of Climate Change (MOCC)	The Ministry will be the project’s National Executing Agency. The Ministry is primarily responsible for planning, coordinating, promoting, protecting and overseeing the policy implementation of government sanctioned environmental and forestry programmes in the country. The Ministry will take all necessary steps to streamline the policies, legislation and guidelines for MOCC for their consideration to help transfer and diffusion of technologies prioritized by experts.
Pakistan Tanners Association - South Zone (PTA-SZ) Environmental Society Korangi Industrial Area Karachi	The PTA will be the project’s technical executing partner for activities related to the leather sector (executing entity procurement modality). 213 tanneries are members currently registered with Pakistan Tanners Association from all over the country. They are actively engaged in manufacturing and fully geared-up towards promoting the export of quality finished leather and leather products according to international demand.
Government	
Federal Ministry of Industries	Created to set up industries in Pakistan in such fields where the private sector was shy and where large amount of capital outlay with long gestation period was required.
Sindh Environmental Protection Agency	Sindh-EPA is mandated to prepare or revise, and establish the NEQS, to take measures to promote research and the development of science and technology, protection of the environment, and sustainable development.
Urban Unit P&D Department Government of Sindh	Support research activities, carry out studies, and prepare policies, plans and projects, provide technical support on policies and planning for urban development and more effective urbanization in Sindh.
Karachi Water and Sewerage Board	Is a service based consumer oriented organization responsible for production, transmission and distribution of potable water to the citizen of Karachi, managing sewerage system within the city to ensure hygienic environment, development of

⁹ As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.

	scheme to cover short falls in services and collection of revenues for sustained economic viability.
Institutional	
National Institute of Leather Technology, Pakistan (NILT)	Established to meet the requirement of the leather industry pertaining to the skilled and semi-skilled technical personnel including managerial functions so as to serve as a part of human resource development of the country.
Leather Products Development Institute, Pakistan (LPDI)	Established to produce trained manpower for the leather industry so as to enhance the industry's productivity and improve the quality of products to meet international standards.
Private sector	
Industry Owners	This includes industry owners that are not necessarily members of the PTA, but that have an interest or stake in an aspect of the project intervention.
Technology providers	Technology providers will be also engaged in the project to present their latest developments and to provide support for implementation of the Best Available Technology.
Karachi Chamber of Commerce and Industry	Facilitate the members to prosper and succeed through a proactive working partnership with businessmen, traders, all levels of government and community organizations to achieve a strong economy and high quality of life, improving the business environment and economic well-being of Pakistan.
Community	
Agriculture dependent communities, including farmers	For incorporating their concerns into planning and project implementation. Farmers and agricultural communities as one beneficiary group will be actively involved in the project.
Other	
NGOs and non-profit organizations	NGOs and various non-profit organizations, particularly gender groups, will be involved in the project preparation, and to represent various groups e.g. women, youth, farmers, various communities etc. Active participation of various NGOs is expected for project replication. Various tools and studies prepared by the project will be disseminated to interested organizations for further use. Similarly there will be cooperation with other organizations such as IULTCS, LWG, and ICT etc., which also have very useful tools for such projects. Cooperation is envisaged in organizing special Experts Groups Meeting and various consultations.
Additional partners	Additional organizations, group and partners e.g. WWF, implementing similar project in Sialkot region will be engaged with. Activities will be coordinated with these organizations to avoid unnecessary overlap and also to create synergy and increase impact of activities.

A.4. *Gender Equality and Women's Empowerment*. Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes /no)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes /no)?; and 3) what is the share of women and men direct beneficiaries (women 30%, men 70%)?

106. Gender equality and women empowerment are central to reducing poverty and achieving sustainable development. By prioritizing and integrating gender in education, health and labor policies, Pakistan can make meaningful progress. Empowering women and investing in women and girls can be key drivers of peacebuilding, social justice, economic growth and reducing inequality. It is essential to ensure gender sensitivity, skill enhancement, entrepreneurship development and employment generation by co-creating value with local institutions/people.

107. Through the project implementation, efforts will be taken to ensure that both women and men have equal opportunities to participate in and benefit from all capacity building activities. The goal is to ensure that women are able to participate in, benefit from and access all capacity building activities and build up technical knowledge.

Concrete targets of female participation

108. The main goal concerning female participation will relate to improving working and living conditions for women in KLA and improving access to new job opportunities in the leather sector.
109. It will be ensured that 40% of women can provide inputs, access and participate in project activities.
110. Pakistan is committed to meet the Sustainable Development Goals (SDGs) and the Goal 5 i.e. Gender Equality; Ending all forms of discrimination against women and girls. Pakistan is also a signatory of the UN Convention for Elimination of all forms of Discrimination against Women (CEDAW). The government has internalized Sustainable Development Goals (SDGs) as National Goals. The seven pillars of Vision-2025 are fully aligned with the SDGs and provide a comprehensive long-term strategy for achieving inclusive and sustainable growth.

Differentiated needs of women and men in the target groups

111. In the leather sector in Pakistan women are gainfully employed in the tanning sector as well as leather garments and leather goods industries. In the tanning sector the preferable jobs for women are toggling, packing, spraying, drying, sorting, measuring, pollution control activities, color and dye mixing and matching, chemical storage, secretarial work. Currently more than 5% of the women workforce is employed in the tanning sector in Karachi but due to the introduction of cleaner production and reduction in GHG emission the percentage is expected to increase.
112. In the case of leather garments and leather goods manufacturing, the percentage of women workers is as high as 20 to 30 %. Females are generally employed in color matching, sorting, garments manufacturing (stitching), packing, and secretariat and office work. Employment of females for administrative works is a common practice.
113. There is no strict differentiation between needs of women and men in the employment structure. However men are preferred for heavy duty works whereas due to their physique women are encouraged and supported to take lighter jobs.

A strategy to give equal opportunities to both women and men

114. The involvement of women in leather sector can be increased if the following facilities are arranged for females:
 - a. An awareness programme for females in vocational training centers.
 - b. A specially tailored training programme for specific jobs in leather and leather products industries with stipend facility.
 - c. A pick and drop facility or any other suitable transportation arrangement.
115. In general, the project will ensure that:
 - a. Women will be given opportunities not only for emerging or alternative income generating activities but also on existing remunerative activities/ in the sector area.
 - b. The Executive Contract Agreement will include in the TOR a gender component in which reference will be given to the disaggregation of data by sex. A gender expert will be part of the ECA.
 - c. Gender responsive indicators, targets and a baseline to monitor gender equality results will be included in the project once the inception phase has been completed.
 - d. All project staff will be sensitized to gender. If weaknesses are identified the project will support capacity building/gender awareness training.
 - e. Implementation in accordance with the UNIDO gender guidelines.

These strategies will be addressed during project implementation according to more in-depth assessments.

A.5 Risk. Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation. (table format acceptable):

Potential Risk	Level	Risk mitigation measure
Lack of incentive of industrial owners to shift to climate resilient development as this brings thoughts of additional costs to be added to their investments.	Low-medium	The project, through its awareness raising and capacity building initiatives will try to shift the thinking by introducing the private sector to the incentives of shifting towards greener and cleaner production. The project will be implemented with a strong national ownership and as such, national governmental stakeholders will champion the awareness raising activities. Also the baseline project's financial contributions will reduce the pressure from land owners to pay high development costs associated with treatment facilities establishment.
Risks related to climate changes	Medium	As effect of climate changes may have an impact on Karachi (sea level rising, erosion, rise of temperature), experience from the GEF project in Sialkot addressing Climate Change Adaptation will be included into the project implementation.
There could be a risk of limited availability of female population within the engineering sector, and low participation rate of female candidates.	Medium-high	The project will pursue thorough and gender responsive communication and ensure stakeholder involvement at all levels, with special regard to involving women and men, as well as CSOs and NGOs promoting gender equality and mainstreaming, and a gender expert. This shall mitigate social and gender related risks, promote gender equality, create a culture of mutual acceptance, and maximize the potential contribution of the project to improving gender equality in the productive sectors.
Investment and operational costs for common facilities (e.g. Central effluent Treatment Plant, Solid Waste Conversion) higher than expected.	Low-medium	The project partners will work on an appropriate business model to cover necessary operational costs for common facilities. Experience gained from similar project and facilities will be used to find an appropriate model for this.
Challenging project coordination: establishment of leather industries' cluster is a challenging project and requires a lot of coordination and involvement of many stakeholders. Slow response of some key actors may hinder the project implementation.	Low-medium	All project stakeholders are committed and understand the project objective. UNIDO has broad experience in implementing similar projects and leather industry clusters and this may help to overcome possible problems with the project planning and implementation. In order to coordinate and execute the project smoothly, a project steering committee will be created as early as possible to coordinate all stakeholders and take into account the needs of all groups (industry, agriculture, communities, women, NGOs etc.). Also, Green Productivity Teams will be established for each industrial cluster.

Table 4 Risk assessment

A.6. *Institutional Arrangement and Coordination.* Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

GEF Implementation Agency (IA)

116. UNIDO is accountable to the GEF for the project funds and will implement the project according to UNIDO's established rules and regulations, as well as the policy C.39/Inf.04. UNIDO will maintain the overall oversight of the project implementation, supervise the project execution, and ensure the timely preparation of financial and progress reports and subsequent submission to the GEF. UNIDO will fulfil this responsibility by appointing a Project Manager and mobilizing services of its other technical, administrative and financial branches at UNIDO Headquarters. In addition, upon request of the government, UNIDO will provide execution support for the procurement of goods and services, as well as recruitment of technical experts.

117. UNIDO will support the PSC and PMU to coordinate and network with other related initiatives and institutions within the country.
118. UNIDO will assist with planning of actions and activities related to solid waste management, collection, utilization and appropriate disposal especially taking into account Climate Change Mitigations. UNIDO will appoint a National Project Coordinator (NPC) to liaise between the Project Director (PD) and UNIDO PM and organize and plan work of UNIDO International Experts. The NPC will be under ISA contract while the PD will be appointed by PTA SZ.
119. UNIDO will be responsible for the following inputs:
- a. Overall project implementation, monitoring and reporting
 - b. Recruitment of the project management staff (National Project Coordinator) in consultation with the National Executing Partners (NEPs) and other national personnel as required.
 - c. Recruitment of international and/or some national experts and consultants required for the project. In all the recruitment conducted by UNIDO the due attention will be given to have a gender balance subject to the availability of the local resources. UNIDO will transfer funds to NEP/PTA S.Z. for the recruitment of project staff in accordance with approved ToRs.
 - d. Remuneration of all the experts and consultants recruited by UNIDO.
 - e. Procuring international service needed for delivering the planned outputs;
 - f. Procurement of the services and equipment/machines in case that the NEPs do not have the required capacity to conduct the tender.
 - g. Contractual issues for training services and works
- Procurement will be in line with Procurement Manual and UNIDO rules following the standard procurement modality of open international competition.
120. Any amendments to the project will be done in accordance with the GEF policy C.39.04 and UNIDO rules and regulations. UNIDO will provide recommendations on best practices to the NEP for the appropriate development of STZ.

Funding Partner	The Global Environment Facility (GEF)
Implementing Agency	UNIDO

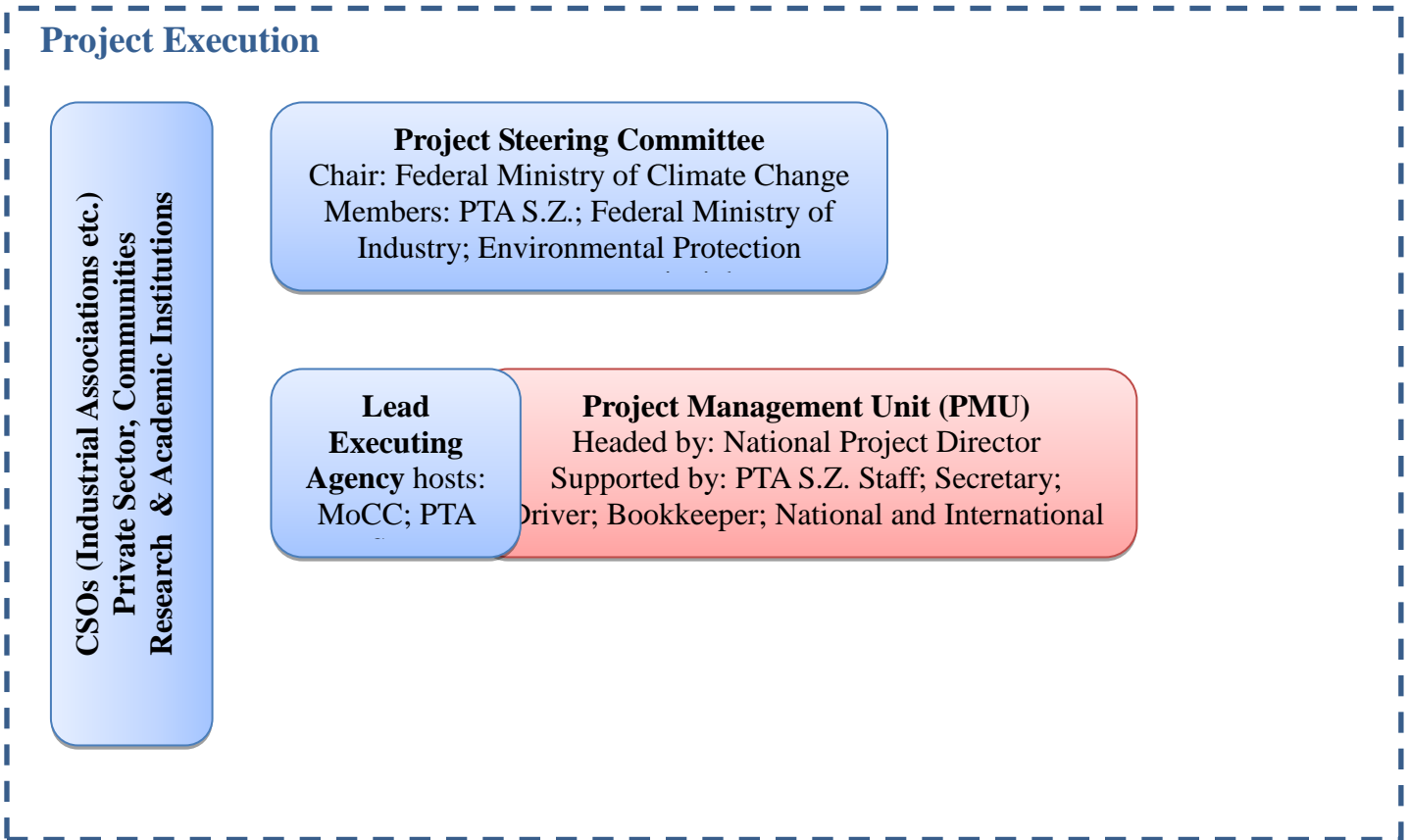


Figure 6 Project Management Structure

National Executing Partners (NEPs)

121. The NEPs for this project are the Federal Ministry of Climate Change (MoCC) and PTA S.Z. (lead NEP). The MoCC is administratively responsible for GEF programmes and projects related to CC and CCM in terms of planning and monitoring progress and project achievements, including the formulation of strategies for project developments. As such, it has coordination responsibility of GEF projects and is the GoP’s executing agency for the project.
122. The MoCC will coordinate the activities related to their institutional mandate and ensure GoP’s participation in the project through GoP contributions and providing an enabling environment for the project. The MoCC will chair the PSC.
123. PTA S.Z. will be responsible for the execution of the project on the ground, mobilizing all relevant stakeholders (government, public authorities, and private sector) and ensuring that the project is executed in a timely manner and that all stakeholders deliver their inputs, especially on co-financing. PTA S.Z. will be responsible for taking into account all relevant guidelines, parameters, concerns and recommendations provided through the project. PTA will appoint the Project Director (PD) (non-Governmental official) who will lead the PMU during the inception phase and the position will be based on an agreed Terms of References (ToR).

124. UNIDO will prepare an “Execution Agreement” between UNIDO and PTA S.Z. to agree and specify activities to be executed by PTA. S.Z. Funds for the project execution will be transferred to PTA S.Z. according to the Executive agreement. Detailed Terms of reference and deliverables will be part of the Executive agreement.
125. PTA S.Z. will be responsible for the following inputs:
- a. Recruitment of the PD and additional staff (such as technical, administrative and support staff, bookkeepers and a driver) and supplier contracts. PTA S.Z. will also provide co-financing for project staff salaries and social benefits.
 - b. Having a gender balance subject to the availability of the local resources in all the recruitments conducted by PTA S.Z.
 - c. Remuneration of all the experts and consultants recruited by PTA S.Z.
 - d. All civil works related to the STZ project
 - e. Procurement of the services and equipment/machines in case that NEP/MoCC does not have capacity to conduct tender.
 - f. Contractual issues for training services and works
 - g. Timely payments and ownership of project outputs
126. For the execution of the project, the government’s responsibility lies in providing and improving some of the overall infrastructure, such as the enhancement of CETP for Korangi 7A, indication and preparation of proper landfill site for Karachi and industrial waste from Korangi. These major infrastructure investments are expected to be covered by the government’s budget and possibly by donations that the Government can acquire. Co-financing of the project through PTA S.Z. will also come from the end users.
127. PTA S.Z. will be entitled for PMC based on agreed (ToRs for execution costs and project staff, e.g. technical experts, space expenses).
128. PTA S.Z. execute the STZ project and coordinate activities and inputs from all partners and ensure smooth financing and co-financing of all STZ utilities, infrastructure. PTA S.Z. will establish operational policies for the provision and O&M of the CETP, solid waste management and collection and whole Korangi industrial area and necessary services, including setting of tariffs to finance operations and power and enforcement of collection thereof. Revenue collected by PTA S.Z. from the companies (tanneries) will be based on the basis of tariff on metered water (for CETP) consumption with possible tariffs reflecting specific parameters (e.g. Chrome content, suspended solids, COD etc.) and volume of solid waste. For collection of solid wastes it will be based on weight and solid waste fractions. PTA S.Z. should prepare also sets of compulsory measures in tanneries and companies within STZ e.g. installation of water meters, segregation of streams, list of compulsory cleaner technologies and solid waste fractions.
129. PTA S.Z. should function on semi-commercial (no profit, no loss) basis. PTA S.Z. should have a small number of capable operational staff to implement STZ and oversee operation of CETP and other utilities.
130. PTA S.Z. will be responsible for preparation and submission of reports required by GEF and/or UNIDO for project management and monitoring as described in Part C of the project document.
131. PTA S.Z. will be responsible for practical execution of the project. PTA S.Z. will contract out necessary services (e.g. civil works, necessary studies etc.) to develop proper Korangi 7A in accordance with all requirements (EIA, CSA, legislation, Environmental Protection Department, EPA requirement and requirements from other relevant authorizes). PTA S.Z. will be responsible for providing all relevant data for design of equipment (e.g. collection trucks etc.), services needed for the project implementation and planning.
132. Full or partial title and ownership of equipment purchased under the project may be transferred to national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the UNIDO Project Manager in consultation with project stakeholders.

Implementation and Execution Arrangements

Project Steering Committee (PSC)

133. The PSC will be established to provide guidance on project execution and will be chaired by Ministry of Climate Change (MoCC), comprising representatives of GoP, PTA S.Z., and UNIDO.

134. The PSC will hold meetings to monitor the progress of the project implementation at least once every six months and will provide inputs and recommendations to ensure the timely and successful implementation. PSC members will coordinate efforts in the mobilization of necessary resources in order to implement the project in a timely manner – especially approval and permission of the CETP construction and custom clearances.
135. UNIDO’s primary function within the PSC is to provide guidance regarding the project including the appraisal and approval of the activities, oversight of project performance and quality assurance.
136. The membership and specific ToRs for the PSC will be reviewed and finalized during the inception phase. PSC Meetings will be held once every six months. The PSC will invite members and experts for specific meetings, as needed
137. Any amendments proposed to the project and/or to the AWP and budgets by the PSC are to be completed in accordance with the approved project document, the GEF policy, and UNIDO rules and regulation.

Project Management Unit (PMU)

138. The PMU will be established and will be responsible for the day-to-day execution of all project activities, including direct monitoring of those activities contracted to consultants and other vendors. The PMU will be headed by a Project Director (PD). The PMU will be responsible for the timely execution of the project and will be hosted by the national counterpart to ensure a strong national ownership.

Inception Phase

139. During the project inception phase the PMU and the project governance structure will be established. An inception workshop to present the project objectives (key expected results, implementation modality, M&E framework, risk management strategy, work plan and budget) to stakeholders will be organized to mark the launch of the project and to raise awareness and build partnerships for CCM mainstreaming into the national poverty reduction programmes at national and local government levels. Activities foreseen to be concluded during the inception phase include, but are not limited to:
- a. Establishing the project governance structure
 - b. Inception workshop - The key results the Inception Workshop is expected to achieve are:
 - i. All partners fully understand and take ownership of the project. The roles, functions, and responsibilities of partners, the PSC, reporting and communication lines, and conflict resolution mechanisms, will be clarified.
 - ii. Based on the AMAT, indicators, targets and the means of verification are presented to stakeholders and the schedule for field monitoring visits, agreed upon.
 - iii. The First Year Work Plan of activities to be carried out in accordance with the project document will be agreed upon.
 - iv. The budget breakdown of the project will be presented and the financial reporting procedures and obligations, and arrangements for annual audit will be discussed.
 - v. The plan and schedule of the PSC meetings will be discussed.
140. The Inception Report (IR) will be prepared immediately following the inception workshop. It will include a detailed work plan for year one in quarterly time-frame detailing the activities and progress indicators/ milestones to be achieved in the first year. The IR will also include the detailed project budget for the first year of implementation, and based on the agreed annual Work Plan in accordance with the project document. The IR will also include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms to project related partners. In addition, a section will be included on the progress to date, project establishment and start-up activities, and an update of any changed external conditions that may affect project implementation. Prior to adoption of the IR, the PSC and UNIDO will review the document.

Implementation Phase

141. During this phase, all technical activities foreseen by the project (relevant for all four project components) will be undertaken. This phase will cover the activities under Components 1-3 and some of the activities under Component 4 described above.

Coordination

142. The proposed project will build on the experience gained in GEF-funded projects in similar area –(GEF ID 5666) – Mainstreaming Climate Change adaptation through water resource management in leather industrial zone development. It will also draw on experiences learnt from completed UNIDO projects e.g. Kanpur Leather development Project, in which many technical aspects and solutions proposed for the current project were successfully demonstrated.
143. Furthermore the proposed project will collaborate closely with various organizations e.g. Leather Working Group, Zero Discharge of Hazardous Chemicals and others to promote best practices in low emissions technologies for the targeted end users and beneficiaries.

Additional Information not well elaborated at PIF Stage:

A.7 *Benefits*. Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

144. Globalization and industrialization of developing markets (e.g. Pakistan) are trends that are projected to directly attribute to the increasing GHG emissions in Pakistan. As a response to this, the project is aimed at transforming the industrial processing zones in Sindh Province through the widespread adoption of low-carbon technologies and GHG emission mitigation options not yet present in Pakistan, while also enhancing the competitiveness and acceptability of Pakistani leather products in international markets. These benefits present a win-win scenario for KLA tanneries: reduced GHG emissions and higher possibility of increased export earnings.
145. The transfer of sustainable technology to developing countries is crucial to reducing GHG emissions (ISWA, 2009) and effective mitigation options for the industrial sector will be presented through this project. Using less energy saves money and reduces GHG emissions. Many win-win situations are already exploited, but there is much more to be done. UNIDO services will be providing technical and managerial support to the leather product sector of Karachi/Sindh, in cooperation with executing and project partners: the areas of interest are individual industrial units and combined sector specific facilities through building up capacities to enable local government and its partners like PTA, Environmental Society to reduce GHG emissions. It will also develop capacities of the local communities to better face the climate change challenges and to take benefits from the development initiatives carried out in the region.
146. To achieve the overall aim, the project will contribute to strengthening the technical and management operations of the KLA cluster. Production processes, cleaner production facilities, sector level facilities (such as the CETP for KLA and proper waste management) and technical and professional capacities will be established and optimized to improve tannery efficiency and reduce GHG emissions. If identified during the project, feasible add-ons will be initiated to further reduce GHG emissions.
147. The project will assist the KLA to enhance product exportability and international acceptability by acquiring international sustainable certificates, labels and other brand requirements and to ensure that the sector establishes measures to comply with international/local standards.
148. The project will introduce new and appropriate technologies for the tanning process as well as for the treatment, recycling and reuse of industrial effluents and waste. This will improve the water quality in the natural water bodies, reduce water pollution and lessen the strain on Pakistan's natural resources.

149. The KLA Infrastructure (e.g. tanneries) and the CETP and proper waste management design will take all CC projected changes into account. With these improvements, industry will be more resilient and capable to achieve continuous production without unnecessary losses, thereby strengthening job and income security.

Policy benefits

150. Through strengthening the capacity of policy-making organs to establish and enforce appropriate policies, policy recommendations as to how to facilitate the transformation of the leather sector towards low emission and climate resilient industrial processing are envisaged to have a direct and positive impact on the climate change mitigation category of the GEF global environmental benefits as well as other social and economic benefits. Specifics are listed below.
- a. The project will build government agencies' capacity and demonstrate the scale-up of the Corporate Carbon Footprint (CCF) approach. Application of the Corporate Carbon Footprint and calculation of energy consumption and conversion into (Corporate) Carbon Footprint will be new in Pakistan. This approach will encourage decision makers to spread the policy into the leather sector and among other industrial sectors. With the increased capacity, the Government of Pakistan will be better equipped to ensure that the industrial sector achieves a reduction of GHG emissions and better working and living conditions.
 - b. The training of appropriate government counterparts will enable policymakers to raise awareness of the benefits of cleaner production technology, facilitate the scale up of financial products offered by banks to finance energy efficiency, train the workforce and technology service providers, and enforce environmental laws. These will also contribute to a low emissions leather sector which has the ability to function more profitably and in line with international standards while also significantly reducing GHG emissions.
 - c. The project will ensure that a favorable regulatory and policy climate is established that will promote the uptake of CCFs and reduce GHGs through better designed waste management and cleaner production laws and policies.
 - d. The project will also create and demonstrate opportunities to accurately account for GHG emissions and apply the methodology in decision making for improved environmental profiles of products and the industry at large.

Economic benefits

151. In the past, insufficient awareness of the financial benefits of more waste efficient production led managers to opt for short-term profitability over the additional costs that often come with implementing waste efficient techniques. This was compounded by a lack of private-sector capital for investment in waste efficient technologies. With increased capacity to access low-carbon technology financing, counterparts can assist the private sector in reaping the long-term economic benefits of installing advanced waste management and cleaner production mechanisms that have been demonstrated to be more profitable in the long-term while at the same time improving environmental conditions i.e. creating a win-win scenario.
152. The eco-industrial and the pro-poor growth cluster development approach connects different factories or enterprises through material or energy flows, to form industrial combinations sharing resources and exchanging by-products, so that the wastes or by-products generated from one factory can become the raw material or energy for another factory. Simulating the natural system, a circular process involving producers–consumers–decomposers is established in the industrial system, in order to promote the circulation of material in a closed loop, a multi-stage use of energy, and a minimization of waste. Such a system that creates profit-generating by-products could introduce new revenue streams for firms and trigger additional investment and growth of downstream industry along the leather value chain while simultaneously contributing to reducing GHG emissions through using by-products that would normally have to be disposed of or cause higher GHG emissions.
153. It is expected that an upgraded CETP, better CP facilities and the introduction of waste management systems in KLA will also attract downstream industries which will not only improve efficiency and decrease

solid waste, but also have a positive impact on employment, and value addition and possible increases in export earnings.

154. By accessing financing options to mitigate climate change, the leather industry can improve environmental (and as a result social) standards, which could increase investment into Pakistan's leather sector due to better compliance with international buyer's regulations. The virtuous cycle of improved access to finance, better environmental conditions and more investment could be a sound driver of sustainable economic growth in Pakistan's leather industry and the Pakistani economy in general.
155. Seeing that good health is a prerequisite for working effectively, better health conditions from managing unregulated waste will contribute to better worker's health conditions and therefore tannery productivity and profitability.
156. Small tanneries and SME's that would not normally have access to sectoral services such as a CETP, waste management services and cleaner production techniques will benefit from the project's activities, reduced waste and better use of water and resources.

Benefits on poverty reduction

157. Reduction of poverty has not been identified as a primary objective of the project but directly and indirectly the project may have both positive and negative impacts on the poor segments of the population in and around KLA. For example, the project interventions will increase income and employment opportunities (which will be beneficial for migrants from the rural areas of Sindh).
158. The improvements to the KLA will contribute to the strengthening of the tannery sector and thereby increasing income opportunities and employment, also to poor people or migrants from rural areas to Karachi, as urbanization is also considered one of the effects of climate change.

Health benefits

159. Much of the uncollected waste poses serious risk to public health through clogging of drains, formation of stagnant ponds, and providing breeding ground for mosquitoes and flies with consequent risks of malaria and cholera. As a consequence of modernization and in-house improvements laborers will be less exposed to chemicals, fluids, and dust.
160. In addition, because of the lack of adequate disposal sites, much of the collected waste finds its way in dumping grounds, open pits, ponds, rivers and agricultural land. By providing an alternative to unregulated waste disposal, the waste management component of the project will have positive health benefits for the workers and residents in and around KLA. Good health is a prerequisite for employment and income and therefore poverty reduction. Decreased chances of contracting cholera and/or malaria will benefit the health of people in and around KLA therefore their ability to generate income. Workers will likely also make savings due to less need for visits to clinics, as well as medicines.

Gender benefits

161. Gender equality and women empowerment are central to reducing poverty and achieving sustainable development. By prioritizing and integrating gender in education, health and labor policies, Pakistan can make meaningful progress. Empowering women and investing in women and girls can be key drivers of peacebuilding, social justice, economic growth and reducing inequality. It is essential to ensure gender sensitivity, skill enhancement, entrepreneurship development and employment generation by co-creating value with local institutions/people.
162. With equal opportunities to participate in and benefit from all capacity building activities, it is expected that women will have increased employment opportunities. By being trained in low carbon and GHG mitigating

techniques, women will directly assist in supporting the transition of Pakistan's leather sector to a low emissions and climate resilient sector.

163. Through the project implementation, efforts will be taken to ensure that both women and men have equal opportunities to participate in and benefit from all capacity building activities.
164. Furthermore, the new industrial zone for the leather industry will also provide jobs, not only within the tanneries but for additional services, such as food-stalls, that can be owned by women. To give those jobs to women will ensure an additional income for the families. The project will proactively support such strategies as the opportunities arise.

A.8 Knowledge Management. Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

165. The project will work in collaboration with various stakeholders to develop different knowledge tools (e.g. training tools, guidebooks etc.) that will be disseminated widely.
166. UNIDO has an enviable record in institution building and human resources development in developing countries and demonstrated its capabilities in similar projects. These projects have focused on improving capabilities and performance in the collection of hides and skins, in leather processing (tanning), and in the manufacture of footwear and other leather products (such as leather goods, gloves, leather garment, upholstery and sports goods). The vast majority of technical assistance has been financed through special purpose contributions offered by UNIDO donor member states during the past two decades.
167. Under component 1, the project will work with local institutions to develop guidelines, for a wide dissemination. The component 2 on capacity building will develop training manuals that will be readily available for use by different institutions like universities, research organization and industry associations. Under component 3, the results of low carbon and resource efficient applications will be widely disseminated choosing the most appropriate medium to reach a large number of actual and potential stakeholders. The targets of this dissemination will be potential users of the technology, but also those in the private sector for whom supporting, servicing and maintaining the technology could be a business opportunity, this include manufacturers of spare parts, banks, and other financiers. This way, the knowledge generated from this project will be integrated into the education system. All publications developed under this project will comply with GEF and UNIDO communication policies.
168. An example of knowledge management dissemination tool is the leather panel portal; UNIDO has developed innovative e-learning training materials that can be used in different regions around the world. These materials build on animated visual training tools and are available for users on www.leatherpanel.org. Training tools are suitable for both classroom (face-to-face) teachings and self-learning. Numerous modules and packages on technology transfer have been successfully implemented in previous projects (e.g. GEF funded projects, Kasur tannery Pollution Programme SWITCH Asia Re-Tie Bangladesh,).

B.1 Consistency with National Priorities. Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.:

169. The relevant national legislative framework, governing the focal areas of the project include the: i) Pakistan Environmental Protection Act (PEPA) 1997; ii) Sindh Environmental Protection Act, 2014; iii) Self-Monitoring and Reporting Tool; iv) Renewable Energy Policy for Development of Power Generation, 2006; v) Sindh Public-Private Partnership Act, 2010; vi) Foreign Private Investment (Promotion & Protection) Act, 1976; vii) Protection of Economic Reforms Act, 1992; viii) Commercial Arbitration Act, 2011; ix) Arbitration (International Investment Disputes) Act, 2011; x) Recognition and Enforcement (Arbitration Agreements and

Foreign Arbitral Awards) Act, 2011; xi) Foreign Exchange Manual 2002 of State Bank of Pakistan, xii) Special Economic Zones Act, 2012; xiii) Competition Act, 2010; xiv) Banking Companies Ordinance, 1962, and xv) Companies Ordinance, 1984; xvi) Pakistan Vision 2025; xvii) National Climate Change Policy (NCCP), 2012; xviii) National Development Strategy, 2012; xix) National Energy Conservation Policy, 2007; xx) National Operational Strategy for Clean Development Mechanism, 2006; xxi) National Environmental Policy, 2005, and xxii) Pakistan National Conservation Strategy (NCS), 1992.

170. Pakistan is committed to the objectives of UNFCCC for the overall benefit of all humanity and is actively engaged in the development of a national and international response to global climate change and needed climate governance that is beneficial to all. As such, Pakistan signed the UNFCCC as a Non Annex I Party in June 1994. The country, subsequently, adopted the Kyoto Protocol in 1997 and acceded to it on 11th January 2005. As a follow up to these international commitments, the country has undertaken climate related studies including the ALGAS study, the UNEP country study on adaptation, the first National Communications on Climate Change and recently compiled a high level report called the Task Force report on Climate Change (2008). The National Communication highlights the weaknesses in the preparation of the much needed national and sector-level GHG emission inventories.
171. “Pakistan Vision 2025” recognizes climate change as one of its priority areas and sets out the following key goals for responding to climate change induced challenges;
- a. Design water, food and energy security policies and plans of the country with specific reference to the profound challenges posed by climate change.
 - b. Explicit recognition of the relevant risks (and associated economic and social costs) and implementation of well-defined mitigation and adaptation strategies / measures.
 - c. To promote long term sustainability, conservation and protection of natural resources.
172. Pakistan has formulated a number of policy frameworks and action plans addressing a wide range of environmental challenges. Pakistan has responded to the overall environmental challenge by enacting several pieces of legislation and policy initiatives aimed at incorporating environmental concerns into mainstream development planning. This policy response is embedded in the PEPA (1997) Act with the PEPC being the apex decision making body. The associated implementation frameworks consisting of the Ministry of Environment and the EPAs at federal and provincial levels have been formalized through the National Environment Policy (2005). In addition, Pakistan has approved an array of environment related policies including; National Forest Policy (Draft), National Energy Conservation Policy (2006), National Renewable Energy Policy (2006) and Policy for Development of Renewable Energy for Power Generation (2006). (NEEDS, 2010-11)
173. The project directly responds to Pakistan’s only objective, listed under the framework for industry mitigation actions – “**To reduce carbon dioxide emission from the industrial processes used in Pakistan’s major industries**”. In particular, the project responds to the following strategies under this objective:
- a. Strategy 1.3 - Promoting the integrated ‘Cleaner Production’ strategy in the industrial sector by making more efficient use of inputs such as energy, water, raw materials etc.
 - b. Strategy 1.5 – Encouraging the industrial sector to have periodic ‘Energy Efficiency Audits’
 - c. Strategy 1.6 – Developing capacity to monitor and estimate emissions for each industry
174. The Technology Needs Assessment (TNA) for Pakistan, submitted in February 2016, is the first step in understanding the needs for technology transfer in the country. It provides an opportunity to identify the need for new technology, equipment, knowledge and skills for mitigating GHG emissions and reducing vulnerability to climate change.

C. DESCRIBE THE BUDGETED M &E PLAN:

Type of M&E Activity	Responsible Partner	GEF Budget (USD)	Co-financing Budget (USD)	Remarks	Timeframe
Means of verification of project	UNIDO Project	15,000	10,000	It will be part	Start of project and

Type of M&E Activity	Responsible Partner	GEF Budget (USD)	Co-financing Budget (USD)	Remarks	Timeframe
results (experts to conduct studies and training on indicators)	Manager (PM); Project Management Unit (PMU); PTA Project Director (PD).			of PMU activity	if required following midterm review
Periodic site-visits /monitoring of result/status reports	PMU; NEPs project teams;	20,000	55,000		Continuous
Midterm Review	PTA PD; UNIDO PM; PMU; external consultants	20,000	15,000	It will be part of PMU activity	Midway through the project
Independent Terminal Evaluation	UNIDO PM; PMU; external consultants	25,000	10,000	It will be part of PMU activity	During the last quarter of the project
Terminal Report	PTA PD; UNIDO PM; external consultants	10,000	10,000	It will be part of PMU activity	At least one month before end of project
TOTAL indicative cost		90,000	100,000		

175. Project M&E will be conducted in accordance with established UNIDO and GEF procedures. The M&E activities are defined by project component 4 and the concrete activities that are specified and budgeted in the M&E plan. Monitoring will be based on indicators defined in the strategic results framework (which details the means of verification), and the annual work plans. M&E will make use of the GEF Tracking Tool, which will be submitted to the GEF Secretariat three times during the course of the project: at CEO Endorsement, at mid-term review, and at project closure. UNIDO as the IA Agency will involve the GEF Operational Focal Point and project stakeholders at all stages of the project M&E activities in order to ensure the use of the evaluation results for further planning and implementation. According to the M&E policy of the GEF and UNIDO, follow-up studies like Country portfolio evaluations and thematic evaluations can be initiated and conducted. All project partners and contractors are obliged to (i) make available studies, provide reports or other documentation related to the project and (ii) facilitate interviews with staff involved in the project activities. The M&E budget is presented in Table 3.

176. The basic M&E mechanism in the project will be the managements' internal control for the project implementation and STZ project progress. Such controls should function that information and data easily fit into the Project Progress Report and the Project Final report.

177. The PTA S.Z. ES will collect all relevant data for GEF TT for the project launch and the project closure (Terminal report/evaluation). GEF TT will be prepared jointly by PTA PD, PTA S.Z. ES, MoCC & UNIDO. The PTA PD will be responsible to prepare and provide info for GEF TC.

Periodic monitoring, site visits and progress reports

178. The UNIDO Project Manager and the NEPs will conduct visits to the project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the PSC may also join these visits. A back-to-office-mission report will be prepared by the NPC and will be circulated no less than one month after the visit to the project team and PSC members.
179. Project supervision will further be carried out through monitoring missions by the IA to take place once or twice yearly. Such monitoring missions would review progress against the work plan to be prepared upon project commencement by the PTA PD with the assistance of the UNIDO Project Coordinator.
180. Monitoring is especially required vis-à-vis the envisaged social and environmental impacts of the project, not only to maximize the project benefits, but also in order to be able to timely initiate project action to mitigate any undesirable impact, if and when arrives.
181. The PTA PD will prepare progress reports (at least semi-annually) to be submitted to the PMU and PSC. The progress reports will provide information on activities and outputs/components relative to the agreed work plans and will highlight any major problem areas, with suggestions to overcoming them. The PTA PD will monitor project impact indicators (as per Log-Frame) which will be the base for the progress report. The progress report will set out the physical and financial data pertaining to each project component and will measure progress, including all indicators (financial, social, environmental, CC etc.). The progress reports should include the following procurement information: a) estimates and in case needed revised estimates for individual contracts and the total PTA project including best estimates of physical and process contingencies; and b) timing including revised timing of procurement actions including advertising, bidding, contracts award and contract completion times, and status of procurement on different contracts including contracts for co-funding placed directly by PTA S.Z. ES.

Annual reporting

182. The project status will be monitored each year through a project implementation report (PIR) exercise covering the activities of the previous reporting period. The PIR activities to be carried out include, but are not limited to following:
- a. Review of the progress made towards project objective and project outcomes - each with indicators, baseline data and end-of- project targets (cumulative)
 - b. Project outputs delivered per project outcome (annual).
 - c. Expenditure reports
 - d. Lesson learned/good practice.
 - e. Risk and adaptive management
183. The PIR is a formal, planned and periodic mechanism for joint discussion between parties involved in the project implementation. The PSC will discuss the progress of the project and shall record if the performance is according to plan or not. The reason for any problems and non-achievement should be recorded. The PIR is prepared by the PTA PD and should capture progress of the project as a whole and the additional project components. Progress reports and the mid-term review will form the basis for the PIR.

Mid-term Review

184. At project mid-term an internal review of the project implementation will be carried out. The mid-term review will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; it will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, ToRs and timing of the mid-term evaluation will be decided upon after consultation between project partners.

185. The management may consider to contract external/independent consultants (evaluators) considering budget constraints. Data from the social monitoring, health etc., and other developments or impact on the communities of relevance to the project should be included in these reports. All data and sources will be provided and facilitated by PTA PD, with assistance from the NPC and project manager.

End of Project

186. An independent terminal evaluation will take place during the last quarter of the project implementation prior to the final PSC meeting and will be undertaken in accordance with UNIDO and GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term review, if any such correction took place). The evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental and adaptation benefits/goals. The ToRs for this evaluation will be prepared by the UNIDO PM based on guidance from the UNIDO evaluation group.
187. Two months prior the end of the project, a Terminal Project Report will record in detail the results of the project. The report will be prepared by the PTA PD and will be distributed to all project counterparts and donors.


D. LEGAL CONTEXT

The Islamic Republic of Pakistan agrees to apply to the present project, mutatis mutandis, the provisions of the Revised Standard Technical Assistance Agreement concluded between the United Nations and the Specialized Agencies and the Government on 2 July 1956.

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies¹⁰ and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Philippe R. Scholtès Managing Director Programme Development and Technical Cooperation UNIDO-GEF Focal Point		06/27/2018	Ivan Kral	+43 1 26026 3762	I.Kral@unido.org

¹⁰ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT
GEF6 CEO Endorsement /Approval Template-August2016

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

<p><i>MY 5/1/2017</i></p> <p><i>At the CEO Endorsement Stage, please (1) update the energy, GDP, and GHG data that were dated in the PIF; and (2) enlarge the co-financing ratio to 1:6.</i></p>	<ol style="list-style-type: none">1) GDP data and GHG data have been updated (paragraph 9). Detailed GHG for Pakistan can be found in annex U.2) Cofiancing ratio has been enlarge to 1:6.
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ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS¹¹

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: 50,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF/CBIT Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Consultation meetings with stakeholders	7,000	5,559	1,441
Collection of relevant data and preparation of the proposal including assessment of the selected industry/tanneries	40,000	17,647	22,353
Workshop to present results of the assessment and way forward to reduce CF	3,000	0	3,000
Total	50,000	23,206	26,794

¹¹ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)

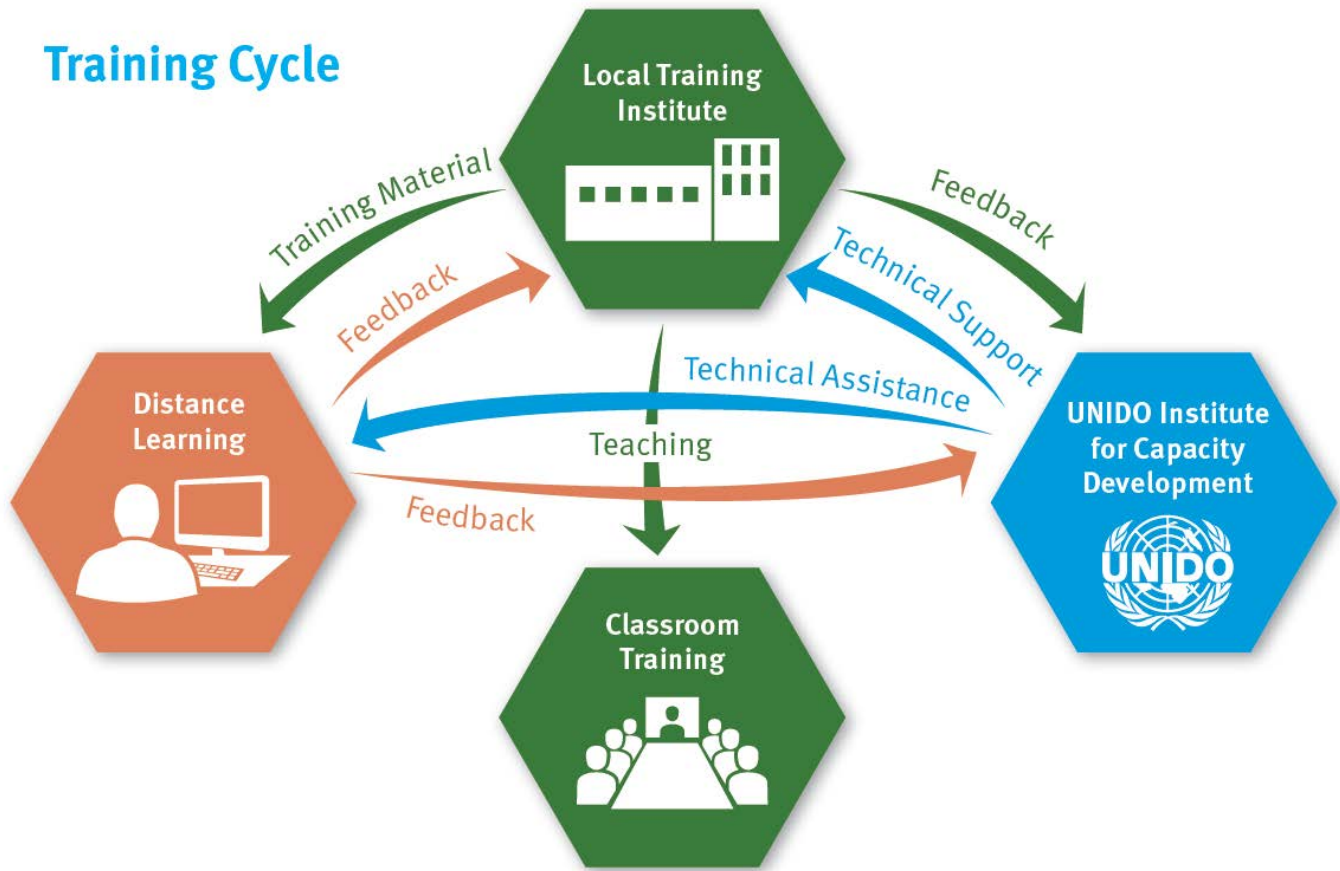


Figure 7 The training cycle



UNIDO has been dealing with specific problems of the leather industry more than four decades since its early years. The projects have focused on improving capabilities and performance in the collection of hides and skins, in leather processing (tanning), and in the manufacture of footwear and other leather products (such as leather goods, gloves, leather garment, upholstery and sports goods). Most successful programs in the leather sector: Environmental protection and pollution control including industrial safety directly related to leather processing and leather products manufacturing through the:

- Waste minimization and conversion of solid wastes into saleable by-products.
- Design, construction, and operation of tannery Effluent Treatment Plants (ETPs) with particular emphasis on common, low cost systems for SME clusters (CETPs).

- Handling and safe disposal of solid wastes and sludge. Direct assistance to industrial units and developing human resources by:
- elaborating and implementing comprehensive professional training systems;
- establishing and/or rehabilitating national, (sub)regional and international training-cum-service institutions;
- implementing experts meetings, workshops, seminars and special training courses in design, technology and management related areas;
- initiating, organizing and monitoring cooperation among training, service and Research & Development centres operating in developing and industrialized countries;
- benchmarking and evaluating business opportunities, finding or establishing markets (niches), building product ranges, improving production methods and product quality, enhancing productivity, and developing labour and managerial skills. Global forums – UNIDO Leather and Leather Products Industry Panel and publications: The main objective of the Leather Panel is to elaborate topics and to produce discussion papers for the consultations, but also as tools for the project implementation (e.g. training material, various publications etc.).

In order to achieve these goals skills development and capacity building is a key factor.

One of the core competencies of UNIDO is technology transfer. Although not an educational institution in of itself, UNIDO recognizes and fully embraces education and its multiple formats as a necessary and significant means to build technical capacity of its counterparts.

Although starting e-Learning services may be launched by using the existing knowledge base but converted into electronic formats, this does not suit current requirements for efficiency.

Learning content development within the leather value chain is an on-going challenge as it requires multidisciplinary team and resources. Due to the size of the leather sector to a date there are only few examples of e-Learning content development. Based on the Expert Group meeting focusing on the e-Learning in June 2016 in Mwanza/Tanzania, e-Learning is not used widely within the leather sector and institutions involved in the training have no or only little knowledge with use of on-line training.

Lack of available learning content and training courses resulted in the development of on-line training courses and learning content (learning tools) which can be used by training institutions including industrial companies to train students either in face to face training with use of developed learning tools, for the self-learning or blended training. UNIDO has started to build range of courses and learning content development (LCD) for the leather value chain:

- i) Introduction to treatment of tannery effluents (5 modules)
- ii) How to deal with hydrogen sulphide gas (module & test & certificate)
- iii) First Aid (8 modules)
- iv) Sustainable leather processing (Learning content under development)
- v) Leather testing
- vi) Working at height
- vii) Footwear pattern engineering (25 modules & 20 self-tests)



Figure 8 UNIDO’s animated training tools – modular approach

Content development is prepared in a modular approach, with a possibility to use required training material and training tools. UNIDO’s & IULTCS e-learning course on “How to deal with Hydrogen Sulphide Gas” is self-study, easy to use, and contains an animated visual training tool. The course complements UNIDO’s Safety Handbook on “How to Deal with Hydrogen Sulphide Gas in Tanneries and Effluent Treatment Plants”, which is also available to download after enrolling in the course.



Figure 9 Steps of on-line H2S course

Nowadays UNIDO assistance to the tanning industry remains that of a globally present catalyst focused on environmental and leather safety issues but increasingly acting in the eWorld.

E-Learning courses developed by UNIDO have been used either for class-room trainings, self-learning or for the blended training courses in various countries. As only few on-line courses are available for the leather value chain, above mentioned courses are among first practically tested and used courses within the leather value chain. With focus of training on issues related to (i) occupational safety and health aspects; (ii) environmental footprint; and (iii) design and restricted substances including end of life, the proposed and newly developed training tools will contribute to the leather safety and better acceptance of the leather as material.

