



GEF-6 PROJECT IDENTIFICATION FORM (PIF)

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	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:	7/25/2016
		Resubmission Date:	12/20/2016 03/27/2017 04/28/2017
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. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
CCM-1 Program 1 Promote timely development, demonstration and financing of low-carbon technologies and mitigation options	GEFTF	2,000,000	7,233,950
Total Project Cost		2,000,000	7,233,950

¹ Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

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

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: Transforming industrial processing zones in Sindh Province, towards the widespread adoption of low-carbon technologies.						
Project Components	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	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 Corporate Carbon Footprint (CCF) approach and increased access to clean-and-low carbon technology financing	1.1.1 Review of existing tools and guidelines, and programmes related to the selected industrial sector and preparation of recommendations for national considerations 1.1.2 Development of 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 Disseminate and inform responsible regulatory authorities on core elements and benefits of the CCF approach and intelligent waste management. Recommendations made on the enhanced utilization of agri-food by-products and waste streams for industrial applications 1.1.3 1.1.4	GEFTF	300,000	600,000
Component 2 - Capacity building on the CCF approach following the determined guidelines and information dissemination on intelligent	TA	Outcome 2.1 - Capacities of key players strengthened on the CCF approach for reduced GHG emissions and information made available to market enablers	2.1.1 Capacity building for decision-makers, Business Membership Organizations (BMOs) members and other stakeholders, on best practices and on use of guidelines and tools in leather production to minimize	GEFTF	128,182	800,000

³ Financing type can be either investment or technical assistance.

management initiatives		stakeholders on BAT/BEP for waste management within the leather processing sectors. (http://eippcb.jrc.ec.europa.eu/reference/BREF/TAN_Publication_def.pdf) BAT Leather	2.1.2 industrial carbon and environmental footprints (at least 50 participants) Information dissemination on environmentally sound management of solid waste and by-products, as an alternative to unregulated disposal. Technical trainings for industries on using and applying the guidelines and tools developed. (at least 350 technicians, managers)				
			2.1.3 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 demonstration of CCFs and intelligent waste management and practices within the leather processing sectors of Sindh Province	Inv	Outcome 3.1 - Low emissions and climate resilient development path is demonstrated and upscaled through the CCF approach and intelligent waste management 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	4,833,950	
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 4.1.2 Mid-term and terminal evaluation	GEFTF	90,000	600,000	
Subtotal						1,818,182	6,833,950
Project Management Cost (PMC) ⁴					GEFTF	181,818	400,000
Total Project Cost						2,000,000	7,233,950

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ()

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
GEF Agency	UNIDO	In-kind	150,000
GEF Agency	UNIDO	Grants	83,950
Private Sector	Pakistan Tanners Association - Southern Zone PTA(S.Z)Environmental Society	In-kind	4,000,000
Private Sector	Pakistan Tanners Association - Southern Zone PTA(S.Z) Environmental Society	Grants	2,900,000
Government	Government of Pakistan	In-kind	100,000
Total Co-financing			7,233,950

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS ^{a)}

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) ^{b)}	Total (c)=a+b
UNIDO	GEFTF	Pakistan	Climate Change	(select as applicable)	2,000,000	190,000	2,190,000
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
Total GEF Resources					2,000,000	190,000	2,190,000

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

E. PROJECT PREPARATION GRANT (PPG)⁵

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.

Is Project Preparation Grant requested? Yes No If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: \$50,000					PPG Agency Fee: 4,750		
GEF Agency	Trust Fund	Country/Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee ⁶ (b)	Total c = a + b
UNIDO	GEF TF	Pakistan	Climate Change	(select as applicable)	50,000	4,750	54,750
Total PPG Amount					50,000	4,750	54,750

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁷

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>Total direct: 190,000 metric tons</i>
		<i>Total indirect: 12,589 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>

⁵ PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$2m (for MSP); up to \$100k for PF up to \$3m; \$150k for PF up to \$6m; \$200k for PF up to \$10m; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁶ PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

⁷ Provide those indicator values in this table to the extent applicable to your proposed project. 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. There is no need to complete this table for climate adaptation projects financed solely through LDCF and/or SDCF.

PART II: PROJECT JUSTIFICATION

1. Project Description. Briefly describe:

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

1. Global climate change has been shown to be predominately caused by emissions of greenhouse gases (GHGs) to the atmosphere.
2. 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. The Paris Agreement sets 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 report on their emissions and track progress on achieving their nationally determined contributions, regularly.
3. 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). On regional and city scales, 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 intelligent waste management systems and technologies, many regions and cities can work to achieve an internationally significant reduction of GHG emissions.
4. Pakistan's population is expected to more than double from current level of 173 million to 350 million in 2050 (Ministry of Finance Pakistan, 2010). This will eventually increase the associated waste production in the future and the, subsequent, GHG emissions are expected to rise from 6 to 15 MtCDE (Metric Tons of Carbon Dioxide Equivalent), (NEEDS, 2010-11).

Pakistan Energy Scenario and GHG emissions

5. Pakistan is currently facing the dual challenge of energy shortages and climate change and is encountering the worst electricity crisis in its history, resulting in extended load-shedding to a point that it virtually suspends social life. The situation has further forced the Government of Pakistan to take decisions like early market shutdowns (Government of Sindh has announced the closure of all shopping malls, markets and restaurants by 7 pm in Sindh Province w.e.f. 1st October, 2016), power cut-off to industry, and two holidays per week thus affecting all business activities. The inadequate supply of energy has severely impacted the growth of industries / businesses and the welfare of public in general.
6. To address the global challenges, the energy system needs to undergo a transformation from fossil-fuels to renewable energy and energy efficient technologies. Pakistan has a huge potential for harnessing renewable energy and its share in the electricity mix has to be increased to achieve energy security.
7. Pakistan's total GHG emissions in 2008 amounted to 309 million tons of CO₂eq, comprising about 54 % CO₂, 36 % Methane, 9 % Nitrous Oxide and 1 % other gases. The biggest contributor is the energy sector with a 50 % share, followed by a 39 % share from the agriculture sector. Industrial processes contribute

about 6 % and other activities account for another 5 % share.⁸ The highest GHG emitting (and polluting) industries are cement, brick kiln, metal, textiles, petroleum refining, fertilizer, leather, mining, sugar and chemical industries.

Agro-industries – Leather production

8. The 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). Although the Leather sector and tanning industries have a positive effect on employment rates in Pakistan and Karachi-Korangi, their effect on the environment is a serious threat for future development.
9. From 1 ton of the wet salted hides, there is approx. 130 – 140 m² of the leather and approx. 450 kg of solid waste. Therefore contribution from properly landfilled solid wastes can be approx. 1.7 – 3.36 kg CO₂ equivalent emissions. Emissions of finished leather corporate carbon footprint are estimated at 1.4 – 6.4 kg CO₂/m², mainly related to energy, however also other factors are included. Not included in the calculation are emissions from effluent treatment and solid waste treatment. Table 1 presents CO₂ equivalent emissions for the solid wastes generated during the leather processing in case that they are properly landfilled.
10. It is estimated that yearly CO₂ equivalent emissions from decaying or burning of solid wastes in Pakistan can be 10-20 times higher than the figure shown in Table 1 of CO₂ emissions typical for properly designed and managed landfill disposal sites. Therefore, emissions in the case of the Karachi/Korangi area emissions can be estimated 17 – 67 kg CO₂ equivalent/ sq meter of leather only from improper treatment of the solid wastes.
11. Due to less efficient process of the leather manufacture, it is estimated that CO₂ equivalent contribution is 2 – 3 higher than in automotive tanneries. Moreover emission factors for Asia is 0.729 kg CO₂/kWh and for World 0.507 CO₂/kWh (the database of the International Energy Agency). This also increases CO₂ equivalent emissions by 40% in comparison with a model automotive leather production.
12. It can be estimated that within Karachi Korangi leather processing is 50 – 100 kg CO₂ equivalent emissions/m² from the leather processing (Table 2 and Annex 1)

TABLE 1 CO₂ EQUIVALENT EMISSIONS FOR SOLID WASTE

Waste	kg/ton of	CO ₂ kg/t	CO ₂ kg/t salted hides
Putrefied hides / skins	5	624	3.12
Raw/untanned trimmings	50 - 120	624	31.20 – 74.88
Salt	10 - 30	624	6.24 – 18.72
Hair (pasting)	50	372.5	18.63
Fleshing	70 - 350	624	43.68 – 122.50
Wet blue trimmings/ wet blue shavings	70 - 150	221	15.47 – 33.15
Buffing dust*	2 - 5	221	0.44 – 1.10
Dyed trimmings*	30	221	6.63

⁸

<http://www.mocc.gov.pk/gop/index.php?q=aHR0cDovLzE5Mi4xNjguNzAuMTM2L2l1vY2xjL3VzZXJmaWxlcEvZmlsZS9FQ0NPL0NoYXB0ZXItMDcucGRm>

Sludge (35% dry matter)	300 - 500	315	94.50 – 157.50
Total			219.91 – 436.23

Source: Mass balance in the leather processing (UNIDO); Handbook with basic information for the Calculation of a Corporate Carbon Footprint (CCF) for a leather factory.

Barriers

13. The leather is facing with a number of barriers:

- Lack of appreciation of the technical feasibility and economic viability of low-emissions technologies that are applicable at a small-scale;
- Lack of guidelines and recommendations frameworks that would create a level playing field for the introduction of low-emissions technologies;
- Weak institutional support for market players involved in promoting low-emission technologies;
- Lack of capacity by market players and enablers to effectively function including entrepreneurship skills for potential project developers etc.;
- Limited understanding and awareness at what of the value chain GHG emissions are significant and consequently the inability to properly target their reduction.

14. Notwithstanding the fact that while Pakistan’s contribution to global GHG emissions may be very small relative to global scales, the country is among the countries 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. For Pakistan to continue on a development path to achieve the goals articulated in the Planning Commission’s Vision 2030 document, it is imperative to prepare the ground to enable it to face this new challenge (INDCs, 2015).

15. 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

24. Pakistan is currently considering a goal to reduce its greenhouse gas emissions by 30 % from 2008 levels by 2025.

25. Recently, the 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:

- GHG inventory
 - Data management, modelling and tools
 - Technology transfer and development
26. 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.
 27. Pakistan's carbon emissions will reach 400 million tons of CO₂ equivalent per year by 2050, GHG emissions from industrial sector are expected to increase manifold according to business as usual assumption. This scenario can, however, be further exacerbated if the country's energy mix gets more coal centric, as anticipated, or 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, therefore, needs to be kept on developments in this sector as they have a direct bearing upon the national emissions.
 28. Sindh is the second largest province (with a population of about 50 million) and has the second largest economy in Pakistan, with an annual electricity shortfall of 1,500 MW. With huge reserves of coal and plenty of wind to produce electricity, Sindh potentially holds solution to the energy problems of Pakistan in the long run.

Waste Management

29. Four preliminary identified barriers to the adoption of intelligent waste management approach's utilization include:
 1. weak enforcement of environmental regulations and a lack of incentives to comply with environmental laws had created an environment of non-compliance.
 2. 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.
 3. 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 they were more concerned about short-term profits.
 4. Pakistani workforce suffers from low levels of skills needed to implement technical recommendations.
30. Several Pakistani environment and energy laws and sub-laws that 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 (kindly see section 6).
31. Sindh province does not have a proper solid waste management system right from collection of solid waste up to its proper disposal. 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.

Environmental degradation is not only well advanced already, but also is getting progressively worse as the country's population, urbanization and industrialization increase and as its economy develops generally.

32. The Ministry of Environment and Urban Affairs Division, Government of Pakistan, undertook a study during 1996 on "Data Collection for Preparation of National Study on Privatization of Solid Waste Management in Eight Selected Cities of Pakistan". The study revealed that the rate of waste generation on average from all type of municipal controlled areas varies from 0.283 kg/capita/day to 0.613 kg/capita/day or from 1.896 kg/house/day to 4.29 kg/house/day in the selected cities of Pakistan including Karachi. In this way the total waste generation only in Karachi has been estimated at 2.354 Million tons per year which means that presently more than 5 million tons of solid waste is generated on a yearly basis in Sindh Province.
33. Pakistan generates 47,920 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 undersigned or designed poorly leading to incomplete decomposition, methane production, and contamination of ground and surface water. 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.
34. The increased utilization of renewable energy (solar, wind, hydro and biomass) is an area which is promising for mitigating emissions from the energy sector. Biomass is the fourth largest energy source after oil, coal and natural gas and it is one of the most suitable renewable energy options. About 1.5 billion people use it as major energy source. Biogas generation from organic wastes, distillation of the products of fermentation of carbohydrates to produce ethanol could save Pakistan valuable foreign reserves. There is also potential for the production of Bio diesel however care is needed to ensure a sustainable outcome when land use is balanced against land for crop production. There is a potential of 4000 MW in this area.

Baseline for the Leather Sector

35. 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 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.
36. 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. Tanneries are involved in processing the raw material partially or fully to finished leather (from raw hide or skin to finished leather, the tanning unit might process only from raw to wet blue, or from wet blue to finished leather, or from raw to finished). There are about 170 tanneries in Karachi, almost all of them located in one cluster – sector 7/A of Korangi Industrial Area.
37. The tanning process requires large quantities of water. The Karachi Water and Sewerage Board is not able to supply an adequate quantity of water to the tannery areas. Currently, the treated effluent from the CETP (Central Effluent Treatment Plant) is discharged in a storm water drain, ultimately reaching the Arabian Sea. 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 dilution water would be required. Recycling of treated effluent has a potential to become a model project for the whole country.

TABLE 2 CO₂-E EMISSIONS AS PCF (PRODUCT CARBON FOOTPRINT) FOR LEATHER PRODUCTION “CRADLE TO GRAVE”

Process	Tannery using BAT*	Tanneries Karachi/ Korangi	Remark
	Kg (CO ₂ /m ² leather)	Kg (CO ₂ /m ² leather)	
Chemical production	5.9	5.9	There are no data for production in Asia, therefore, same emission as in EU is calculated
Transportation raw material + chemicals	0.6	0.6	There are no data for production in Asia, therefore, same emission as in EU is calculated
Production process: raw to finish leather	2.5	~ 10.0	It is due to lower efficiency and different emission factor for EU and Asia
Employees access route	0.07	0.07	There are no data for production in Asia, therefore, same emission as in EU is calculated
Lifecycle – during use of leather (in car, shoes etc.)	8.1	8.1	
Waste water treatment, including transport	0.3	0.5	
Solid waste – thermal disposal of renewable sources	-0.3	N/A	Wastes are not reutilized in Pakistan
Solid waste – no disposal; decaying	N/A	~50	All wastes in EU are re-utilized, or properly treated. In Karachi, there is no treatment
Total	17.2	75.17	

*Data from ITG report (2012)

38. Unregulated disposal of solid wastes from leather processing activities and illegal landfill sites without any appropriate measures presents a high risk of groundwater pollution. At present, there is practically no recycling and/or reusing of solid wastes in industrial zones. Obsolete and defective waste air purification technology and inappropriate production processes mean that leather industrial units emit significant quantities of harmful substances. GHG/Carbon footprint emission for unregulated solid waste disposal is presented above.

Baseline projects for the Leather Sector

39. 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.
40. 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 previously, a CETP was established in this sector. Also, a Conveyance System carrying Wastewater from individual tannery is an integral part of the CETP. Around 12 km long open concrete drains were constructed to serve the purpose.

41. The Salient Features of Sector 7/A are as follows:

- ii. The sector 7/A is spread on 84 hectares and it is a sandy plane ground. Its surface level slightly rises from south to north and west to south.
 - iii. The tanneries in southern zone annually produce approx. 400 million sqft. leather and approx. 280 million sqft (35% of total National Leather Industry) by tannery zone which fetches approx. US\$ 430 million of foreign exchange earnings.
 - iv. The Pakistan Tanners Association (PTA) (SZ) (project partner) members require approx. 27,000 m³ of water daily. Since it is not being provided by KW&SB (Karachi Water & Sewerage Board), the tanneries have to resort to its supply by tanners. Approx. 27,000 cubic meter of effluent is generated every day.
 - v. Tanneries generate daily approx. 100 ton waste, majority of which is sold for bye-product and about 10 ton has to be dumped through govt. agencies. The 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).
42. The leather products sector in Karachi has undertaken some key development initiatives in the past. A large-sized CETP, to treat the effluent being generated by around 170 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 tannery effluent and 26,500 m³ per day of domestic wastewater. 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 goes down for any reason, it will have a direct implication on exportability of leather by the tanneries connected with the CETP.

- Cleaner Production Centers: Three CP centers in Pakistan—Cleaner Production Center Sialkot, Cleaner Production Institute (CPI) and National Cleaner Production Centre Foundation. Together they have completed approximately 300 cleaner production audits with a focus on textile mills and leather tanneries. While the focus of the audits has been on reduction of water and air pollutants, the audits also identified many options for reducing the energy consumption that participating plants implemented at considerable cost savings rates.
- The European Union is funded project Pakistan Leather Competitiveness Improvement Program (PLCIP) under the Trade Related Technical Assistance (TRTA) Phase III. PLCIP aims to directly support the GoP trade policy by working along the value chain of the leather products sector in fostering export diversification and the promotion of the leather sector, leading to improved trade competitiveness and enhanced earnings for the country.

The objectives of the Program are:

- Improve the availability of demand-driven Business Development Services (BDS) for leather product SMEs;
- Contribute to the competitiveness of the Pakistani leather sector;
- Improve international market access of Pakistani leather products.

3) The proposed alternative scenario, GEF focal area12 strategies, with a brief description of expected outcomes and components of the project

43. In line with the GEF-6 Climate Change Mitigation focal area strategy, the project will 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. By means of this project, global environmental management indicators will be developed as part of national energy and environmental management systems of Pakistan and practices under the international conventions to which Pakistan is a part of, will be improved.

44. Megatrends that pose major development challenges for Pakistan include i) growing and ageing population; ii) urbanization; iii) globalization and developing markets; and iv) energy demand and climate protection. As a response to this, the project is aimed at the deployment, demonstration and financing of low-carbon technologies and mitigation options not yet present in Pakistan, while enhancing the competitiveness and acceptability of Pakistani leather products in international markets.
45. 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, and the PSA 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.

To achieve the project aim, the project will contribute to strengthening the technical and management operations of the Karachi-Korangi Leather Area (KLA) cluster. Optimized production processes, optimized and enhanced sector level facilities (such as the CETP for KLA); in addition to their technical and professional capacities enhanced; necessary add-ons will be initiated to reduce GHG emissions. 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 put in measures for compliance to international / local standards.

¹² 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.

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

Outcome 1.1- Guidelines and recommendation fine-tuned to enable the scale-up of the Corporate Carbon Footprint (CCF) approach and increased access to clean-and-low carbon technology financing

46. Existing recommendations with regard to solid and effluent waste management in KLA are 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 about the core elements of the leather industrial cluster transformation. To date, no national programme includes these planned activities. The authorities, however, require information regarding how to improve the environmental situation.
47. This project component 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) and may be used as a basis for promoting innovative resource- and energy-efficient technologies and production practices for intelligent waste management.
48. To achieve the project outcomes, the following outputs are envisaged for the leather sector:
 - 1.1.1 Review of existing tools and guidelines, programmes related to the selected industrial sectors and preparation of recommendations for national considerations;
 - 1.1.2 Development of 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;
 - 1.1.3 Disseminate and inform responsible regulatory authorities on core elements and benefits of the Corporate Carbon Footprint (CCF). Recommendations made on the enhanced utilization of agricultural and agri-food by-products and waste streams for industrial applications;
 - 1.1.4 Recommendations made on the enhanced utilization of by-products and waste streams for industrial applications.
49. Application of the Corporate Carbon Footprint and calculation of energy consumption and conversion into (Corporate) Carbon Footprint will be a new in Pakistan. This will be encouraged also 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. Methodology prepared for the leather processing will be used to strengthen national framework and possible use for the CCF in additional industrial sectors.

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

Outcome 2.1: Capacities of key players strengthened on the CCF approach for reduced GHG emissions and information made available to market enablers and major stakeholders on BAT/BEP for waste management within the leather processing sectors

50. Policymakers must 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. Numerous training manuals will be developed for use by different institutions like universities, research organizations and industry associations. Ownership of the various training modules will be determined during the PPG phase. The project will help local training institutions to adapt these training manuals into curriculum for their institutions. For each target sector, approximately 550 people will be trained (technical managers, MOCC, leather associations, companies and other identified/relevant stakeholders). While the specific training approach will be confirmed in the PPG phase, a train-the-trainers approach is foreseen. The dissemination activities to other regions (e.g. through Leatherpanel Portal www.leatherpanel.org.) will reach approximately 30,000 users globally.

51. A Green Productivity team will be formulated under the KLA to be trained and supported in putting in measures for compliance to international standards.
52. To achieve the project outcomes, the following outputs are envisaged:
 - 2.1.1 Capacity building for decision-makers, BMOs' representatives, and other stakeholders, on best practices in leather production to minimize industrial carbon and other footprints; (at least 50 participants trained)
 - 2.1.2 Information dissemination 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; (at least 350 technicians, managers trained). New tools developed and disseminated yearly to more than 30,000 users
 - 2.1.3 Training and capacity building for associations' representatives on the use of CCF tool and on NEQS compliance to disseminate among associations' members. (At least 150 users trained)

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

Corporate Carbon Footprint (CCFs)

53. Carbon footprints provide an estimate of the total amount of GHGs which 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 emissions of GHGs from consumer products and also companies. Product Carbon Footprints (PCFs) can be used for different purposes and that 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 emission. The so-called hot spots in terms of energy consumption and the associated CO₂ emission in the production cycle can be identified and mitigated.
54. Carbon footprinting activities will be initiated during the PPG phase for the accurate estimation of current 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.
55. 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 are important drivers for the reduction of GHG emissions. Where implemented, such waste management policies and regulations can create significant GHG emission reductions.

Outcome 3.1 Low emissions and climate resilient development path is demonstrated and upscaled through the CCF approach and intelligent waste management for the leather processing industries

56. The existing Korangi Leather Area Industrial Zone (KLA) would be transformed into an EIP for the leather sector under the cluster development concept, to ultimately, enhance exportability and international acceptability of the sector output by acquiring international sustainable certificates, labels and other brand requirements, as well as, strengthen, support the sustainability and enable sustainability, and enhance viability of sector level initiatives undertaken previously. Optimized leather production process, optimized and enhanced sector level combined facilities including the CETP; their technical and professional capacities will be enhanced; and necessary add-ons will be initiated to reduce CO₂ emissions.
57. To achieve the project outcomes, the following outputs are envisaged separately for the leather sectors:
 - 3.1.1 Carbon Footprint - Life Cycle Assessments- leather processing transparency and reduced carbon footprint emissions

3.1.2 Low-carbon technologies selected and demonstrated within the leather processing industries of Sindh Province

3.1.3 Access to clean-and-low-carbon technology financing for the leather processing sector facilitated

58. Incremental/additional activities: Carbon footprint and leather value chain transparency are, for the first time, being used to instruct representatives of DoE, MoI, PTA and KLA management, in this project. It will supplement and use results and experience from EU initiative (Product Carbon Footprint calculation) and ECO2L Energy Controlled Leather developed by VDL and this will lead to energy efficient production. Training programme on carbon and water footprints of solid waste management of leather processing and leather production is new and has not been included in previous activities and trainings. Also methodology for Carbon Footprint Calculation is very recent, and it is expected that companies will have to report on their carbon footprint related to unit production.

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

Outcome 4.1: Progress towards project objectives are continuously monitored and evaluation

59. 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 period project implementation reporting based on the GEF/UNIDO templates (PIRs).

60. 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 allow not only 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.

61. To achieve the project outcomes, the following outputs are envisaged for the leather sectors:

4.1.1 Quality control and effective monitoring of project activities, impacts and results

4.1.2 Mid-term and terminal evaluation

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

62. GEF support for incremental costs and overcoming barriers allows for the competitive benefits of CCF and industrial zone/cluster approach to be highlighted, optimum framework conditions created and broad implementation required in Pakistan. Unlike current national practice and thinking, internationally-relevant improvements are targeted to achieve transformational change in a reduction in significant amounts of GHGs, increased efficiency in terms of energy and water consumption and pollution.

63. Pakistan is committed to reduce its emission after reaching peak levels to the extent possible subject to affordability, provision of international climate finance, transfer of technology and capacity building.

64. Without GEF support, the transformation of KLA zone industrial cluster will be much slower and especially certain problems e.g. solid waste management will not be addressed. Therefore, the potential for environmental protection would not be exhausted in over 200 companies within KLA. 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 was introduced into the KLA. Without the proposed projects, cooperation between companies, such as for material and energy exchange, could not be actively supported and only occurred by chance. Solid waste management is one outstanding issue and without proper action it may create significant problem in future development of KLA and the whole leather sector. Also, if appropriate low-carbon technologies are used, the critical discharge of GHGs from leather industrial zone may only be

reduced significantly in the mid-term. Harmful chemicals can only then be directly replaced and their handling optimized, if the use and the logistics processes are included centrally in the KLA and assessed.

65. The suggested project approach will have a significant 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, for scale-up to other regions and industries. Other countries in the region (e.g. China, India and Indonesia), which, for example, together can boast a significant number of leather industrial zones, should 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.
66. Pakistan's development needs are expected to grow necessitating the requirement of affordable and sustainable sources of power generation, development of infrastructure and enabling industry to take a lead role in meeting the transformation towards a low-carbon and climate resilient development path.
67. In the absence of this GEF project, a low-carbon technology application will remain marginal in number and scope, and at best, limited to a small number of applications in large-scale industries. The project objectives will be achieved through a combination of technical assistance and investment support. The exact nature of the financing instrument will be defined during the PPG phase, and will aim for a maximum triggering effect of the type and size of the most relevant low-emissions applications. UNIDO's best practice suggests that a limited 'triggering' financial support (for instance as a grant or through a revolving fund), combined with tailored technical assistance, typically yields best results.

5) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

68. Climate is an important resource for agricultural countries such as Pakistan, where the contribution to global GHG emissions is very high, but where the future effects of climate change are expected to be significant. The impacts 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.
69. 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. 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). Waste offers a significant source of renewable energy.
70. For the leather sector, preliminary assessments indicate that from waste alone (production tons/year of 34,175), the target leather zone could reduce CO₂ emissions by 200-220,000 tons/year. Overall, the project is expected to facilitate a 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 conservative target is estimated at 150,000 t CO₂ and 450,000 t CO₂, respectively, for direct and indirect mitigation.
71. During the PPG phase the participating mills and deployable technologies will be identified. The CPF activities will also be initiated in the PPG phase for the collection of baseline information, including the calculation of the GHG mitigation targets of the project.
72. The project interventions will increase income and employment opportunities (which will be beneficial for migrants from the rural areas of Sindh). As a consequence of modernization and in-house improvements laborers will be less exposed to chemicals, fluids, and dust.

6) Innovation, sustainability and potential for scaling up.

Innovation

73. 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.
106. 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, intelligent waste management), together pave the way towards a systematic innovation model.
107. 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).
108. 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

109. The project has a strong national ownership which will increase chances for sustainability and replication of project results and strategies by local partners (industries and government authorities). The project will ensure that a favorable regulatory and policy climate is established that will promote the uptake of CCFs and reduce GHGs through intelligent waste management technologies and system within industrial clusters. 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. The project will highlight the economic and environmental opportunities that exist within intelligent industrial waste management under a cluster approach. The project will operate in close consultation with partners and stakeholders and identify national champions to promote the objectives of the project and to strengthen national ownership. During the PPG phase, institutional ownership of the training courses will also be confirmed to ensure the sustainability of the training modules. A Green Productivity team will be formulated under the KLA cluster to be trained and supported in putting in measures for compliance to international standard

One project output is dedicated to enabling access to clean and low-carbon waste technology financing for the leather sector to assist the scale-up of the pilot demonstrations as well as support the sustainability of project results, via replication activities.

Potential for scaling up

110. The replication potential is significant, based on the initial estimates of the theoretically available potential, and the forward-looking concept of industrial clusters is expected to unlock the large number of similar investment opportunities, and thus initiate a low-carbon transformation of the agro-industrial sector. 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.

2. Stakeholders. Will project design include the participation of relevant stakeholders from civil society organizations (yes /no) and indigenous peoples (yes /no)? If yes, identify key stakeholders and briefly describe how they will be engaged in project preparation.

111. The project will be executed under the MoCC of Pakistan, with two technical execution partners, the PTA (S.Z) Environment Society and PSA, for the leather components, respectively. 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 targeted during the detailed stakeholder analysis, outlining stakeholder roles and responsibilities, to be carried out during the PPG phase.

112. A detailed stakeholder analysis, outlining stakeholder roles and responsibilities will be carried out during the projects PPG phase.

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 (PTA)- South Zone Environmental Society Korangi Industrial Area Karachi	The PTA will be the project’s technical executing partner for activities related to the leather sector. 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 export of quality finished leather and leather products on modern pattern as per international demand.
Government	
Federal Ministry of Industries	It was 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 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, semi- skilled technical personnel including managerial functionary 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 leather industry, so as to enhance the productivity and improve the quality of the products to meet the International Standards.
Private sector	
Industry Owners	This includes industry owners that are not necessarily members of the PTA or PSA, 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 also during the 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 have also 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. Activities will be coordinated with these organizations to avoid unnecessary overlapping of some activities and also to create synergy and increase impact of activities.

3. Gender Equality and Women's Empowerment. Are issues on gender equality and women's empowerment taken into account? (yes /no). If yes, briefly describe how it will be mainstreamed into project preparation (e.g. gender analysis), taking into account the differences, needs, roles and priorities of women and men.

113. 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.

114. 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. During the PPG phase, a gender-analysis will be conducted to define concrete targets of female participation, to identify differentiated needs of women and men in the target groups, and to identify a strategy to give equal opportunities to both women and men. 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.

4 Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).

Potential Risk	Level	Risk mitigation measure
Lack of incentive of industrial owners to shift on a climate resilient development. As this brings first thought of additional cost 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 them with 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.
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. A gender analysis will be done and an ESMP will be formulated during the PPG and relevant gender, environmental and social impact mitigation measures will be incorporated into project design.
Investment and operational costs for common facilities (e.g. Central effluent Treatment Plant, Solid Waste Conversion) etc.	Low-medium	The project partners will work on appropriate business plan to cover necessary operational costs for common facilities. Experience gained from similar project and facilities will be used to find appropriate model for this.
Coordination of the project: 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	Low-medium	All project stakeholders are committed and understand the project objective. UNIDO has a 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

project implementation		(industry, agriculture, communities, women, NGOs etc.). Also, Green Productivity Teams will be established for each industrial cluster.
Climate change	Low-medium	The design of the project will include climate risk analysis and integrate mitigation strategies. During project preparation phase, an assessment of the availability of resources based on different scenarios will be carried out and, when necessary, possible alternatives will be identified.
Sustainability of the project	Low-medium	The project executive partners will be involved in the implementation of the project and some representatives of 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 will be facilitated.

5. Coordination. Outline the coordination with other relevant GEF-financed and other initiatives.

115. Some of the added-value elements of this project dealing with technical skills development, environmental issues, and innovation will provide a synergy among BMOs and up to date technological innovations for the leather industry.

116. UNIDO and other UN agencies are currently implementing several projects in Pakistan which will have a synergistic relationship with this project. Current projects under implementation include:

- National project on “Productive Uses of Renewable Energy in Chitral District, Pakistan (PURE-Chitral) - GEF/UNDP
- National project on “Promoting Sustainable Energy Production and Use from Biomass in Pakistan – GEF/UNIDO
- National project “Mainstreaming Climate Change Adaptation through Water Resource Management in Leather Industrial Zone Development “ – GEF/UNIDO
- National project “Delivering the Transition to Energy Efficient Lighting in Residential, Commercial, Industrial, and Outdoor Sectors” - GEF/UNEP
- National project “GEF UNIDO Cleantech Programme for SMEs” – GEF/UNIDO
- Regional project on the “Sustainable Energy Initiatives for Industries” in Asia and the Pacific – GEF/UNIDO
- Regional project “Barrier Removal to the Cost-Effective Development and Implementation of Energy Standards and Labeling Project (BRESL)”- GEF/UNDP

117. The project will coordinate with other GEF trust fund related initiatives being implemented in Pakistan, with regard to industrial sector or climate change, during the PPG in order to learn from their experiences and develop synergies where relevant. The project will also keep liaison with other industrial waste water treatment facilities available in the country, especially the project in Kusoor and Sialkot cities to learn from their experiences, achievements and problems being faced, in order to better plan and implement this project. Coordination and synergy with other currently on-going projects will provide an opportunity to tools and results of these projects.

6. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes /no). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDC, etc.

118. 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,

119. 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.

120. “Pakistan Vision 2025” recognizes climate changes as one of its priority areas and sets out the following key goals for responding climate change induced challenges;

- Design water, food and energy security policies and plans of the country with specific reference to the profound challenges posed by climate change.
- Explicit recognition of the relevant risks (and associated economic and social costs and implementation of well-defined mitigation and adaptation strategies / measures.
- To promote long term sustainability, conservation and protection of natural resources.

121. 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)

122. 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:

- 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.
- Strategy 1.5 – Encouraging the industrial sector to have periodic ‘Energy Efficiency Audit’

- Strategy 1.6 – Developing capacity to monitor and estimate emissions for each industry

123. 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.

124. On the basis of GHG Inventory carried out in 1994 Pakistan submitted its First report on National Communication during 10th Session of Conference of the Parties (COP) held in 2004 in Buenos Aires, Argentina.

7. Knowledge Management. Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

125. 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.

126. 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.

127. 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.

128. 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.).



PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT¹³ OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [Operational Focal Point endorsement letter](#)(s) with this template. For SGP, use this [SGP OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Abu Ahmad Akif	GEF Operational Focal Point	Ministry of Climate Change	04/12/ 2016

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies ¹⁴ and procedures and meets the GEF criteria for project identification and preparation under GEF-6.					
Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Mr. Philippe R. Scholtès, Managing Director, Programme Development and Technical Cooperation, UNIDO GEF Focal Point		04/28/2017	Ivan KRAL 	+43 1 26026 3762	i.kral@unido.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required [GEF Project Agency Certification of Ceiling Information Template](#) to be attached as an annex to the PIF.

¹³ For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

¹⁴ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

ANNEX 1 – ENERGY CONSUMPTION IN LEATHER PROCESSING

Table: Energy consumption in the leather processing (data from EU tannery)

Process type Operation	Thickness thick leathers, upper		Thickness thin leathers, upper		Thickness thin velour leathers	
	kWh	%	kWh	%	kWh	%
<i>Soaking-liming</i>	0,014	0,40	0,014	0,76	0,014	0,70
<i>Fleshing</i>	0,094	2,70	0,045	2,45	0,045	2,21
<i>Splitting</i>	0,035 wet blue	1,01	0,033 pelt	1,81	0,033 pelt	1,63
<i>Tanning preparation</i>	0,030	0,86	0,030	1,63	0,030	1,48
<i>Tanning</i>	0,104	2,98	0,104	5,66	0,104	5,12
<i>Shaving</i>	0,236	6,76	0,122	6,65	0,122	6,01
<i>Wet end</i>	0,029	0,83	0,028	1,57	0,028	1,42
<i>Samming stretching</i>	0,133	3,81	0,049	2,68	0,049	2,43
<i>Stretching</i>	0,084	2,40	0,064	3,50	-	-
<i>Drying</i>	0,507	14,51	0,132	7,17	0,082	4,06
<i>Stacking</i>	0,112	3,20	0,055	3,03	0,055	2,74
<i>Stretching</i>	-	-	0,059	3,21	0,060	2,95
<i>Dressing</i>	0,172	4,92	0,129	7,00	-	-
<i>Embossing</i>	0,011	0,34	0,023	1,28	-	-
<i>Buffing</i>	0,400	11,44	-	-	0,533	26,16
<i>Dedusting</i>	0,216	6,18	-	-	0,288	14,14
<i>Embossing</i>	0,481	13,77	0,361	19,59	-	-
<i>Measurement</i>	0,008	0,25	0,008	0,47	0,008	0,42
<i>Waste water treatment</i>	0,612	17,49	0,366	19,88	0,366	17,98
<i>Lighting</i>	0,215	6,15	0,215	11,66	0,215	10,55
Total	3,493 kWh/m²	100,00	1,837 kWh/m²	100,00	2,032 kWh/m²	100,00

Thickness thick leathers, upper: 1,7 mm

Thickness thin leathers, upper: 1,0 mm

Thickness thin velour leathers: 1,0 mm

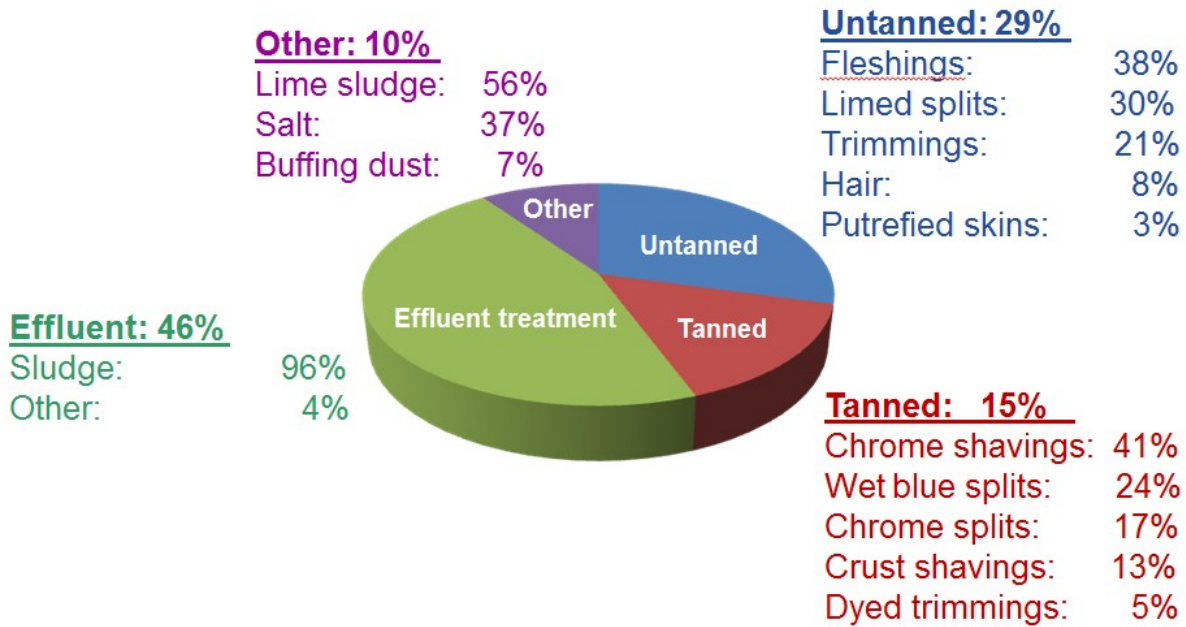
Electric consumption (for shoe upper leather) EU tannery

Nr.crt	Operation	Absorbed energy, kWh	Share, %
1	<i>Soaking-liming</i>	0,0344	0,8
2	<i>Fleshing</i>	0,1205	2,8
3	<i>Deliming-Bating-Pickling-Tanning</i>	0,5917	9,1
4	<i>Samming</i>	0,0731	1,7
5	<i>Splitting</i>	0,0344	0,8
6	<i>Shaving</i>	0,1162	2,7
7	<i>Wet-end</i>	0,0990	2,3
8	<i>Samming</i>	0,1205	2,8
9	<i>Pasting drying</i>	0,2455	5,7
10	<i>Vacuum drying</i>	0,2281	5,3
11	<i>Stacking</i>	0,0516	1,2
12	<i>Finishing</i>	0,3185	7,4
13	<i>Buffing-dedusting</i>	0,3530	0,2
14	<i>Embossing</i>	0,3616	8,4
15	<i>Measurement</i>	0,0086	0,2
16	<i>Waste water treatment</i>	0,9127	21,4
17	<i>Lighting</i>	0,2195	5,1
18	<i>Other uses</i>	0,6070	14,1
Total		4,4959	
For calf skin the consumption may decreases to 3,200 kWh			

Excluding transport – up-stream and downstream processes and solid waste management, heating and thermal energy

Electric and thermal energy consumption

Nr. crt.	Article	Uppers		Uppers		Velour		Velour from wet blue	
		1,7		1,0		1,0		0,7	
	Thickness, mm								
	Consumption for	Electricity kWh/m ²	Heat kWh/m ²	Electricity kWh/m ²	Heat kWh/m ²	Electricity kWh/m ²	Heat kWh/m ²	Electricity kWh/m ²	Heat kWh/m ²
1	<i>Hot water</i>	-	5,10	-	3,06	-	3,06	-	2,04
2	<i>Drying</i>	0,51	4,22	0,19	1,48	0,14	1,88	0,095	1,26
3	<i>Finishing</i>	0,17	1,75	0,13	1,31	-	-	-	-
4	<i>Mechanical operations</i>	2,82	-	1,52	-	1,90	-	1,593	-
5	Total	3,50	11,07	1,84	5,85	2,04	4,94	1,69	3,30
6	Grand total	14,57		7,69		6,98		4,99	



SOLID WASTE FRACTIONS FROM THE LEATHER PROCESSING

