GEF-8 REQUEST FOR CEO CHILD ENDORSEMENT/APPROVAL

TABLE OF CONTENTS

GENERAL CHILD PROJECT INFORMATION 3

Project Summary 3

Child Project Description Overview 4

CHILD PROJECT OUTLINE 7

A. PROJECT RATIONALE 7

B. CHILD PROJECT DESCRIPTION 15

Institutional Arrangement and Coordination with Ongoing Initiatives and Project 29

Table On Core Indicators 32

Core Indicators 32

Key Risks 37

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES 40

D. POLICY REQUIREMENTS 42

Gender Equality and Women's Empowerment: 42

Stakeholder Engagement 43

Private Sector 43

Environmental and Social Safeguards 43

E. OTHER REQUIREMENTS 43

Knowledge management 43

Socio-economic Benefits 44

ANNEX A: FINANCING TABLES 44

GEF Financing Table 44

Project Preparation Grant (PPG) 45

Sources of Funds for Country Star Allocation 45

Focal Area Elements 45

Confirmed Co-financing for the project, by name and type 46

ANNEX B: ENDORSEMENT 46

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s): 46

ANNEX C: PROJECT RESULTS FRAMEWORK 46

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG) 60

ANNEX E: PROJECT MAP AND COORDINATES 60

ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS DOCUMENTS INCLUDING RATING 64

ANNEX G: BUDGET TABLE 64

ANNEX I: RESPONSES TO PROJECT REVIEWS 69

General Child Project Information

Child Project Title	
Bananas in Pakistan's Bioeconomy: Transforming Waste into Textile	
Region Pakistan	GEF Project ID 11172
Country(ies) Pakistan	Type of Project FSP
GEF Agency(ies) FAO	GEF Agency Project ID
Project Executing Entity(s) Small and Medium Enterprise Development Authority (SMEDA)	Project Executing Type Government
GEF Focal Area (s) Multi Focal Area	Submission Date 6/25/2024
Type of Trust Fund GET	Project Duration (Months) 72
GEF Project Grant: (a) 3,272,018.00	Agency Fee(s) Grant: (b) 294,482.00
PPG Amount: (c) 150,000.00	PPG Agency Fee(s): (d) 13,500.00
Total GEF Financing: (a+b+c+d) 3730000	Total Co-financing 17,029,800.00
Project Sector (CCM Only) Mixed & Others	

Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Principal Objective 2	Significant Objective 1	Significant Objective 1	Significant Objective 1

Project Summary

Provide a brief summary description of the project, to offer a snapshot of what is being proposed. The summary should include: (i) what is the problem and issues to be addressed? ii) as a child project under a program, explain how the description fits in the broader context of the specific program; (iii) what are the project objectives, and if the project is intended to be transformative,

how will this be achieved? and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. (max. 250 words, approximately 1/2 page)

As a top-ten textile-producing nation with existing commitments to reform its textile industries and agrifood sector, Pakistan presents a prime opportunity to pilot transformative innovations upstream in its textile supply chain. Pakistan's textile value chain (VC) is heavily dependent on cotton with substantial chemical use and a high-water footprint. Pakistani cotton production has fallen from 11 million bales (2018) to 7 million bales (2022). Industry is urgently seeking viable alternatives to reduce its dependence on imports. Pakistan is also a significant producer of bananas, producing approximately 150,000 tonnes annually with strong growth potential. This project will support institutionalizing sustainable and circular bioeconomy principles in Pakistan's banana production. The banana plant's significant biomass pseudostem results in substantial volumes of agricultural waste. Combining the stem's fibrous properties with innovative, bio-based production techniques presents an opportunity to upcycle this waste into a sustainable, textile alternative to cotton. The project will redirect waste biomass from banana production as a raw material for textile production, applying sustainable and circular bioeconomy principles[1][1] to eliminate toxic pollutants and waste while contributing to related national and global knowledge management. It will offer a more sustainable substitute to cotton and will transform banana production with more sustainable practices, by promoting Sustainable Agricultural Practices (SAPs) and Integrated Pest Management (IPM) and eliminating the burning of waste banana biomass and the chemicals that are released in the process. The linkages to be established between banana farmers and fabric manufacturers will open new markets and lay a foundation for a greener supply chain with strong growth potential, for vulnerable communities, stallholders, and rural women. Therefore, the project will promote a sustainable, innovative raw material that can capture public awareness around reducing waste streams and rethinking consumption habits in favor of bioeconomy-based products and promote a durable fibre with biodegradable properties. The project has four components, four outcomes, and 9 outputs. The project aims to contribute to improved practices in 20,311 ha area of landscapes; 845,373 t CO_2e and 3,341 t CO_2e direct and indirect GHG emissions mitigation, respectively; and reduction of 1,137 t HHPs, 4,770 t plastic, as well as 34 gTEQ of POPs. It will benefit 73,000 individuals, of which 50% will be women.

[1] https://openknowledge.fao.org/handle/20.500.14283/cb3706en/

Child Project Description Overview

Project Objective

Accelerating bioeconomy transition in the Pakistan textile sector by transforming banana pseudo stem waste into economically viable and socially beneficial fibre and promoting Sustainable Agriculture Practices (SAP) in banana cultivation.

Project Components

Component 1. Circular business model for climate-friendly and nature-positive innovative material

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
401,472.00	2,116,860.00
Outcome:	

1. Regenerative and innovative products are produced from banana pseudo stems waste using circular business models.

Output:

Output 1.1: An enabling environment is created for adopting banana fibre in the textile value chain, which benefits smallholders, vulnerable communities, and women.

Output 1.2: Sustainable and circular bioeconomy principles are implemented to ensure gender-responsive and inclusive impact and the achievement of global environmental benefits in the Textile and Banana value chains.

Component 2. Sustainably sourced, and bio-based products manufacturing that requires no hazardous chemicals and produces less pollution and waste

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
1,517,072.00	7,886,766.00

Outcome:

2. The banana fibre value chain offers a sustainably sourced, innovative, responsibly managed, regenerative, and nature-based material in products following circular bioeconomy principles and sustainable practices.

Output:

Output 2.1: Banana waste fibre is integrated into textile value chains to utilize the left-over materials for promoting reuse and upcycle and less pollution and waste-intensive production.

Output 2.2: Increased productivity and sustainability through Sustainable Agriculture Practices (SAP) focusing on smallholders, vulnerable communities, and women banana growers in target districts.

Output 2.3: Banana fibre value chains following sustainable and regenerative practices are piloted.

Component 3. Supporting less pollution and waste-based manufacturing and production in the banana fibre value chain

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
724,273.00	3,760,497.00

Outcome:

3. An operational traceability system and capacity building of the manufacturer is achieved to ensure less pollution and waste-based banana fibre use in the value chain.

Output:

Output 3.1: A system is developed for banana pseudo stem-derived fibre traceability, standards, and certification in the textile value chains for the benefit of smallholders, vulnerable communities, and women.

Output 3.2: Sustainability standards and certification process for banana fibre developed, disseminated, and agreed upon in the textile value chain.

Output 3.3: Technical and financial capacity of the private sector engaged in textile value chains to comply with the sustainability criteria of the global market strengthened.

Component 4. Knowledge management

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
356,941.00	1,848,652.00

Outcome:

4. Knowledge sharing of the project interventions is in place.

Output:

Output 4.1: Lessons learned on bioeconomy documented and disseminated through awareness campaigns, Regional and Global knowledge events, and platforms.

M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
116,450.00	606,085.00

Outcome:

Outcome: Project monitoring and evaluation, as well as monitoring and assessment of global environmental benefits (GEBs).

Output:

Mid-term review and final evaluation of the project will be conducted by external consultants.

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
Component 1. Circular business model for climate-friendly and nature-positive innovative material	401,472.00	2,116,860.00
Component 2. Sustainably sourced, and bio-based products manufacturing that requires no hazardous chemicals and produces less pollution and waste	1,517,072.00	7,886,766.00
Component 3. Supporting less pollution and waste-based manufacturing and production in the banana fibre value chain	724,273.00	3,760,497.00
Component 4. Knowledge management	356,941.00	1,848,652.00
M&E	116,450.00	606,085.00
Subtotal	**3,116,208.00**	**16,218,860.00**
Project Management Cost	155,810.00	810,940.00
Total Project Cost ($)	**3,272,018.00**	**17,029,800.00**

Please provide Justification

CHILD PROJECT OUTLINE

A. PROJECT RATIONALE

Describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Since this is a child project under a program, please include an explanation of how the context fits within the specific program agenda. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Aspiration towards sustainability: Banana cultivation and textile sector

1. **National contexts-geography, population, and economy:** The Islamic Republic of Pakistan (hereafter Pakistan) is a South Asian country, which is the 36th largest and 5th populous country in the world with 796,096 sq km of land[1][2], and 231.4 million population[2][3] growing by 1.8% annually in 2021. The country is bordered by Afghanistan and Iran in the west, India in the east, and China in the north. Islamabad is the nation's capital, while Karachi is the largest city and financial center of the country (Figure 11). The Indus-longest River of the country from the Tibetan plateau runs through the entire Pakistan and unites with the Arabian Sea near Karachi[3][4]. The economy of the country is categorized as a developing economy with

a gross domestic product (GDP) of USD 340.64 billion (nominal) in 2023[4][5]. The sectoral contribution was highest (58.20%) from the services sector, followed by Agriculture (22.68%), and Industry (19.11%)[5][6]. The total labor force of the country was 75.8 million in 2020 with around 27% females' contribution. The services sector contribution was the highest (38.01%), followed by the agriculture sector (38.5%) and industry sector (25.3%)[6][7].

2. **Banana cultivation practices, and sustainability challenges:** The country produced 215,570 tonnes of bananas from 33,197 ha of cultivation area during the 2021-22 financial year, out of which Sindh province contributed 88% located in the Indus River basin. In terms of cultivation area, around 96% is in Sindh province[7][8]. Major banana-growing districts in Sindh are Thatta, Hyderabad, Badin, Mirpurkhas, Tando Allahyar, Matiari, Tando Muhammad Khan, Sangar, Naushero Feroz, and Nawabshah[8][9](Figure 11). Agriculture farm size distribution is skewed in Sindh province. Most of the rural population are peasants who are tenant farmers and sharecroppers. Most small farm families lack clear and legally enforceable tenure over the farmland upon which their livelihoods depend, leaving them vulnerable to poverty and exploitation. They are generally characterized by uneconomic and fragmented holdings, landlessness, poor skill base, illiteracy, and poor access to social and economic services[9][10]. Besides, banana growers, exporters, suppliers, and public leaders have raised concerns over the sustainability of production, due to the agricultural practices adopted by many farmers like the overuse of chemicals to control disease and pests, and banana pseudo stem burning after harvest[10][11]. Sindh produces 35,000 tons of banana waste every year which is either burnt or thrown away, contributing to environmental degradation[11][12]. A few studies already reported medication costs of USD 8.79 to USD 13.37 for non-chronic and chronic diseases per household during the burning season[12][13]. Crop residue burning often causes air quality deterioration, smog, haze, heat waves, health issues[13][14], and economic losses[14][15].

3. **Greenhouse gas (GHG) emissions profile and contribution from residue burning:** According to Pakistan's First Biennial Update Report (BUR-1) (2022)[15][16], the national GHG emission in 2018 was 489.87 Mt CO_{2eq}, where Agriculture, Forestry & Other Land Use (AFLOU) contribution was 223.45(~46%), followed by Energy sector (~45%), Industrial processes (5%), and Waste (4%). Out of the AFLOU emissions, the livestock sector emitted 109.12 Mt CO_{2eq} (48.3%) followed by Managed Soils (33.6%), Land use (14.1%), and Rice Cultivation (3.5%). Crop residue burning emissions in Pakistan are included under the Cropland of Land Use category. Out of the total Land use emissions (31.52 Mt CO_{2eq}), cropland contributed 5.92 Mt CO_{2eq}, of which GHG emissions from crop residue burning was 2.5 Mt CO_{2eq}. Therefore, GHG emissions from crop residue burning represent around 43% of the emissions contributed by the cropland, and around 1% of the national emissions.

4. **Textile industry and sustainability challenges:** Pakistan's textile value chain (VC) is heavily dependent on cotton with substantial chemical use[16][17] and a high-water footprint[17][18]. The water footprint of cotton is substantially larger than that of other

lignocellulosic fibre, including from bananas' pseudo stem[18][19]. Pakistani cotton production has fallen from 11 million bales (2018) to 7 million bales (2022)[19][20]. In addition, climate change is exacerbating the area's vulnerability to extreme weather events, making resilience-building, particularly in the agrifood sector, a priority for rural lives and livelihoods. This represents a significant challenge towards ensuring a sustainable textile VC. Sindh is also a significant player in Pakistan's cotton production and textile industry, which has 14,000 ha of protected areas of wildlife sanctuaries and game reserves[20][21]. Sindh is home to the delta of the Indus River Basin, an ecosystem conservation hotspot and key water resource. Therefore, adjacent waterways (notably, the Indus River Basin and land-based ecosystems (particularly protected areas) are highly impacted by cotton cultivation and need an opportunity to improve sustainability and environmental efficiency[21][22].

5. **Climate change vulnerability and impacts on textile VC in the Indus River Basin:** Pakistan ranked 7th on the 2017 Global Long-Term Climate Risk Index. The vulnerability is linked to its dominant arid to semi-arid climate, as well as its high dependency on a single river system - the Indus River[22][23]. It supports the world's largest contiguous irrigated area comprised of 60,000 km of canals to irrigate 18 million ha. Water in the Indus River Basin originates from three major sources: monsoonal rainfall, melting of seasonal snowfall, and glacial ice. Around 60-75% of the total water is contributed by the water from snowmelt and more than 5,000 glaciers. This water feeding into the Indus from those glaciers dispersed by 10 sub-basins through different tributaries ranging from a few tens of meters to more than 70 km long[23][24]. The region of this irrigated surface, along with the arid nature, and the dependency on snow and ice melt for water explain the exposure and vulnerability to climate change of the Indus River Basin. Various studies already indicated that climate change will have an increasingly serious effect on the hydrology of the Indus Basin, largely because of rising temperatures and changing patterns of precipitation[24][25]. The predicted temperature increase will also result in increased crop water requirements and a productivity decrease in crops like cotton. For example, due to temperature increase under the Representative Concentration Pathway (RCP) 4.5, and RCP8.5 scenario cotton productivity may reduce by 35.3 and 39.2% in the country by mid-century, respectively[25][26]. The country already imports a significant volume of cotton every year to continue its textile sector operation, and the import value was US$2.05 billion in 2022[26][27]. Considering the future productivity loss due to climate change, such imports will increase in the future unless the textile VC diversifies its domestic sources of materials. Therefore, alternative innovative materials like banana fibre represent a sustainable, and bioeconomy-based textile substitute to cotton in the textile VC to cope with the adverse effects of climate change.
6. **Cross-sector interventions through bioeconomy value chains:** The banana sector and the textile sector have the potential to integrate and collaborate, but the industrial realization of this new value chain depends on supportive policies and legal framework conditions, which must be developed further. An enabling environment for the establishment of new value chains that ensures fair sharing of benefits and participation of smallholders and vulnerable groups includes creating a dedicated bioeconomy programme in the government and providing financial or fiscal incentives to "participating" companies. Also, value addition of waste and its removal is often an incentive, especially in areas that suffer from waste management problems.

Barriers to the bioeconomy-based sustainable textile sector in Pakistan

7. The banana plant's pseudo stem represents substantial volumes of agricultural waste in Sindh province. Combining the stem's fibrous properties with innovative and bio-based production techniques represents an opportunity to upcycle this waste into a sustainable raw material for textile VC. The country is willing to demonstrate its commitment to greening the textile VC, and agricultural production through key policies, and national actions. As a top-ten textile-producing nation with existing commitments to reform its textile industries and agrifood sector, Pakistan presents a prime opportunity to pilot

transformative innovations upstream in its textile supply chain[27][28]. However, some systemic challenges in Sindh province exist such as limited support to smallholders,[28][29] unsustainable cultivation practice and residue management, socio-economic factors such as widespread poverty and limited access to supporting services[29][30], and loss of crops[30][31]. Given the ever-increasing adverse impacts of crop residue burning, unsustainable cultivation practices, and growing trend of natural hazards due to climate change, Sustainable Agriculture Practice (SAP) and environmentally friendly residue management practices involving the smallholder, vulnerable communities, and women through capacity building and alternative income generation is required to safeguard the environment and people's health. The key barriers and gaps identified during the stakeholder consultation that currently hinder the adoption of sustainable material and circular bio-based approaches to utilize the banana pseudo stem-derived fibre for the textile value chain in Pakistan are highlighted below under five broad categories. A more detailed barrier analysis is included in Annex B: Baseline Scenario and the Problem to Address.

8. **Barrier 1 (B1): Existing regulatory framework not supporting circular/bioeconomy-based business models.** Key regulatory tools, such as a legal framework for circular and bioeconomy-based approaches at the national/provincial level are not supportive and fail to incentivize a corporate shift towards circular approaches, green and innovative raw materials, and climate-friendly processes. Different elements of this barrier will be addressed under Project Outcome 1 through Output 1.1.

9. **Barrier 2 (B2): Lack of access to finance, incentives, capacity building, and business incubation for smallholders, vulnerable communities, and women.** Smallholders, vulnerable communities, and women lack access to finance, incentives, and business incubation to test innovative circular materials and bioeconomy-based ideas. In this regard, lack of finance, incentives, capacity building, and business incubation is a clear barrier to innovation, circularity, and bioeconomy practices. Different elements of this barrier will be addressed through Output 2.2, and 3.3.

10. **Barrier 3 (B3): Lack of coordination among local, national, regional, and global initiatives.** There is a need to improve coordination among the actors in utilizing banana fibre in textile value chains. In addition, traceability to ensure the sustainable sourcing of the raw materials for the textile product is missing, which is a growing demand from the international market. Different elements of this barrier will be addressed through Output 2.3, 3.1 and 3.2.

11. **Barrier 4 (B4): Limited linkages and partnerships among the actors for banana fibre extraction involving smallholders, vulnerable communities, and women.** The technical knowledge and guidelines needed to foster circularity and bioeconomy practices in the banana cultivation and textile sector are still in their infancy in Sindh province, and Pakistan in general. Smallholders and marginal farmers have limited capacity and knowledge on Banana fibre extraction, softening, and subsequent access to utilize the Banana fibre in the textile value chain. Different elements of this barrier will be addressed through Output 1.2 and 2.1.

12. **Barrier 5 (B5): Lack of consumer awareness of social, environmental, and economic implications of innovative and circular banana fibre to be used in the textile value chain.** Awareness of the environmental and health impact of Banana waste burning, as well as on other issues such as climate change, biodiversity, persistent organic pollutants (PoPs), and hazardous pesticides in general is low. Since consumers, public planners, corporations, or regulators are not aware of the social, environmental, and economic implications of their choice of innovative and circular raw materials, the market for innovative, hazardous-free, green, circular, and responsibly sourced products could be limited. Duplication of efforts leads to loss of resources, knowledge, and opportunities for scaling up. Different elements of this barrier will be addressed through Output 1.2 and 4.1.

Baseline activities in the country

13. **Legal and regulatory landscape:** In Pakistan's updated National Implementation Plan (NIP) (Stockholm Convention) formulation the situation of the Persistent Organic Pollutants (POPs) has been assessed and inventories have been developed, along with action plans and strategies for financing. The NIP has also been updated in 2021 and Pakistan is

aiming to link and harmonize all the different activities on chemical and related hazardous waste management[31][32]. It aims to harmonize all of Pakistan's activities on chemical and hazardous waste management. It also focuses on reducing GHG emissions through waste recycling and improving resilience from pollution. It also contributes to the 2021 updates of Pakistan's Climate Change Policy. The goal of Pakistan's Climate Change Policy (2021)[32][33] is to steer Pakistan toward climate-resilient and low-carbon development. Thus, some of the overarching objectives of this national policy, such as (a) developing climate-resilient agriculture and food systems, (b) promoting cleaner, lower emission, and less carbon-intensive development, and (c) promoting tree plantation, conservation of natural resources, nature-based solutions, and long-term sustainability; can directly influence the agriculture and textile sector.

14. Pakistan's textile sector is guided by the Textiles and Apparel Policy (2020-25) which aims to strengthen the role of social and environmental standards and sustainability within the sector[33][34]. It reflects interventions, plans, and support to create a business-conducive environment for global competitiveness, robust processes, and sustainability through capacity building, marketing initiatives, consistent and predictable measures, and a level playing field for textiles and apparel value chains. Pakistan's National Action Plan on SDG[34][35] promotes the reuse and source reduction of waste. It aims to accomplish sustainable consumption and production targets as delineated in SDG 12 (Sustainable Consumption and Production). It promotes mitigation measures to encourage the adoption of clean production technologies, implement eco-standards, and incentivize carbon trading between industries to limit the production of GHGs. It also promotes bottom-up actions by the private sector and develops plans for emissions reductions from major sectors, particularly cement and textile. It sets general visions such as enhancing infrastructure, skill development, technological investments, etc. Therefore, in doing so, it covers the agriculture and textile sectors. Pakistan's National Biodiversity Strategy and Action Plan (NBSAP) (2017-2030)[35][36] also tracks agricultural sectors and the textile industry on sustainability.
15. The country deposited its Minamata Convention (MIA) instrument of ratification on 16 December 2020 the Government of Pakistan, thereby becoming the 126th Party to the Minamata Convention on Mercury. The Pakistan Environmental Protection Act (1997) and the Import Policy Order (2020) are measures that prevent the incorporation of mercury-added products for import and export, which is also relevant to the agriculture and textile sectors. The updated Nationally Determined Contribution (NDC) of the country highlights agriculture and industry as the country's most emissive sectors. It emphasizes public-private partnerships and bottom-up actions from the private sector, particularly in the textile industry[36][37]. The NCSA of Pakistan identifies national capacity constraints and priorities to meet binding commitments contained in the three Rio Conventions on Biodiversity, Climate Change, and Desertification[37][38]. Excessive use of pesticides has adversely affected the biomass of agricultural land in the country, and the industries in the country import about 525 types of chemicals and dyes/colors for use in different processes, which generates toxic wastes posing a potential risk to public health. In addition, the country has the Punjab Smog Policy (2017)[38][39], the Clean Green Pakistan Index (CGPI–2019), and the Banning of single-use plastics[39][40]; which can directly influence the agriculture and textile sectors to adopt sustainable actions. For example, the Punjab Smog Policy (2017) has a complete ban on the open burning of rice stubble, solid waste, and other hazardous materials, as well as the disposal of crop residue in an environmentally friendly manner.
16. **Stakeholder and institutional set-up:** The textile industry is the largest manufacturing industry in Pakistan. It represents around 8.5% of national GDP, 25% of industrial value-added, 40% of the industrial labor force, and 60% of total country exports. The supply chain covers growing cotton, ginning, spinning, weaving, finished fabrics, textile components, and garments[40][41]. Some of the key stakeholders of the country related to the textile sector are described here. All Pakistan

Textile Mills Association (APTMA)[41][42], which is the premier national trade association of the textile spinning, weaving, and composite mills representing the organized sector in Pakistan. The Small and Medium Enterprises Development Authority (SMEDA) is a government institution under the Ministry of Industries & Production, which is mandated to provide an enabling environment and business development services to small and medium enterprises[42][43]. In addition, the Ministry of Commerce and Textile (MoCT) has established a Research, Development, and Advisory Cell to review factors influencing the performance of Pakistan's textiles and clothing industry. It aims to develop and revitalize the textile industry to create a strong export base through developing/maintaining the database and to serve as a bridge between the government and the textile industry[43][44]. The Textile and Leather Division (TLD) of the Trade Development Authority of Pakistan (TDAP), aims to plan, coordinate, and execute annual business plans for national and international activities; as well as handle the supply chain issues for the local textile and leather industry. It maintains close coordination with concerned trade bodies and Pakistan trade missions abroad[44][45]. The Ministry of Climate Change and Environmental Coordination (MoCCEC) is responsible for sound chemical management of the textile sector[45][46]. Pakistan Textile Exporter Association (PTEA) is a corporate licensed organization by the Government of Pakistan under the Trade Organizations Act 2013 aiming to protect the textile industry's interests and improve the economic well-being of Pakistan[46][47]. Sindh Environmental Protection Agency (SEPA) is a Sindh government agency working for the protection, conservation, rehabilitation, and improvement of the Environment in Sindh. It is also working on the prevention and control of pollution, and the promotion of sustainable development through enforcement of Environmental Laws in Sindh. Several universities in Pakistan are involved with textile sector research and actively working on diversifying the raw materials for the textile VC including banana fibre such as the University of Agriculture Faisalabad, National Textile University (NTU) Faisalabad, and Sindh Agricultural University, Tando Jam Sindh.

17. Pakistan's existing governance and policy environment around sustainable growth in the agriculture and textile industries presents a conducive framework to unlock investment. Pakistan Investment Policy aims to improve the investment climate in the country by linking policies to facilitate business processes.[47][48] In addition, related to banana cultivation in Sindh province, the Agriculture, Supply and Prices Department, Government of Sindh (ASPD, GoS) is a key stakeholder. It has a mission to develop a science-based, vibrant, and internationally linked agriculture sector. Sindh province's plantation-based agriculture is predominantly feudal, with individual landlords owning large tracts of land farmed by tenant farming families living close to or under the poverty line[48][49].
18. **Baseline projects:** The country already has some baseline activities. Here a summary of a few activities is added. A more detailed overview of the baseline activities is added in Table 10. The notable baseline activity in this case is the research activity conducted by different universities, particularly the University of Agriculture Faisalabad[49][50], National Textile University (NTU) Faisalabad[50][51], and Sindh Agricultural University, Tando Jam Sindh[51][52]. These universities are researching the extraction of fibre from banana pseudo stem, and associated product development. Also, some of the universities are working with the banana farmers to increase the productivity of the sector. For example, the Banana Festival 2023 was organized at Sindh Agriculture University, Tandojam[52][53]. Besides, Interloop - a private textile industry counterpart - is producing banana fiber-based yarn, titled Loomshake[53][54]. In addition to said industry initiatives,

universities are also investing in the diversification of raw materials for the textile VC. For example, KnowTex is a research project designed to uplift the whole value chain of Pakistan's textile industry by indigenization, introducing knowledge-based textiles, productivity enhancement, branding, showcasing, and policy recommendations[54][55]. There are also donor-funded projects currently ongoing or completed related to textile and agriculture sectors, and the sustainable industrial sector in general, such as (a) Accelerating low-carbon circular economy through cleantech innovation towards sustainable development in Pakistan[55][56], (b) Reducing uses and releases of chemicals of concern, including POPs, in the textiles sector[56][57], (c) Transforming the Indus Basin with Climate Resilient Agriculture and Water Management[57][58], (d) Sindh Water and Agriculture Transformation Project (SWAT)[58][59], (e) Pakistan – Decarbonising Textile Manufacturing[59][60], and (f) Promoting sustainability in Pakistan's textile industry[60][61].

Objective of the project and its justification

19. The objective of the project is to accelerate the bioeconomy transition in the Pakistan textile sector by transforming banana pseudo stem waste into economically viable and socially beneficial fibre and promoting Sustainable Agriculture Practices (SAP) in banana cultivation. Pakistan's existing governance and policy environment around sustainable growth in the agriculture and textile industries described above presents a conducive framework to unlock investment. To build the banana fibre VC, the project will assess policy coherence and facilitate constructive dialogues among stakeholders including farmers and businesses. Diversifying the income streams of the smallholders, vulnerable communities, and women, will improve their resilience to environmental vulnerabilities and contribute to combating poverty. Project activities on capacity development will also carry educational weight, contributing to socioeconomic development. The project has a comparative advantage through its executing agency SMEDA - an autonomous government institution under the Ministry of Industries to facilitate the linkages to the textile sector. Working in synergy with businesses and farmers, this project will leverage existing investment frameworks across the agriculture and textile sectors to lay the ground for lasting and systemic change.

[1] Pakistan's second national communication on climate change.

[2] World Development Indicators.

[3] Pakistan's second national communication on climate change.

[4] World Economic Outlook database: October 2023.

[5] Sectoral Shares in GDP: Pakistan Bureau of Statistics.

[6] Pakistan first biennial update report (BUR1).

[7] Government of Pakistan (2013). Crops area and production (district wise) 2021-22. Ministry of national food security & research (economic wing), Islamabad.

[8] Government of Sindh (2021). Sindh Agricultural Statistical Report of Crops Estimates & Agricultural Inputs. Sindh Bureau of Statistics, Planning & Development Department. Karachi.

[9] Evaluation of the project "Improved Land Tenancy in Sindh Province".

[10] Adoption of Sustainable Agriculture Practices in Banana Farm Production: A Study from the Sindh Region of Pakistan.

[11] Pakistan bid to turn banana waste into fiber bears fruit.

[12] Environmental and Health Impacts of Crop Residue Burning: Scope of Sustainable Crop Residue Management Practices.

[13] Existing Smog in Lahore, Pakistan: An Alarming Public Health Concern.

[14] Understanding farmers' intentions to adopt sustainable crop residue management practices: A structural equation modeling approach.

[15] Pakistan first biennial update report (BUR1).

[16] Cotton accounts for 80% of Pakistan's pesticides usage. CABI (2021)

[17] Cotton consumes 4029 m3/ton of production as compared to the 790 m3/ton of banana production.

[18] Cotton production consumes 4029 m3/ton of water as compared to the 790 m3/ton consumption of banana production.

[19] Government of Pakistan (2013). Crops area and production (district wise) 2021-22. Ministry of national food security & research (economic wing), Islamabad.

[20] Protected areas in Sindh, Pakistan (2017).

[21] Sustainable Consumption and Production Patterns in Fashion.

[22] Global Climate Risk Index 2017.

[23] Glaciers and Glacial Lakes under Changing Climate in Pakistan.

[24] Selecting representative climate models for climate change impact studies: an advanced envelope-based selection approach.

[25] Regional integrated assessment of climate change impact on cotton production in a semi-arid environment.

[26] United Nations COMTRADE database on international trade.

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[51] Sindh Agriculture University, Tandojam

[52] Academia, Industry, and farmers to host Banana Festival at SAU

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[55] Accelerating low-carbon circular economy

[56] Reducing uses and releases of chemicals of concern

[57] Transforming the Indus Basin with Climate Resilient Agriculture

[58] Sindh Water and Agriculture Transformation Project (SWAT)

[59] Pakistan – Decarbonising Textile Manufacturing

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B. CHILD PROJECT DESCRIPTION

This section asks for a theory of change as part of a joined-up description of the project as a whole, including how it addresses priorities related to the specific program, and how it will benefit from the coordination platform. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the guidance document. (Approximately 3-5 pages) see guidance here

Project description

1. The project intervention will address the above-mentioned barriers. Here a brief description of the project interventions is added. For more details see Annex E: detailed Description of project components. The Theory of Change: (TOC) (see Figure 1) presents the four approaches to identify and address the underlying root causes and barriers of the project. The project will develop a bioeconomy-based banana fibre value chain through a better enabling environment and reduce banana waste burning in Pakistan to promote bioeconomy-based banana fibre for the textile sector in the country. Furthermore, the use of POPs will be prevented by avoiding cotton production and promoting Integrated Pest Management (IPM) and Sustainable Agriculture Practices (SAP) in banana cultivation. The gradual elimination of burning banana pseudo stems by extracting banana fibre will protect human health and the environment. During the PPG phase, an in-depth baseline study to identify the barriers and stakeholder analysis was conducted. The stakeholders' opinions to design the project activities based on the barriers identified were compiled through Key Informant Interview (KII) and Focus Group Discussion (FGD). The stakeholders consulted throughout the PPG phase are included in this document. In addition, stakeholders listed in Table 18 also provide their input during the PPG inception workshop and confirmed during the PPG validation workshop.

The project aims to accelerate the bioeconomy transition in the Pakistan textile sector by transforming banana pseudo stem waste into economically viable and socially beneficial fibre and promoting Sustainable Agriculture Practices (SAP) in banana cultivation. Therefore, based on the stakeholder opinions the activities under four project components were designed to support the ToC of the project. The ToC assumes that if regenerative and innovative products are produced from banana pseudo stems waste using circular business models; it is possible to ensure a sustainably sourced, innovative, responsibly managed, regenerative, and nature-based material for circular bioeconomy in the textile sector. This will be backed by an operational traceability system, capacity building of the manufacturer, and knowledge sharing to ensure less pollution.

2. The project will promote bioeconomy in the textile sector of Pakistan through the following to overcome the barriers mentioned in the barriers section:
   - Legal, institutional, and financial frameworks review, and recommend improvement of enabling environment for adopting banana fibre in the textile value chains to benefit smallholders, vulnerable communities, and women.
   - Gender-responsive and inclusive[1][62] national awareness programs will be developed and implemented focusing on banana fibre use based on the FAO 10 principles for a sustainable bioeconomy[2][63], including socioeconomic and global environmental benefits assessment of the project intervention.
   - An operational banana fibre value chain by following sustainable and regenerative practices.
   - Waste mapping of the banana fibre used in the textile value chain and developing business models to utilize the left-over materials to promote reuse and upcycle.
   - Increased productivity and sustainability through Sustainable Agriculture Practices (SAP) focusing on smallholders, vulnerable communities, and women banana growers in target districts.
   - A technology-based system will be developed for banana pseudo stem-derived fibre traceability, standards, and certification in the textile value chains for the benefit of smallholders, vulnerable communities, and women.
   - An environmentally sound management (ESM) plan will be developed for banana fibre to have sustainability standards and certification in the textile value chain.
   - Strengthening the technical capacity and incentives of the private actors of the textile sector to comply with the sustainability criteria of the global market.
   - The contribution to the bioeconomy will be assessed and the success story of banana fibre products from Pakistan will be disseminated through Regional and Global knowledge events and platforms.
   - Project Monitoring & Evaluation (M&E).

3. The main goal of Component 1 is to facilitate the banana producers in Sindh Province of Pakistan to make the regenerative banana fibre adopt a circular business model by recommending necessary legal, institutional, and financial frameworks, as well as gender-responsive and inclusive national awareness programs. To achieve the goal, it will improve the necessary institutional frameworks, policy, incentives, and business incubation, and provide resources to smallholders, vulnerable communities, and women in target districts to promote climate-friendly and nature-positive banana fibre management.
4. Component 1 - The current institutional, legal, and financial landscape does not provide enough incentives for the wider adoption of circular and bioeconomy-based alternative fibre use in the textile value chain. The activities under this outcome will address the different elements of barriers # 1, 4 and 5 described in the barrier section. It will go beyond only developing fibre generation from Banana pseudo stems and will take a holistic approach towards ensuring a sustainable business model and agriculture practices for the banana growers to ensure an environment-friendly alternative raw material derived from biowaste for bioeconomy practices in the textile sector. The goal of this outcome is to promote the implementation of a pilot demonstration of extraction and softening of fibre from Banana pseudo stems, developing a business model and

financing mechanism, associated capacity building, and ensuring sustainable agriculture practices. The detailed activities are included in Annex E: Detailed Description of Project Components and associated stakeholders for implementation are included in Table 3 at the output level. Under this component, at least 12 workshops and consultations (50% women) will be conducted for capacity building. Each workshop and consultation will have around 35 participants. Therefore, under this component, 210 (12×35×50%) women will be trained with enhanced capacity and knowledge on the socio-economic impacts of banana fibre, financial mechanism and business incubation scheme, as well as regulations and financing policies.

5. Component 2 - Sustainably sourced, and bio-based products manufacturing: It will focus on creating a banana fibre value chain that applies production and manufacturing processes following bioeconomy principles and sustainable practices. The activities under this component will address the different elements of barriers # 2,3, and 4. The main goal is to develop a banana fibre value chain by adopting bioeconomy principles and circular and regenerative techniques for the Pakistan Textile sector, as well as to ensure Environmentally Sound Alternatives (ESA) substitution. This will also align with National and international priorities, such as reducing water and greenhouse gases (GHG) emissions from the textile supply chain, while enhancing the use of circular and biobased raw materials derived from waste streams. The details activities are included in Annex E: detailed Description of project components and associated stakeholders for implementation are included in Table 4 at the output level. Under this component, at least 16 workshops and consultations (50% women), and 32 training (50% women) will be conducted for capacity building. Each workshop and consultation will have around 35 participants. Therefore, under this component, 840 (48×35×50%) women will be trained with enhanced capacity and knowledge on alternative products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.), domestic and international financial and entrepreneurial programs, sustainable and climate-smart agriculture practices, as well as fibre extraction and softening. Besides, under this component, there will be 24 pilot demonstrations related to sustainable banana cultivation, banana fibre extraction and softening. Out of these 24 pilot demonstrations, the project will engage women entrepreneurs for 50% of the pilot demonstrations.
6. Component 3 - Supporting less pollution and waste-based manufacturing and production in the banana fibre value chain: It will focus on the operational traceability system and capacity building of the manufacturer is achieved to ensure less pollution and waste-based banana fibre use in the value chain. The goal is to transform the production and manufacturing processes of textiles towards less water, energy, and hazardous chemicals-based value chains by promoting banana fibre. The activities under this component will address the different elements of barriers # 2 and 3. The activities will be directed towards developing a system for banana pseudo stem-derived fibre traceability, standards, and certification in the textile value chains, and capacity building of the private sector engaged. These will ensure a textile sector in Pakistan that relies on banana fibre to have less pollution and a zero waste-based value chain. The details activities are included in Annex E: detailed Description of project components and associated stakeholders for implementation are included in Table 5 at the output level. Under this component, at least 12 workshops and consultations (50% women), and 32 training (50% women) will be conducted for capacity building. Each workshop and consultation will have around 35 participants. Therefore, under this component, 770 (44×35×50%) women will be trained with enhanced capacity and knowledge on the monitoring, traceability system, ESM and SOP, banana fibre to yarn and product manufacturing, and financial incentives.
7. Component 4 - Knowledge management: This component relates to monitoring the project impact indicators, evaluating the achievements and taking corrective measures if needed. All the above outcomes will be monitored and verified through the activities included in this component. The activities under output 4.1 of this component will address the different elements of barrier # 5. It will focus on knowledge sharing and M&E of the project interventions. The goal is to support the knowledge management, monitoring, and evaluation by ensuring knowledge sharing, and dissemination of the outcome and success story of the projects nationally, regionally, and globally. It will be achieved through creating and curating knowledge, and information sharing. Under this component, 2 national and provincial workshops will be conducted, 2 cooperation agreements will be signed with global and regional sustainable exchange mechanisms and platforms, 3 South-South Global events, exchange mechanisms and platforms will be attended, and 6 awareness campaign events will be organized. Following the project gender participation policy, 50% women participation will be ensured for these interventions.

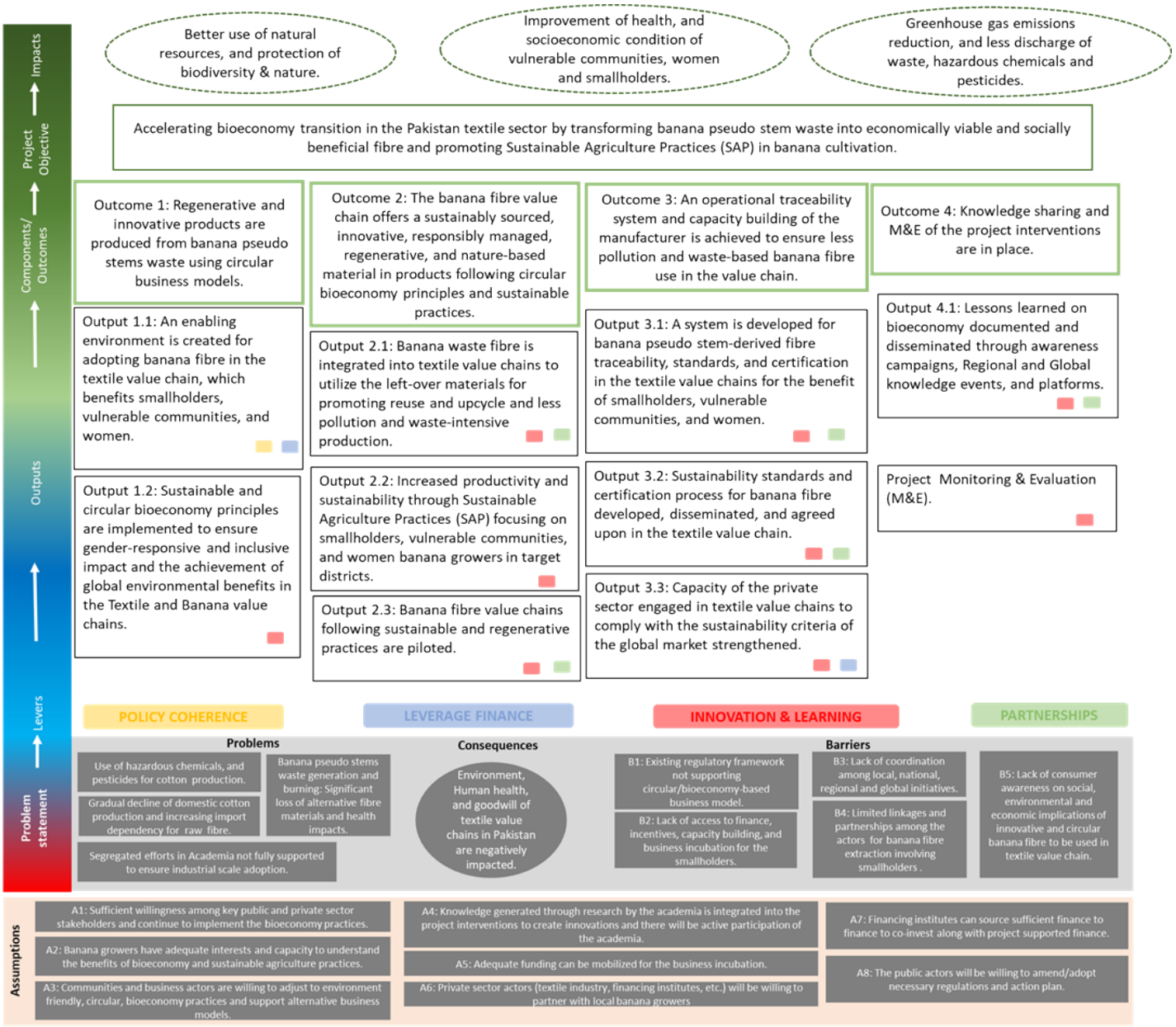


Figure 1: Theory of Change Diagram

8. The project will generate considerable knowledge and products across all its components, and Knowledge Management (KM) is an integral part of the project. These will be coordinated under this component, whose focus is to raise awareness, promote learning and continuous knowledge dissemination, generate content for up-scaling of project achievements, lessons, and good practices, enable institutional memory, and support stakeholder engagement on key issues. The project will play an important role in exemplifying bioeconomy practices for fibers, by actively working with the IP's Global Child Project (GEF Project ID: 11177) and relying on the knowledge dissemination mechanism of the IP. The project will capitalize on the knowledge, network, and expertise of the ZDHC Programme by actively working with this global initiative[3][64]. It leads the fashion industry to eliminate harmful chemicals from its global supply chain. The project will also closely work with FAO lead WBF[4][65] to capitalize on the knowledge, network, and expertise on best practices and SAP related to banana cultivation. In addition, all the knowledge materials generated under the project will be disseminated by actively working with the UN Alliance for Sustainable Fashion[5][66] and the Knowledge Platform of the Strategic Approach to International Chemicals Management (SAICM)[6][67]. All the knowledge products of the project will be also disseminated through FAO communication channels, business information resources and the publication section of SMEDA's website (https://smeda.org/), E-learning portal of SMEDA (https://www.sme-elearning-pk.net/), knowledge dissemination platform of Agriculture, Supply & Prices Department, Government of Sindh (https://agri.sindh.gov.pk/agriculture-booklets), Sindh Environmental Protection Agency (SEPA) (https://epa.sindh.gov.pk/), National Textile University (NTU) Faisalabad (https://www.ntu.edu.pk/index.php), and private sector entities involved in the project for piloting.
9. The project will be a pioneer in the GEF and FAO and will offer high potential for replication in other countries and with agricultural waste from other value chains such as pineapple, orange peel, and coffee grounds. It will build on successful examples such as Ananas Anam[7][68], and Banana Tex in the Philippines[8][69] which already demonstrates industry uptake and marketability. The detailed activities are included in Annex E: detailed Description of project components , and associated stakeholders for implementation are included in Table 6 at the output level.

Risk Analysis

10. An overview of risks and potential risk management strategies is included in B.3 Risk Management and summarized here. The risks associated with the project may arise from different factors such as climate, environmental and social, political and governance, macro-economic, national strategies, technical design, and institutional capacities. The inclusion of important stakeholders covering the key supply chain actors and developing partnerships (covering the project life cycle) will help to address these risks. COVID-19 or other pandemics may have an enormous impact during the project implementation, with major changes in day-to-day business operations, and government resource mobilization. The project will follow OHS measures for all the project-related public gatherings like national workshops and consultations, as well as for the participating stakeholders. A Climate risk screening as well as environmental and social risk assessment (Annex I: Environmental and Social Safeguards) was done for the project to identify the potential risk, rating the risk, and identify mitigation measures. FAO Framework for Environmental and Social Management (FESM) establishes environmental and social performance requirements for FAO programming and implementation. Based on the Environmental and Social (E&S) screening the project is classified as moderate, and as per climate screening, the project is classified as high risk.

Global Environmental Benefits

11. Direct and indirect Global Environmental Benefits (GEBs) will be delivered through all project components. It is expected to reduce the persistent organic pollutants (POPs) and highly hazardous pesticides (HHP) from the textile value chain of Pakistan through the avoidance of some cotton, banana stem burning, and plastic burning. Pakistan is the eighth largest exporter of textile commodities in Asia[9][70]. Pakistan is the fourth largest producer of cotton with the third largest spinning

capacity in Asia and contributes 5% to the global spinning capacity[10][71]. The exports to the global market were USD 16.5 billion during 2022-23. As a top-ten textile-producing nation[11][72] with existing commitments to reform its textile industries and agrifood sector, the project presents a prime opportunity to Pakistan as well as to the global textile supply chain to pilot transformative bioeconomy-based innovations.

12. Banana cultivation area in the country was 33,197 ha during the 2021-22 financial year, and around 96% is in Sindh province[12][73]. A third of this area will be targeted through direct interventions that ensure the application of Sustainable Agriculture Practices (SAPs) and Integrated Pest Management (IPM) in banana production and eliminate the burning of crop residues. The methodological approach of GEBs calculation is explained in B.2 Core Indicators. The output of banana fibre anticipated by the project end has the potential to avoid the cotton output of 320 ha currently under chemical-intensive cotton production. Sindh province has more than 14,000 ha of protected areas covering wildlife sanctuaries and game reserves in Khairpur and Sukkur districts[13][74]. It is expected that direct and indirect intervention from this project in Sindh province can generate biodiversity benefits from avoided leakage of chemicals (from the reduced and avoided use of pesticides and fungicides) and plastics into surrounding ecosystems by an indicative factor of 1.75. Adjacent waterways (notably, the Indus River Basin, a conservation hotspot and key water resource) and land-based ecosystems (particularly protected areas) will benefit in direct and indirect ways, such as avoiding leakage of chemicals.
13. By promoting SAPs and IPM in banana production, the project will implement a low-chemical system in food production. Considering textile production as a separate system, banana fibre will offer a low chemical alternative raw material to cotton. The GEB estimates avoided pesticide application from the substituted amount of cotton lint. Modeling benefits during the project and over a 10-year time horizon indicates that total avoided HHPs could be 1,137 tonnes and 2,870 tonnes, respectively. Due to the project intervention through SAP and recycling of banana sheathes, it is expected to avoid the use of virgin plastics. Modelling benefits during the project and over a 10-year time horizon indicate total avoided plastic waste expected to be 4,770 tonnes and 15,314 tonnes, respectively. The banana pseudo stem waste, which is currently burned in the fields will be upcycled to produce banana fibre, and through this transformation, it is expected to avoid around 34 grams of toxic equivalent (gTEQ) POPs emissions to air. Besides, the project will promote the avoidance of open burning of used plastic sheathes resulting in around 7 gTEQ avoided POPs emissions during project implementation. Modelling benefits over a 10-year time horizon indicate that a total of 108 gTEQ could be avoided from the prevention of open-burning of both banana residue and plastic.
14. The project will reduce greenhouse gas (GHG) emissions by avoiding the open burning of crop residue and following the SAP in banana cultivation. An EX-ACT assessment was run considering direct GHG benefits from 11,250 hectares of banana plantation under improved practices, comprising reduced tillage, higher carbon-input (with manure), and eliminated biomass burning. Indirect benefits were calculated from avoided cotton production of 320 ha assuming full tillage, low carbon input (no manure), and retention of residues. In addition, the estimated reduction of fertilizer inputs and diesel inputs from SAP during banana cultivation was also considered. The estimated GHG emission mitigation is 845,373 t CO_{2e}. The adoption of SAP as well as avoiding open burning and associated upcycling of banana pseudo stems will not only increase the climate resilience of the vulnerable community, smallholders, and women, but it will also improve the community health and reduction of associated medication costs.
15. Finally, the project aims at 73,000 beneficiaries (50% women) through training, awareness raising, and knowledge and capacity strengthening activities focusing on vulnerable communities, smallholders, women, textile sector actors, government agencies, academia, and researchers. Other GEBs also include (a) water saving benefits of 3,360 m^3/tonne of output till farmgate, (b) energy (539 MJ/tonne of output) and GHG (45 kg CO_{2eq} /tonne of output) saving benefits from less irrigation water consumption for banana cultivation till farmgate, (c) additional revenue benefits of 108,500 Pakistani Rupees (PKR)/acre from banana fibre sales.

Gender

16. The proposed project developed a gender-responsive results-based indicator as shown in Annex C: Results Framework. In addition, details of gender assessment are added in Annex K: Gender analysis and action plan, and key gender aspects of the project are also added in Policy requirements**.** During the project implementation, GEF's Gender Equality Action Plan

(GEAP)[14]75 will be followed. During the project implementation, the Project Management Unit (PMU) will be responsible for implementing the Gender Action Plan. This will ensure equal participation of women in project implementation, and evaluation. The project will also ensure women's participation during validation workshops and inception of the project, in the project steering committee, and PMU, as well as in different project activities, national consultations and capacity-building training, and piloting of the interventions. Therefore, wherever possible a gender-responsive approach will account for and apply within the project to ensure gender equality (addressing gender-related gaps and inequalities and promoting equal access to opportunities and benefits such as incomes, employment, etc.) during project interventions. The gender-segregated evaluation of the project findings will be presented in annual and biannual reports, publications, and knowledge materials generated by the proposed project. A gender-responsive results-based indicator will allow this project to address appropriate responses to national efforts toward gender balance through project activities.

17. Gender analysis for this project reveals following gender-related constraints and obstacles that women are facing in the banana value chains (see Annex K for more details):

- Accessibility issue for long distances with lack of transportation facilities.
- Less exposure to employment opportunities.
- Less decision-making power.
- Lack of access to knowledge and information and communication tools.
- Less access to resources.
- Languages, cultural, and social norms.
- Lack of Education.
- Women's direct linkages with buyers and sellers.
- Infrastructure, safety, less exposure to employment languages.
- Cultural, and social norms.

18. A brief overview of opportunities reveals from the gender analysis are as follows (see Annex K for more details):

- Advocate policies to actively involve women at all levels of the banana fibre value chain, ensuring equal opportunities for both men and women.
- Train women in creating high-value products, and involving the women for piloting and all the capacity building activities.
- Create a supportive and inclusive work environment free from discrimination, harassment, and gender-based biases, where women feel valued, respected, and empowered to contribute effectively.
- Highlight and promote female role models and success stories within the textile value chain that can be followed in the banana fibre value chain.
- Engage with local communities and women's groups to raise awareness about banana fibre initiatives and encourage women's participation.
- Promoting gender-inclusive training programs, women-led cooperatives, and flexible work arrangements for women in the piloting facilities.

- Engaging the women in banana fibre softening and subsequent product manufacturing through business and finance linkages.

19. The specific activities under different project outputs to address gender-related constraints and inequalities and to promote women's empowerment are as follows:

Output 1.1. An enabling environment is created for adopting banana fibre in the textile value chain, which benefits smallholders, vulnerable communities, and women
1.1.1.: Increase stakeholders' awareness and knowledge on gender during the gap analysis.
1.1.2. Consideration of gender aspects on the prioritized recommendations.
1.1.3. Consideration of gender aspects on the financial mechanism and business incubation scheme.

Output 1.2: Sustainable and circular bioeconomy principles are implemented to ensure gender-responsive and inclusive impact and the achievement of global environmental benefits in the Textile and Banana value chains.
1.2.1. Consideration of gender aspects on the socio-economic and global environmental benefits study (health, employment, environment, etc.).
1.2.2. Increase stakeholders' awareness and knowledge on gender during the disseminating the socio-economic impact assessment study outcome.
1.2.3. Consideration of gender aspects on the project-relevant technical information materials preparation on sustainable agriculture practices of banana cultivation.
1.2.4. Consideration of gender aspects on the project-relevant technical information materials preparation on bioeconomy practices in textile industry.
1.2.5 Consideration of gender aspects on Designing training courses, improving, or complementing the academic curricula.

Output 2.1: Banana waste fibre is integrated into textile value chains to utilize the left-over materials for promoting reuse and upcycle and less pollution and waste-intensive production.

2.1.2 Consideration of gender aspects on the Techno-economic feasibility study of banana fibre extraction and softening.
2.1.3. Consideration of gender aspects on the Techno-economic feasibility study of different banana-based products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.).
2.1.4. Increase stakeholders' awareness and knowledge on gender during the disseminating the study outcome on alternative products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.).
2.1.5. Consideration of gender aspects on the knowledge materials on alternative products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.).

Output 2.2 Increased productivity and sustainability through Sustainable Agriculture Practices (SAP) focusing on smallholders, vulnerable communities, and women banana growers in target districts.
2.2.1 Consideration of gender aspects on the sustainable banana production technologies and guidelines preparation.
2.2.2. Consideration of gender aspects and focusing on gender equality for supporting and improving agricultural inputs distribution.

Output 2.3 Banana fibre value chains following sustainable and regenerative practices are piloted.
2.3.4 Consideration of gender aspects and focus on gender equality during the 6 pilot demonstrations of sustainable banana cultivation.
2.3.5 Consideration of gender aspects and focus on gender equality during the 6 pilot demonstrations of banana fibre extraction and softening.

Output 3.1: A system is developed for banana pseudo stem-derived fibre traceability, standards, and certification in the textile value chains for the benefit of smallholders, vulnerable communities, and women.
3.3.1. Increase stakeholders' awareness and focus on gender equality during training to ensure traceability.
3.3.2 Consideration of gender aspects and gender equality during implementing a technology-based pilot traceability scheme.

Output 4.1: Lessons learned on bioeconomy documented and disseminated through awareness campaigns, Regional and Global knowledge events, and platforms.

4.1.2. Consideration of gender aspects and focus on gender equality during Linking the project stakeholders with the global and regional and national sustainable exchange mechanism and platform.
4.1.3. Consideration of gender aspects and focus on gender equality during participation in national and global events.
4.1.4. Increase stakeholders' awareness and knowledge on gender equality during awareness campaigns on promotion of circular and bioeconomy.

Stakeholders and Private Sector involvement

20. The project will engage several domestic stakeholders along the banana fibre value chain, and global stakeholders. For details please see Annex J: Stakeholder engagement plan and grievance redress mechanism and stakeholder mapping in Policy requirements. The project is expected to leverage voluntary initiatives from several stakeholders, particularly textile industries, which in the long run may result in incremental benefits through replication, scale-up, and stakeholder networking events.

21. The private sector engagement is critical in this project and is expected to achieve measurable reductions of HHPs and POPs through voluntary industry procurement measures to replace some share of cotton with the manufacture of banana fibre products. Developing regulation of chemicals of concern is time-consuming and often slow to implement legally binding restrictions due to bureaucratic processes. Therefore, project activities are expected to motivate the private sector by relevant incentives and sustainability actions of the project. The private sector is expected to be involved in many activities of the project: covering incentives, business incubation of smallholders, vulnerable groups, and women, as well as connectivity development; piloting activities, and substitution of some portion of the cotton through banana fibre blending and associated product branding and marketing; training and capacity building.

22. Several textile industries were visited and consulted during proposal development for project collaboration, and partnership. The textile industries consulted are already invested in sustainable textile operations and planning to continue the investment. In addition, the project executing entity SMEDA will bring long-standing experience in collaboration and partnership with small and medium private enterprises in the project. SMEDA will contract private companies to involve them in pilot activities such as traceability systems, piloting of banana fibre-based product development, capacity building, as well as participating in different global and regional platforms. Considering the role and representativeness of the textile sector in Pakistan, APTMA, Research, Development, and Advisory Cell of MoCT, and TLD of TDAP is expected to be involved in specific project activities to maximize the applicability to the local context and project sustainability and scaling up. The private sector entities from banana growers are expected to be involved by considering additional business development opportunities for banana fibre, associated capacity building, and knowledge management activities. On the other hand, the private sector entities of the textile sector are expected to be attracted and incentivized due to the involvement of national agencies mentioned above, and project output like traceability system (output 3.1), environmentally sound management (ESM) plan (output 3.2), engagement with regional and global knowledge events and platforms (output 4.1), and several capacity building activities. For more details see Annex J: Stakeholder engagement plan and grievance redress mechanism.

National policy coherence

23. The objectives, priority actions, and implementation principles of this project are reflected in the updated National Implementation Plan (NIP) (Stockholm Convention). The NIP has also been updated in 2021, and Pakistan is aiming to link and harmonize all the different activities on chemical and related hazardous waste management[15][76]. GHG emissions reduction through waste recycling is also another focus of the updated NIP, which is a perfect alignment with the proposed project. The goal of Pakistan's Climate Change Policy (2021)[16][77] is to steer Pakistan toward climate-resilient and low-carbon development through activities like climate-resilient agriculture and food systems, and promoting cleaner, lower-emission, and less carbon-intensive development. Such activities are core actions of the proposed project. The Textiles and Apparel Policy (2020-25) of the country aims to strengthen the role of social and environmental standards and sustainability

within the sector[17][78]. The proposed project through wider integration of banana fibre in the textile value chain will ensure sustainable interventions, and global competitiveness through care for the environment. Pakistan's National Action Plan on SDG[18][79] promotes the reuse and source reduction of waste, which is the core theme of the project to upcycle the banana pseudo stem waste. Pakistan's National Action Plan on SDG also promotes bottom-up actions by the private sector and encourages emissions reductions from major sectors, particularly cement and textile. The proposed project is expected to reduce 845,373 t $CO_{2e.}$

Innovation, sustainability, and scaling up

Innovation

24. The application of bioeconomy alternatives in the textile sector, and SAP for banana cultivation in Pakistan in general, is relatively new. In addition, a technology-based system for traceability, gender-responsive and inclusive national awareness programs based on the FAO 10 principles for a sustainable bioeconomy[19][80], upcycling of banana pseudo stem waste, involvement of smallholders, vulnerable communities, and women for banana fibre VC, and ESM plan from the project intervention, will be innovative. The SAP for banana growers involving smallholders, vulnerable communities, and women will be identified based on the detailed assessment after the inception of the project. The project's focus on SAPs and sustainable bioeconomy will ensure an innovative banana fibre VC and will furthermore ensure that the valorization of banana waste is green by design, promoting circularity and the full use of waste within sustainable natural resources management. This innovative thinking requires support to incentivize the flow of new materials into supply chains, alongside the management of trade-offs that may arise. For example, further feasibility analyses for banana fibre after the project's inception will consider potential livelihood impact scenarios for cotton growers in Pakistan. That said, banana fibre is unlikely to displace cotton entirely, and therefore the project will operate in synergy with initiatives to improve the sustainability of cotton production in Pakistan. It will also link to global bioeconomy markets and trade[20][81] and global bioeconomy policies[21][82]. Importantly, the project can contribute a response to Pakistan's growing dependence on cotton imports due to decreasing cotton yields, for example by offsetting related job displacement[22][83] while simultaneously proposing a more sustainable raw material for the textile industry. The impacts of the project will contribute to GEF targets 6.5) of 845,373 t CO_{2e}, mitigated in the Agriculture, Forestry, and Other Land Use (AFOLU) (direct), and 10) 108 gTeq POPs to air reduced from the prevention of open burning of both banana residue and plastic. The intervention provided in the proposed alternative scenario sections (Components 2 and 3) will rely on innovative production techniques by incorporating the reduce-reuse-recycle principle of circularity, and application of no or green chemicals. These will enhance the circular economy practice of the textile sector in Pakistan by promoting biobased innovative materials, upcycling waste, eliminating pollution, and encouraging natural regeneration through regenerative practices in the banana fibre VC. The project will also reduce the use of POPs and hazardous chemicals, health, and environmental impacts while improving the efficiency, and livelihood, and augmenting the profitability of the smallholders, vulnerable communities, and women, and textile sector actors.

Sustainability

25. The executing partner of the project is SMEDA which is an autonomous institution of the Government of Pakistan under the Ministry of Industries and Production. It is not only a policy-advisory body for the government of Pakistan but also facilitates stakeholders in addressing development agendas related to small and medium enterprises. Therefore, the project has a high probability of being sustainable as it will be executed by SMEDA by partnering with relevant private sector companies and associations. The project objectives are aligned with the national policies such as NIP (2021)[23][84], Climate

Change Policy (2021)[24][85], Textiles and Apparel Policy (2020-25)[25][86], National Action Plan on SDG[26][87] and Nationally Determined Contribution (NDC) (2021)[27][88]. The recommendation and improvement of national regulatory mechanisms to promote bioeconomy in the textile sector will offer a framework in the country to ensure the sustainability of the project in the future years after project completion. The banana and textile sector actor's involvement during the project preparation through the inception workshop, sector consultation, and validation workshop will ensure ownership, commitment, cooperation, and partnership to move forward toward a bioeconomy-based textile sector in Pakistan. Minimizing chemicals, water, energy, materials consumption, and waste generation in the banana fibre value chain through SAP and bioeconomy practices following the FAO 10 principles and 24 criteria[28][89] will bring relevant economic benefits motivating the stakeholders related to the banana and textile sector for further investments while avoiding economic, social and environmental risks and impacts in Pakistan. Project activities will also support the capacity building of academia and researchers through knowledge materials and training involving the universities. This will lead to a new generation of professionals with expertise in this field and the development of job opportunities. Consequently, overall economic growth will be ensured based on the bioeconomy in the textile sector, later which can be replicated for other industrial sectors.

Scaling up

26. For scale-up from local and national level to international level, stakeholder engagement across diverse platforms and partners will be key. For example, regarding the banana VC, FAO hosts the World Banana Forum (WBF), a multi-stakeholder platform with member organizations from the entire spectrum of the global banana value chain[29][90]. The WBF will be leveraged to showcase results from the project and promote their implementation in other major banana-producing nations. For the textile value chain, Pakistan is a member of global platforms including the Better Cotton Initiative[30][91]. Pakistan can serve as a key example for the textile industry and fostering linkages between strategic global stakeholders such as the WBF, the Better Cotton Initiative, and the Fashion Pact can ensure market uptake and help unlock finance. Lessons learned will be shared across platforms and sectors, publicizing project achievements, and inspiring replication.
27. The bioeconomy practices under this project will provide new prospects by going beyond waste management and recycling through value creation skills development and economic diversification. The project will ensure technical assistance for the capacity building of the stakeholders through the engagement of the public and private sectors locally, regionally, and globally. Therefore, the scaling up and replication of bioeconomy practices in the textile sector of Pakistan is entrenched in the training, awareness, and capacity-building activities backed by the dissemination of project-generated knowledge materials, impacts, success stories, and lessons learned. Such a holistic approach will ultimately reduce the use of chemicals in the textile VC and will ensure the substitution of biobased alternatives, wherever possible, and principles and criteria for a sustainable bioeconomy will be checked[31][92]. The success stories of Pakistan can be used as a reference for the bioeconomy-based textile sector in other countries, and major textile-producing nations facing similar obstacles.

Component 4 will extend the scale of the project and will sustain the project results and best practices in the long run. The contribution to the bioeconomy will be assessed and the success story and lessons learned from banana fibre production in Pakistan will be disseminated through regional and global knowledge events and platforms such as the Global Circular Fashion Forum (GCFF)[32][93], Sustainable Fashion Academy (SFA)[33][94], and the United Nations Alliance for Sustainable Fashion[34][95]. The

project interventions will connect regional cooperation and networks (such as Asia Garment Hub[35][96] and the Islamic Chamber of Commerce, Industry and Agriculture[36][97]) for information exchange and experience sharing. Furthermore, the project will be implemented in close linkage with the Global Environment Facility (GEF) funded regional project 'Reducing uses and releases of chemicals of concern, including POPs, in the textiles sector' (GEF ID 10523) and national project 'Accelerating low-carbon circular economy through cleantech innovation towards sustainable development in Pakistan' (GEF ID 10885). Therefore, stakeholder network and visibility will be also gained by closely working with those projects.

Knowledge management and Communication

1. The project will generate considerable knowledge and products across all its components, and Knowledge Management (KM) is an integral part of the project. These will be coordinated through Component 4 whose focus is to raise awareness, promote learning and continuous knowledge dissemination, generate content for up-scaling of project achievements, lessons, and good practices, enable institutional memory, and support stakeholder engagement on key issues.
2. The project will undertake a techno-economic feasibility study which will provide technology, financial, and socio-economic data for sound investment decision-making, which will also be disseminated through the regional and global platform mentioned above. Therefore, knowledge sharing, learning, and synthesis of experiences are the key interventions in this project. There is a growing interest in bio-based technologies across the fashion industry. The project will play an important role in exemplifying bioeconomy practices for fibers, by actively working with the IP's Global Child Project (GEF Project ID: 11177) and relying on the knowledge dissemination mechanism of the IP. The project will offer high potential for replication in other countries and with agricultural waste from other value chains such as pineapple, orange peel, and coffee grounds. It will build on successful examples such as Ananas Anam[1], and Banana Tex in the Philippines[2] which already demonstrate industry uptake and marketability. At the national level, industry dialogues with textile manufacturers, including discussions on the implementation of traceability and certification schemes will create necessary market linkages that could be replicated in other value chains. The project activities on capitalizing best practices and experiences from other front-running countries, through industry and government dialogues and exchange will ensure a successful knowledge transfer from the early adopters.
3. Already most of the global fashion brands (320 signatories from across the industry including Brands, Suppliers, Solution Providers, and Chemical Suppliers) like Adidas, ADVANCE DENIM, and ECHOTEX have signed ZDHC Roadmap to Zero[3]. The ZDHC Programme leads the fashion industry to eliminate harmful chemicals from its global supply chain. The project will capitalize on the knowledge, network, and expertise of the ZDHC Programme by actively working with this global initiative. The project will also closely work with FAO lead WBF[4] on to capitalize knowledge, network, and expertise on best practices and SAP related to banana cultivation.
4. Component 1 will generate open-source knowledge and information on regulatory, and financial policies/mandates, institutional capacities, and socio-economic and global environmental benefits (health, employment, environment, etc.) assessment of project interventions, and value addition to the national economy. Component 2 will generate open-source knowledge and information on global innovative business practices and models and recommend appropriate gender-responsive business models for banana fibre, a techno-economic feasibility study covering administrative, managerial, financial, and technical aspects of banana fibre extraction and softening, and techno-economic feasibility study of different products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.). Moreover, the project will also support capacity building through training. The project will ensure that all this knowledge and information is available as open source using the knowledge dissemination platforms mentioned above. In addition, all the knowledge materials generated under the project will be disseminated by actively working with the UN Alliance for Sustainable Fashion[5] and the Knowledge Platform of the Strategic Approach to International Chemicals Management (SAICM)[6].
5. The project will draw on a broad range of both innovative and established KM services and products provided by FAO, as well as the knowledge management strategy of the global child project[7]. These will be available for the entire project implementation period starting from the inception of the project, and publication and dissemination (e.g., new fact sheets engine on gear types). All the knowledge products of the project will be also disseminated through FAO communication channels, business information resources and the publication section of SMEDA's website (https://smeda.org/), E-learning portal of SMEDA (https://www.sme-elearning-pk.net/), knowledge dissemination platform of Agriculture, Supply & Prices Department, Government of Sindh (https://agri.sindh.gov.pk/agriculture-booklets), Sindh Environmental Protection Agency (SEPA) (https://epa.sindh.gov.pk/), National Textile University (NTU) Faisalabad (https://www.ntu.edu.pk/index.php), and private sector entities involved in the project for piloting. Key elements of KM

are document and publication management, and data consistency, which are also key for the project's sustainability strategy. About these, the project will draw on FAO capacity and experience with regional multi-topic online Atlases.

6. The key deliverables, associated timeline, and budget for Knowledge Management activities are presented below:

Table 1: Project Knowledge Management activities

Deliverable	Timeline	Budget, USD
Activity 1.1.1: A gap analysis of regulatory, and financial policies/mandates, and institutional capacities to propose an improvement for circular and innovative banana fibre adoption in the textile value chain with special consideration to the integration of smallholders, vulnerable communities, and women.	Year 1	15,000
Activity 1.2.1.: Conducting socio-economic and global environmental benefits (health, employment, environment, etc.) assessments of project interventions, and value addition to the national economy, using FAO tools and the 10 principles for a sustainable bioeconomy as a framework to assess trade-offs.	Year 1-2	25,000
Activity 1.2.3: Developing project-relevant technical information materials on sustainable agriculture practices of banana cultivation in local language for different audiences including smallholders, vulnerable communities, and women.	Year 1-2	10,000
Activity 1.2.4: Developing project-relevant technical information materials on bioeconomy practices in textile industry in local language.	Year 1-2	10,000
Activity 1.2.5: Designing training courses, improving, or complementing the academic curricula on the concept of circular/bioeconomy and project-suggested technologies.	Year 1-2	20,000
Activity 1.2.6: Reviewing and ensuring the gender aspects and inclusive approaches are properly addressed in all relevant project outcomes, reports, training materials, and knowledge products before dissemination.	Year 1	5,000
Activity 2.1.1: Wastes mapping and characterization of the left-over materials of banana fibre value chain.	Year 1	10,000
Activity 2.1.2: Techno-economic feasibility study of banana fibre extraction and softening to identify potential applications and creation of green jobs, as well as dissemination and adoption of the study outcome.	Year 1-2	20,000
Activity 2.1.3: Techno-economic feasibility study for different banana-based products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.), gender-responsive business models, and market analysis.	Year 1-2	15,000
Activity 2.1.5: Develop knowledge materials and informative documentaries on alternative products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.) from the leftover materials of the banana fibre value chain.	Year 2	15,000
Activity 2.1.6: Review global innovative business practices and models and recommend appropriate gender-responsive business models for banana fibre benefiting smallholders, vulnerable communities, and women.	Year 1	10,000
Activity 2.2.1: Developing sustainable banana production technologies and guidelines to increase productivity and improve environment.	Year 1-2	20,000
Activity 3.2.1: Assessment of environmental impacts from banana fibre value chain.	Year 1	15,000
Activity 3.2.2: Develop an environmentally sound management (ESM) plan for the banana fibre value chain.	Year 1	15,000
Activity 3.2.3: Developing, disseminating, and advocating Standards Operating Procedures (SOPs) for handling and usage of banana fibre to yarn and products involving the participating textile industries.	Year 1-2	10,000
Activity 4.1.1: Map the different regional and global knowledge events on the fashion value chain to disseminate the project success stories.	Year 4-5	10,000
Activity 4.1.5: Documenting the lessons learned and pilot experiences, and sharing through Regional Platforms, Global Forums, and other global channels on the fashion industry (e.g., Global Fashion Summit).	Year 5-6	25,000
Activity 4.1.6: Preparing video documentaries on the project intervention improving the socioeconomic condition of the smallholders, vulnerable communities, and women, and disseminating the national and global platforms.	Year 6	10,000

[1] Ananas Anam

[2] Bananatex

[3] ZDHC Roadmap to Zero

[4] World Banana Forum

[5] UN Alliance for Sustainable Fashion

[6] Knowledge Platform of the Strategic Approach to International Chemicals Management (SAICM)

[7] Knowledge Management Strategy for the GEF (GEF project ID 11177) Global replication to eliminate hazardous chemicals from supply chains: Knowledge and Learning.

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[1] including smallholders, vulnerable communities, and women

[2] https://openknowledge.fao.org/handle/20.500.14283/cb3706en/

[3] ZDHC Roadmap to Zero

[4] World Banana Forum

[5] UN Alliance for Sustainable Fashion

[6] Knowledge Platform of the Strategic Approach to International Chemicals Management (SAICM)

[7] Ananas Anam

[8] Bananatex

[9] Facts on Pakistan's Garment Industry

[10] Textile Sector of Pakistan

[11] Global Textiles: Top 10 Countries for Cotton Production

[12] Government of Pakistan (2013). Crops area and production (district wise) 2021-22. Ministry of national food security & research (economic wing), Islamabad.

[13] FAO (2017). Protected areas in Sindh, Pakistan.

[14] https://www.thegef.org/sites/default/files/publications/GEF_GenderEquality_CRA_lo-res_0.pdf

[15] Pakistan's updated National Implementation Plan (NIP) (Stockholm Convention).

[16] Pakistan's Climate Change Policy (2021).

[17] Textiles and Apparel Policy, 2020-25.

[18] Pakistan National Action Plan on SDG 12 Sustainable Consumption and Production.

[19] https://www.fao.org/in-action/sustainable-and-circular-bioeconomy/approach/nssinstruments/en/

[20] Please see the map of international trade of plant-based fiber (in general) https://resourcetrade.earth/?year=2022&category=97&units=value&autozoom=1

[21] https://www.fao.org/in-action/sustainable-and-circular-bioeconomy/dashboard/en/

[22] Cotton Crisis Destroys Jobs Tied to Pakistan's Biggest Cash Crop

[23] Pakistan's updated National Implementation Plan (NIP) (Stockholm Convention).

[24] Pakistan's Climate Change Policy (2021).

[25] Textiles and Apparel Policy, 2020-25.

[26] Pakistan National Action Plan on SDG 12 Sustainable Consumption and Production.

[27] Pakistan Updated NDC 2021

[28] FAO (2021). Aspirational principles and criteria for a sustainable bioeconomy.

[29] The WBF, represented by all the constituencies, brings together governments, producers, traders, exporters, retailers, trade unions, NGOs, consumer associations and research institutions working together to achieve consensus on best practices for sustainable production and trade.

[30] Better Cotton Initiative: Pakistan

[31] Towards sustainable bioeconomy - Lessons learned from case studies (fao.org)

[32] Global Circular Fashion Forum (GCFF)

[33] Sustainable Fashion Academy (SFA)

[34] The United Nations Alliance for Sustainable Fashion

[35] Asia Garment Hub

[36] The Islamic Chamber of Commerce, Industry and Agricultur

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this child project, including framework and mechanisms for coordination, governance, financial management and procurement. This should include consideration for linking with other relevant initiatives at country-level (if a country child project) or regional/global level (for coordination platform child project). If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

1. The Small and Medium Enterprises Development Authority (SMEDA) under the Ministry of Industries and Production will have the execution and technical responsibility for the project, with FAO providing oversight as a GEF agency as described below. FAO will sign LOA with the organizations: Ministry of Climate Change and Environmental Coordination (MoCCEC), Agriculture Department, Government of Sindh (GoS); Sindh Environmental Protection Agency (SEPA), GoS; National Textile University (NTU) Faisalabad. Out of four organizations, two are from the Sindh Government, and two are federal organizations with a presence in Sindh province. SMEDA will be responsible for several technical outputs and activities (see more details on the Annex E: Detailed description of project components). FAO will sign LOA with the organizations mentioned above for the project activities related to SAP for banana cultivation, Environmental Management Plan, and technical capacity building of the smallholders, vulnerable communities, and women as indicated in the Figure 2 and Annex E: Detailed description of project components. Each of the entities involved (MoCCEC, SMEDA, Sindh Agriculture Department, SEPA, and NTU) will have an Organization Project Focal Point to coordinate the project activities based on organizational policy.
2. The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for the delivery of the results. FAO will disburse funds as approved and requested by the Project Steering Committee (PSC) and the Project Management Unit (PMU) through several contractual agreements with the executing agencies. Furthermore, FAO will provide technical, operational, and financial oversight throughout the project cycle, and will fulfill annual reporting obligations to the GEF Secretariat on the project's status. SMEDA will act as the lead executing agency and will be responsible for the day-to-day management of project results entrusted to it in full compliance with all terms and conditions of the contractual agreement signed with FAO. SMEDA is responsible and accountable to FAO for the timely implementation of the agreed project results, operational oversight of implementation activities, timely reporting, and effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements. The project organization structure is presented below. For details allocation of activities by organization included in the below implementation structure please see Annex E: Detailed description of project components.

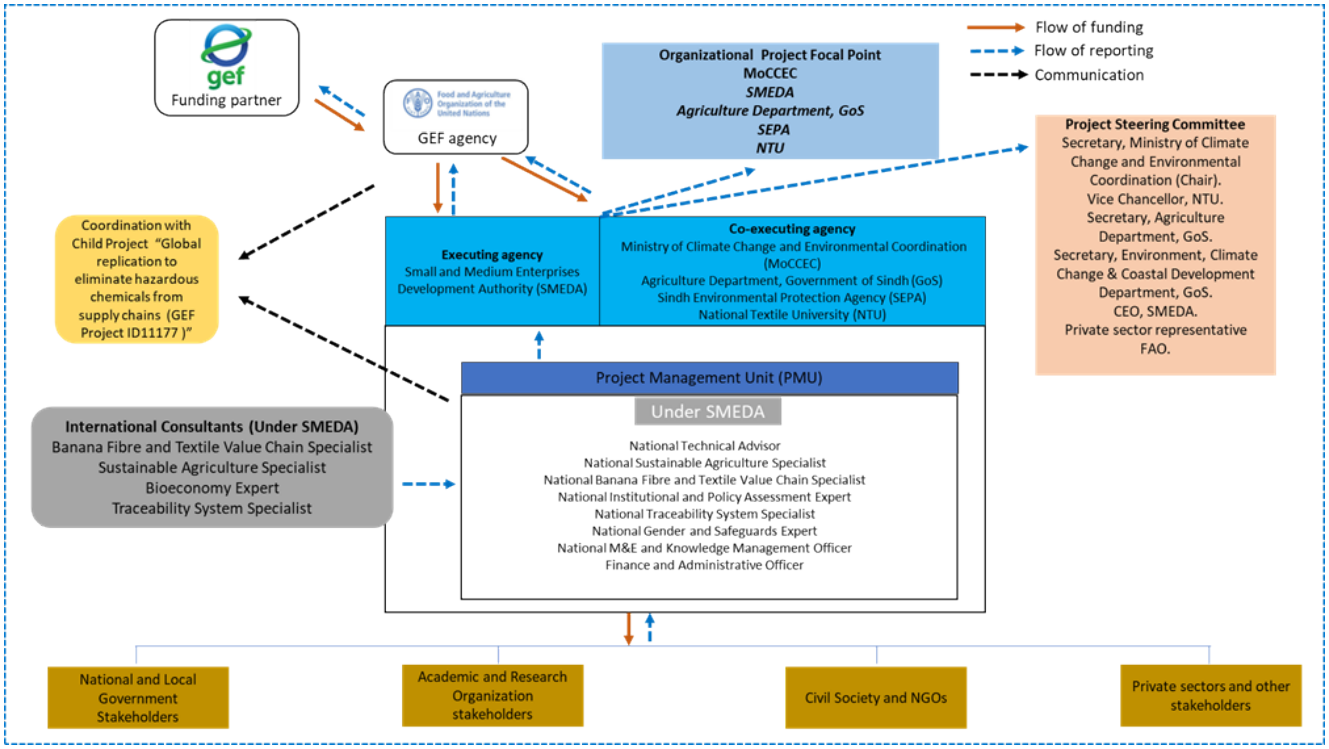


Figure 2: Project organization structure

3. The executing entity (SMEDA) and Co-executing entities (MoCCEC, Agriculture Department, SEPA, and NTU) will appoint an Organizational Project Focal Point based on their organization policy. The Four Organizational Project Focal Point (MoCCEC, SMEDA, Agriculture Department, SEPA, and NTU) will be responsible for coordinating the respective activities related to the different project components, and actively working with the National Technical Advisor (NTA). The NTA will work full-time to oversee daily implementation, management, administration, and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. It will provide strategic guidance and make decisions related to the project implementation including approval of project plans, budgets, and revisions. The PSC will be comprised of the Secretary, Ministry of Climate Change and Environmental Coordination (Chair); Vice Chancellor, NTU; the Secretary, Agriculture Department, GoS; the Secretary, Environment, Climate Change & Coastal Development Department, GoS; CEO, SMEDA; FAO Pakistan, and representatives from the private sector entities.

A Project Management Unit (PMU) will be established within the SMEDA. The PMU will be tasked with the day-to-day management of the project activities, as well as with financial and administrative reporting. PMU with the guidance of the PSC will ensure overall efficient management, coordination, implementation, and monitoring of the project through the effective implementation of the annual work plans and budgets. The PMU will be composed of NTA, Banana Fibre and Textile Value Chain Specialist (National and International), Sustainable Agriculture Specialist (National and International), Bioeconomy Expert (International), National Institutional and Policy Assessment Expert, Traceability System Specialist (National and International), National Gender and Safeguards Expert, M&E and Knowledge Management Officer, Finance and Administrative Officer. SMEDA will identify competent international and national experts, agencies, institutions, business associations, and NGOs/CSOs that will execute country-specific activities and monitor the progress of implementation.

Will the GEF Agency play an execution role on this child project? Yes

If so, please describe that role here and the justification.

Due to the complex nature of the project, there are multi-partners including FAO, Ministry of Climate Change and Environmental Coordination, Ministry of Industries and Production, Agriculture Department Sindh, University of Textile Faisalabad, and Sindh Environmental Protection Agency. In the project document, the

following international staff have been assigned to SMEDA as main the executing agency. In this respect, SMEDA is expected to deliver the following services:

- Recruitment of 6 national project staff (National Banana Fiber and Textile Value Chain Specialist, National M&E and Knowledge Management Officer, National Gender and Safeguards Expert, National Traceability System Specialist, National Institutional and Policy Assessment Expert, Agriculture specialist and Finance/Admin Assistant) and their associated travel.
- Activities under Components 1, 2, 3, and 4.
- Procurement and training/workshop under Components 1, 2, 3 and 4.
- Travel arrangements for government and other stakeholders.
- Office supplies and general expenses.

Under bullet point 1 above, the project will require international experts for the smooth implementation of technical aspects related to bioeconomy, sustainable agriculture, banana fiber value chain, and traceability system. The project executing agency, SMEDA, does not have a mechanism for paying experts in US dollars. Therefore, the Ministry of Industries and Production and the GEF Operational Focal Point have requested the FAO to take on the execution on an exceptional basis. In this regard, the execution service to be provided by the FAO will include the recruitment of four International Consultants (Banana Fiber and Textile Value Chain Specialist, Sustainable Agriculture Specialist, Bio-economy expert, and Traceability System Specialist, and Sustainable agriculture specialist) and their associated travel cost; as well as recruitment of One national consultant (National Technical Advisor/Coordinator). The justification by the FAO for the afore-mentioned activities is as follows:

1) This project will coordinate with three ministries, the Ministry of Industries and Production, the Ministry of National Food Security and Research, and the Ministry of Climate Change and Environmental Coordination, as well as research institutes, government entities, and the private sector. It is important for National Technical Advisor/Coordinator to be neutral, who will ensure coordination among all the partners, and be closely working with the government-nominated National Project Director.

2) Having another UN entity executing these services (recruitment and travel arrangement) would not be able to provide required support, the strong technical backup FAO Pakistan, FAO headquarters and the FAO Regional Office can offer.

3) The past record for GEF 7 Project (GEF ID 10693) titled “Combating Land Degradation through Integrated and Sustainable Range and Livestock Management to Promote Resilient Livelihoods in Northern Punjab” was approved by the GEF Council in February 2022, where the executing agency is a government department showing difficulties in starting the project implementation. The project has not started yet as the contractual agreement between FAO and the government still needs to be approved at the national level.

4) Government agencies like Ministry of Climate Change and Environmental Coordination, Ministry of Industries and Production, Sindh Agriculture Department, University of Textile Faisalabad and Sindh Environmental Protection Agency do not have a mechanism to recruit international experts and pay them in US dollars.

As explained in point 1 above, the bureaucratic process of decision making and coordination (e.g., Sindh Agriculture Department may not be willing to follow the decision coming from SMEDA, but if FAO manage such kind of inter-agency coordination, problem will be minimized). FAO's recruited consultant will also minimize the risk of stalling inception phase as they will support SMEDA and partners in the implementation of their risk mitigation plan and finalization of their contracting obligations.

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

1. The associated baseline projects and initiatives are presented above, and in Annex B: Baseline Scenario and the Problem to Address. The coordination with those initiatives will be achieved through co-financing, knowledge dissemination, national, and provincial level consultation. The project will coordinate with two GEF projects, which have some overlap in some way with the current project, and ongoing initiatives on banana fibre in the country. These are briefly described here:
2. GEF funded project 'Reducing uses and releases of chemicals of concern, including POPs, in the textiles sector' (GEF ID 10523): The proposed project will explore joint action opportunities related to KM activities, national workshops, consultation, and stakeholder dialogues.
3. GEF funded project 'Accelerating low-carbon circular economy through cleantech innovation towards sustainable development in Pakistan' (GEF ID 10885): The coordination will be ensured through an invitation to the national project coordinator to participate in the inception workshop of the project, national consultations, and workshops to ensure regular updates and identification of shared activities where relevant (e.g. supporting women entrepreneurs in banana fibre VC, aligning policy and regulatory recommendations, and KM activities).
4. Growth for rural advancement and sustainable progress (GRASP): Pakistan Poverty Alleviation Fund (PPAF) is working with the International Trade Centre (ITC) and FAO to implement It. It includes identifying beneficiaries and business intermediary organizations in rural communities and providing them with technical training, and business linkages to facilitate access to credit for medium, small, and micro rural enterprises. The coordination will be ensured through an invitation to the national project coordinator to participate in the inception workshop of the project, national consultations, and workshops to ensure regular updates and identification of shared activities where relevant (e.g. supporting women entrepreneurs, aligning technical training, develop business linkages, and KM activities).
5. Baseline initiatives on banana fibre extraction: The universities in Pakistan are continuing research on banana fibre. These universities are Sindh Agriculture University (Tandojam), National Textile University Faisalabad (NTU), and University of Agriculture (Faisalabad). NTU is included as co-executing partner to utilize their ongoing initiatives and partner with the project for piloting. The project will also ensure the active involvement of those universities with relevant project activities under components 2 and 3, such as strengthening the curricula. In addition, the project will also explore the joint activities opportunities with KnowTex Work Package-1 (Exploration of High-Value Indigenous Natural Fibers) and Work Package-8 (Dissemination and Implementation)[1][98]. In addition, Interloop in the country produces Loomshake- a banana fibre-based yarn[2][99]. Opportunities will be explored with Interloop for industry piloting, capacity building, and developing traceability in the industry.

Ongoing project of SMEDA: In addition, the project executing agency in Pakistan implementing several projects such as the Business Skill Development Centre for Women, National Business Development Program for SMEs, Product Development Centre for Composites Based Sports Goods, and SME Business Facilitation Centre, etc. The coordination will be ensured through co-finance, as well as regular updates and identification of shared activities.

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[1] KnowTex Knoweldge Based Textile

[2] Interloop

Table On Core Indicators

Core Indicators

Indicate expected results in each relevant indicator using methodologies indicated in the GEF-8 Results Measurement Framework Guidelines. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
20265	20311	0	0

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.2 Area of landscapes under third-party certification incorporating biodiversity considerations

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
20,265.00	20,311.00		

Indicator 4.4 Area of High Conservation Value or other forest loss avoided

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.5 Terrestrial OECMs supported

Name of the OECMs	WDPA-ID	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)

Documents (Document(s) that justifies the HCVF)

Title

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	354650	845373	0	0
Expected metric tons of CO_2e (indirect)	7750	3341	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	354,650	845,373		

Expected metric tons of CO_2e (indirect)	7,750	3,341		
Anticipated start year of accounting		2025		
Duration of accounting		20		

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)				
Expected metric tons of CO_2e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 9 Chemicals of global concern and their waste reduced

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
990.00	1,137.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.3 Hydrochloroflurocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
1	1		

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
2	2		

Indicator 9.6 POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.7 Highly Hazardous Pesticides eliminated

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
990.00	1,137.00		

Indicator 9.8 Avoided residual plastic waste

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
1,900.00	4,770.00		

Indicator 10 Persistent organic pollutants to air reduced

Grams of toxic equivalent gTEQ (Expected at PIF)	Grams of toxic equivalent gTEQ (Expected at CEO Endorsement)	Grams of toxic equivalent gTEQ (Achieved at MTR)	Grams of toxic equivalent gTEQ (Achieved at TE)
30.00	34.00		

Indicator 10.1 Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 10.2 Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	36,500	36,500		
Male	36,500	36,500		
Total	**73,000**	**73,000**	0	**0**

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

59. Project CI 4.3: Banana cultivation area in the country was 33,197 ha during the 2021-22 financial year, and around 96% is in Sindh province . A third of this area will be targeted through direct interventions that ensure the application of SAPs and IPM in banana production and eliminate the burning of crop residues. It is expected that direct and indirect intervention from this project in Sindh province can generate biodiversity benefits from avoided leakage of chemicals (from the reduced and avoided use of pesticides and fungicides) and plastics into surrounding ecosystems by an indicative factor of 1.75.

60. Project CI 6.5: An EX-ACT assessment was run considering direct GHG benefits from 11,250 hectares of banana plantation under improved practices, comprising reduced tillage, higher carbon input (with manure), and eliminated biomass burning. Indirect benefits were calculated from avoided cotton production of 320 ha assuming full tillage, low carbon input (no manure), and retention of residues. In addition, the estimated reduction of fertilizer inputs and diesel inputs from SAP during banana cultivation was also considered.

61. Project CI 9.4: The project supports Pakistan (one country) to implement its relevant legislation and policies on controlling chemicals and waste.

62. Project CI 9.5: By promoting SAPs and IPM in banana production, the project will implement a low-chemical system in food production. Considering textile production as a separate system, banana fibre will offer a low chemical alternative raw material to cotton.

63. 62. Project CI 9.7: The GEB estimates avoided pesticide application from the substituted amount of cotton lint . FAOSTAT estimates Pakistan's pesticide active ingredient usage at 11,872 tons/year over 2017-2020. Cotton production accounts for 80% of Pakistan's pesticide use . Around 23% of pesticides fall in WHO class Ib and are classified as HHP . The total area under cotton cultivation is 2,700,000 ha, equating to 0.81 kg of HHP as an active ingredient/ha. Typical yields are 667 kg/ha of raw cotton of which ginned cotton lint typically comprises 40%, equating to 267 kg lint/ha. Using the per hectare application rate of HHP and the per hectare yield of cotton lint, the usage of HHP per tonne of lint is calculated at 3.034 kg . It is assumed there is a direct 1:1 w/w substitution rate of banana fibre to cotton lint. In year 6, it is calculated that 85,406 kg of cellulosic banana fibre can be produced based on the number of the pseudostem and fibre yield from one pseudostem, and accordingly, it will avoid the same quantity of cotton. Considering 267 kg lint/ha, total cotton cultivation avoided therefore is 320 ha.

64. Project CI 9.8: This GEB estimates the avoided use of virgin plastics by recycling banana sheathes. An average plastic use of 46t/ha of banana production is assumed, and it is estimated that half of these plastics are currently being burned while the other half are disposed of in landfills. The project has the potential to eliminate all plastics burning in banana production within its intervention area (quantified in CI10) and to achieve a 10% recycling rate of these plastics within the project's lifetime.

65. Project CI 10: It was assumed that all banana waste biomass is burned in the fields, which will be avoided by valorising it as fibre. The Stockholm Convention toolkit for calculating unintentional POPs was used to identify the emission factor, 6a class 1 "Agricultural residue burning in the field, impacted, poor burning conditions" given the high moisture content of the stems and/or the addition of chemicals . The emission factor totals 40.0µg TEQ/tonne of banana biomass (dry weight) for emissions to air and

land . Additionally, the project will promote the avoidance of open burning of used plastic sheathes (see CI 9.8), contributing an additional POPs avoidance during project implementation. Emission factor, 6b class 1 “Open burning of waste and Accidental Fires - Fires at waste dumps” was used to identify an emission factor of 310µg TEQ/tonne of plastic .

66. Project CI 11: The project is expected to reach 11,250 farming households in Sindh, with an average household size of 6-7 people .

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	High	Climate change-associated adverse weather impacts and natural hazards (increased cyclones, flood frequency, higher temperature, and drought) may impact the project. During the project implementation, the project interventions will consider the climate vulnerability of the targeted 6 districts: Khairpur, Matiari, Mirpur Khas, Shaheed Benazirabad, Tando Allahyar, and Thatta. Climate change-related awareness will be also raised by the project about the reduction of GHG emissions by eliminating the burning of crop residue. In Sindh province, water is a valuable resource for agriculture and will be addressed in the project through SAP and the potential avoidance of cotton cultivation. Climate-proof facilities for the project activities wherever relevant will be considered during the project implementation.
Environmental and Social	Moderate	The costs and difficulties of maintaining the use of the established tracking system. Under the project, the implementation of ESM and operational manual may not be followed by the stakeholders properly. Exposure or Environmental contamination due to chemicals handling in banana VC. The project was screened against the FAO Environmental and Social Safeguards, and the rating is Moderate. The use and continuation of the project-developed interventions like the standard operation manual and ESM will be promoted by the active involvement of government and private sector entities. Project-developed incentive mechanisms and market linkages will motivate the stakeholders to follow the developed interventions like ESM and tracking system. These will allow the stakeholders to benefit from ensuring transparency, exploring new business opportunities, and peer-to-peer exchange on best available practices. The following potential conflicts are foreseen in the project. Conservative society/ community may affect women's participation. Not everyone will benefit and/or If benefits are not equitably distributed, then marginalized groups may feel excluded and raise issues. Cultural resistance to change - Some farmers may resist adopting new practices due to unfamiliarity or

		mistrust. Preconceived notions on water utilization in Banana fibre production when cotton comparatively uses more water and chemicals. Land lease /tenure issue - Farmers are often tenant farmers or sharecroppers lacking secure land ownership. To avoid the above social conflicts, the project will incorporate targeted activities such as awareness campaigns, engagement sessions, demonstrations, etc. In addition, relevant communication channels and target audiences mentioned under the Financial and Business Model risk category will be utilized to avoid social conflicts.
Political and Governance	Low	Changes in governments and country personnel to people with little awareness and buy-in to the project. To avoid any potential political and governance risks, the project is aligned to and will follow relevant national strategy documents. The government has multiple national strategies such as the updated National Implementation Plan (NIP) (Stockholm Convention), Pakistan's Climate Change Policy (2021), Textiles and Apparel Policy (2020-25), and Pakistan's National Action Plan on SDG. The national overarching strategies will serve as guidance for the project.
INNOVATION		
Institutional and Policy	Low	The proposed project will follow national strategies and plans as mentioned in the baseline legislation section. In addition, the project will focus on the importance of national benefits while addressing the bioeconomy issues. The project will ensure clear examples of strategies and policies that can be strengthened and improved with a systemic and institutionalized framework to promote bioeconomy in the textile sector.
Technological	Low	The project is designed in a way to ensure successful implementation, building upon the experience of FAO in bioeconomy, SAP, and IPM, stakeholder capacity building, stakeholder network development, value chain development, and market engagement. In addition, the project has been designed based on the lessons learned in the previous project and the review process of the GEF helped to strengthen the design. In addition, the rating is low because banana fibre extraction was conceptualized in 2012 but commercialized in 2020 under the initiative of the Volunteer platform Textile Sustainable Working Group thereafter sensitization of banana fibre extraction started. At present the widest use of banana fibre is in the making of ropes and cordage for use in shipping and transport. The strength and E-modulus of the banana fibre are being used in fishing nets. Furthermore, textile products that can be manufactured from coarser yarns like socks, working gloves, woven fabrics, packaging/Burlap bags, paper sheets, etc. can be manufactured from banana fibre. Mahran University of Engineering and Technology Sindh (MUET) has developed leather from a banana like shoes, bags, belts, face masks, footwear, sanitary pads, and women's scarves, etc. has developed but these products are in the trial phase of consumer approval. Similarly, UAF has developed products from banana and Cecil fibre but so far nothing has been commercialized, as well as UET Faisalabad in conjunction with Interloop Pvt Ltd has developed technology for the use of banana fibre in textiles and the products like sports socks, jeans, and bags are in the trial phase. So far industrial use of banana

		fibre has not been realized in Pakistan through having potential for use in textile, leather, and paper industries or for use in burlap bag manufacturing.
Financial and Business Model	Low	The project partners may not sustain the project activities and benefits due to changes in the macro-economic condition. Decreased local support due to shifted priorities. To ensure continued support, activities will be validated with the national stakeholders, and the project will focus on communication that underlines the long-term benefits and business opportunities resulting from its proposed activities. Besides, the project will use specific communication channels towards target audiences. The Communication channels for the target audience will be: □ Media Campaigns/ Seminars/ Events/ Engagement Sessions. □ Chambers of Commerce and Associations. □ Relevant government organizations. □ Advertisements on local Cable and television. □ Social Media Marketing on Digital Platforms. □ Local and National Radio & Newspapers. The target audience will include: □ Smallholders(Men &Women) – Direct beneficiaries. □ Textile manufacturers - Integrating banana fibre into the supply chain. □ General public and consumers: To build demand for sustainable products. □ Government officials and policymakers: To support policy alignment and incentive mechanisms. □ International development organization, donor organizations, etc. By following the above mitigation measures, it is expected that following long-term benefits will be achieved: □ Industry and market transformation – Shift towards sustainable materials. □ Demonstration effect – Technology adoption. □ Cleaner environment – Waste conversion, circular economy, soil protection, etc. □ Gender empowerment - The project includes a strong focus on integrating women into the banana fibre value chain. □ Value addition and market development – New products, export revenues. □ Employment generation.
EXECUTION		
Capacity	Low	The country has some baseline institutional capacity and national action as mentioned under the baseline initiatives. Yet, during the project design phase, based on stakeholder consultation and field survey covering government entities, banana and cotton growers, textile sector representatives, civil society, NGOs, researchers, and academia some gaps have been identified. The project will be prioritized addressing the remaining capacity development needs.
Fiduciary	Moderate	Based on the preliminary assessment, some weaknesses in fiduciary management and procurement have been identified. Close monitoring including regular spot checks and audits as well as capacity building to address recommendations to be conducted.
Stakeholder	Low	Stakeholders do not engage fully, resulting in not adequately addressing the project priorities nor achieving the desired outcomes. The project may not be able to bring enough banana growers and textile sector entities for the project interventions to take place. The project will actively work with the government's agencies, banana growers, textile associations, chamber of commerce, different brands, and service providers to identify and involve appropriate stakeholders in the project interventions.

Other	Low	The project will follow OHS measures for all the project-related public gatherings like national workshops and consultations, as well as for the participating stakeholders. The standard operating manual will incorporate the provision to deal with COVID-19/other pandemic compliance.

Overall Risk Rating	Moderate	The project has been categorized as moderate when screened against FAO's Environmental and Social Safeguards Screening Checklist's set of 9 criteria.

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies, including the specific integrated program priorities, and country and regional priorities, Describe how these country strategies and plans relate to the multilateral environmental agreements, such as through NDCs, NBSAPs, etc.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

(max. 500 words, approximately 1 page)

1. Objective 3 (elimination of hazardous chemicals and waste) under the Chemicals and Waste Focal Area of GEF 8 is in line with the proposed project[1]100. Moreover, by providing inputs for strengthening national legislation and project interventions related to banana fibre use, the project is expected to significantly reduce POPs, hazardous chemicals, and waste. Those POPs and hazardous chemicals are mainly used in the textile value chain. In addition, the proposed project by upcycling the banana waste to fibre will also reduce hazardous chemicals going into the environment by eliminating environmentally unsound burning and disposal of banana pseudo stems. This project will assure private sector engagement from banana growers and textile sector, while setting up sustainable business models to ensure project ownership, quality, traceability, traceability, sustainability, replicability and scaling up.

2. The project addresses the GEF-8 specific area of (a) prevention of waste/products consisting of or containing or contaminated with persistent organic pollutants or mercury from entering material recovery supply chains, (b) non-combustion, including green technologies to disposal of materials and products containing POPs, mercury, and chemicals of concern[2]101. The project certainly demonstrates alignment with the GEF focal area of Chemicals and Wastes, especially Chemicals used/emitted from/in processes and products and Chemicals and Waste at end of life. The project will also introduce the bioeconomy concepts along the entire value chain of the textile sector by using banana fibre with strong private sector engagement at national to global scales.

3. The proposed project will support the country in the gradual reduction of the use of POPs and other priority hazardous chemicals in textile VC, by introducing innovative banana fibre supporting the bioeconomy by closely working with banana growers focusing on smallholders, women and vulnerable groups, and textile manufacture. It will also promote environmentally friendly banana fibre through SAP. The project components will not only adopt a bottom-up approach by involving banana growers and textile companies but also a top-down approach to ensure policy and financial incentives support.

4. Moreover, objective 3 (enhance water security in shared freshwater ecosystems) under international waters focal area; and objective 1.4. (promote nature-based solutions with high mitigation potential) under climate change focal area[3]102 is also in line with the proposed project.

5. In addition, the proposed project is expected to contribute towards, TARGET 7 (reduce pollution to levels that are not harmful to biodiversity), TARGET 8 (minimize the impacts of climate change on biodiversity and build resilience), and TARGET 10 (enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry) of Kunming-Montreal Global Biodiversity Framework[4][103]. The banana fibre is expected to avoid the cotton output of 320 ha currently under chemical-intensive cotton production.[5][104] An indicative factor of 1.75[6][105] was applied to the total areas of direct and indirect intervention to extrapolate biodiversity benefits from avoided leakage of chemicals (e.g., reduced and avoided use of pesticides and fungicides), and plastics into surrounding ecosystems[7][106].

6. Besides, the proposal is also in agreement with the following national strategies, such as:

- NDC: Pakistan submitted its revised NDC in 2021[8][107]. The revised NDC has an unconditional emissions reduction target of 15% and a conditional target of 35% by 2030 as compared to the 2015 baseline. Pakistan strives to meet these targets through the implementation of sectoral projects within forestry, agriculture, land-use change, clean energy transition, transport, industry, WASH, health, waste and pollution control, and disaster management including cross cutting themes related to gender, youth, and blue economy.
- Net Zero Pakistan: Net Zero Pakistan[9][108] is a national collaboration between pioneering companies, public institutions, and sectoral experts to deliver the goal of net zero carbon for Pakistan by 2050. The coalition will establish the roadmap and framework through which Pakistan's private sector can accelerate its sustainability transition and deliver this net zero goal.
- International commitments: Pakistan's updated National Implementation Plan (NIP) (Stockholm Convention) (2021) aimed to link and harmonize all the different activities on chemical and related hazardous waste management[10][109]. It aims to harmonize all of Pakistan's activities on chemical and hazardous waste management. It also focusses on reducing GHG emissions through waste recycling and improving resilience from pollution. The country is already actively participating in different international efforts towards climate change, the Paris Agreement, UNFCCC, and Kyoto Protocol.

National legislation and strategies: The goal of Pakistan's Climate Change Policy (2021)[11][110] is to navigate Pakistan toward climate-resilient and low-carbon development. Thus, it focused on developing climate-resilient agriculture and food systems and promoting cleaner, lower emission, and less carbon-intensive development among others. Textiles and Apparel Policy (2020-25) which aims to strengthen the role of social and environmental standards and sustainability within the sector[12][111]. Pakistan's National Action Plan on SDG[13][112] promotes the reuse and source reduction of waste to accomplish sustainable consumption and production targets of SDG 12. Pakistan's National Biodiversity Strategy and Action Plan (NBSAP) (2017-2030)[14][113] also cover agricultural sectors and the textile industry for ensuing sustainability.

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[1] GEF-8 Programming Directions. https://www.thegef.org/sites/default/files/documents/2022-04/GEF_R.08_29_Rev.01_GEF8_Programming_Directions.pdf

[2] GEF-8 Programming Directions. https://www.thegef.org/sites/default/files/documents/2022-04/GEF_R.08_29_Rev.01_GEF8_Programming_Directions.pdf

[3] GEF-8 Programming Directions. https://www.thegef.org/sites/default/files/documents/2022-04/GEF_R.08_29_Rev.01_GEF8_Programming_Directions.pdf

[4] Kunming-Montreal Global Biodiversity Framework 2030 Targets. https://www.cbd.int/gbf/targets

[5] Considering an average yield of 272.8 kg ginned cotton lint per hectare of cotton production and a 1:1 substitution rate of banana fibre.

[6] To be refined during project preparation.

[7] https://www.fao.org/3/cc4323en/cc4323en.pdf

[8] Pakistan Updated NDC 2021

[9] Pakistan Environment Trust

[10] Pakistan's updated National Implementation Plan (NIP) (Stockholm Convention).

[11] Pakistan's Climate Change Policy (2021).

[12] Textiles and Apparel Policy, 2020-25.

[13] Pakistan National Action Plan on SDG 12 Sustainable Consumption and Production.

[14] Pakistan National Biodiversity Strategy and Action Plan.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the child Project Description (Section B).

Yes

1) Does the project expect to include any gender-responsive-measures to address gender gaps or promote gender equality and women's empowerment?

Yes

If the child project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources;

Yes

Improving women's participation and decision-making; and/or

Yes

Generating socio-economic benefits or services for women.

Yes

2) Does the child project's results framework or logical framework include gender-sensitive indicators?

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Child Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement.

Yes

Select what role civil society will play in the Project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body ;

Executor or co-executor;

Other (Please explain)

Private Sector

Will there be private sector engagement in the Child project?

Yes

And if so, has its role been described and justified in section B "Child project description"?

Yes

Environmental and Social Safeguards

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed child project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted and an anticipated timeline for delivery of relevant outputs has been provided. This includes budget for linking with and participation in knowledge exchange activities organized through the coordination platform.

Yes

Socio-economic Benefits

We confirm that the child project design has considered socio-economic benefits to be delivered by the project and these have been clearly described in the Project Description and will be monitored and reported on during project implementation (at MTR and TER).

1. A range of factors have historically promoted an overuse of chemicals, especially in Pakistan's cotton production. These include vested business interests, harmful fiscal incentives, and subsidy schemes, alongside weak regulation and national tracking systems. Limited farmer education, gender inequalities, scarcity of expert advice and low analytical capacity in the field further exacerbate the problem. A lasting shift towards better and less consumption will have to tackle perceived and real trade-offs between sustainability and economic growth, in response to which the project aims to present a compelling business case for alternative raw materials, convening all key interest groups.

The project will tackle the systemic challenges described in the barrier section by connecting the growing number of textile industries investing in bioeconomy innovations with farmers and producers of good quality, sustainable raw materials, which meet consumer demand[1]114. The project activities like conducting socio-economic and global environmental benefits (health, employment, environment, etc.), techno-economic feasibility study of banana fibre extraction and softening and different products, will assess project interventions impacts on promoting better and green jobs in rural areas. In addition project activities like, developing sustainable banana production technologies and guidelines, implementing pilot scheme for traceability, developing Environmentally Sound Management (ESM) plan and Standards Operating Procedures (SOPs) will ensure improvement of labor standard and labour condition. The FAO 10 principles for a sustainable bioeconomy presented before could be used to ensure that no one is left behind in the development of the project. The project will develop a multistakeholder consultation process and involve different actors to be part of the design and reduce any tradeoffs between fibers.

[1] Pakistan's first Biennial Update Report to the UNFCCC (https://unfccc.int/documents/470405) and a 2022 Survey on the Agricultural Sector in Sindh Province (https://openjicareport.jica.go.jp/pdf/12368841.pdf demonstrate) emphasize persistent gender inequalities and related vulnerabilities in Pakistan at large, and Sindh in particular – while also making some recommendations that can inform project interventions. Notably, although Sindh is one of the first provinces in Pakistan to develop a legal framework for women's empowerment, many women in rural areas are involved in agricultural activities, women's leadership of agricultural activities is limited in Sindh. Women's empowerment varies greatly from village to village, and by community – for example, Muslim women are less likely to perform agricultural work than Hindu women. Context-appropriate engagement modalities and project activities will need to be shaped inclusively with project stakeholders during full project elaboration.

ANNEX A: FINANCING TABLES

GEF Financing Table

Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant($)	Agency Fee($)	Total GEF Financing ($)

FAO	GET	Pakistan	Chemicals and Waste	CW IP Contributions	Grant	2,257,692.00	203,192.00	2,460,884.00
FAO	GET	Pakistan	International Waters	International Waters: IW IP Contributions	Grant	1,014,326.00	91,290.00	1,105,616.00
Total GEF Resources ($)						**3,272,018.00**	**294,482.00**	**3,566,500.00**

Project Preparation Grant (PPG)

Was a Project Preparation Grant requested? true

PPG Amount ($) 150000

PPG Agency Fee ($) 13500

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	PPG($)	Agency Fee($)	Total PPG Funding($)
FAO	GET	Pakistan	Chemicals and Waste	CW IP Contributions	103,500.00	9,315.00	112,815.00
FAO	GET	Pakistan	International Waters	International Waters: IW IP Contributions	46,500.00	4,185.00	50,685.00
Total PPG Amount ($)					**150,000.00**	**13,500.00**	**163,500.00**

Please provide Justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total($)
Total GEF Resources					**0.00**

Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
Hazardous Chemicals IP	GET	3,272,018.00	17029800
Total Project Cost		**3,272,018.00**	**17,029,800.00**

Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Small and Medium Enterprises Development Authority (SMEDA)	In-kind	Recurrent expenditures	11721164
GEF Agency	FAO	Grant	Investment mobilized	5308636
Total Co-financing				**17,029,800.00**

Please describe the investment mobilized portion of the co-financing

The “investment mobilized” was identified during the initial consultations and FAO's baseline analysis. In addition, the “Indicative project information” table (above) shows that co-financing scales up project activities financed by the GEF grant.

ANNEX B: ENDORSEMENT

GEF Agency(ies) Certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
GEF Agency Coordinator	6/25/2024	Yurie Naito	0066800604631	yurie.naito@fao.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Please attach the Operational Focal Point endorsement letter(s) with this template.

Name of GEF OFP	Position	Ministry	Date (MM/DD/YYYY)
Mr Syed Mujtaba Hussain	Additional Secretary	Ministry of Climate Change	3/31/2023
Mr Zulfiqar Younas	Additional Secretary	Ministry of Climate Change & Environmental Coordination	11/6/2024

ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document. For the Integrated Programs' global/regional coordination child project, please include the program-wide results framework, inclusive of results specific to the coordination child project. For any country child project, please ensure that relevant program level indicators are included.

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
Objective: Accelerating bioeconomy transition in the Pakistan textile sector by transforming banana pseudo stem waste into economically viable and socially beneficial fibre and promoting Sustainable Agriculture Practices (SAP) in banana cultivation.							
Project Core Indicator 4	Area of landscapes under improved practices (hectare)	--		20,311 ha (4.3)			SMEDA PMU
Project Core Indicator 6	Greenhouse Gas Emissions Mitigated (metric ton of CO_{2e})			Direct: 845,373 tonnes CO_{2e} Indirect: 3,341 t CO2e (6.5)			SMEDA PMU
Project Core Indicator 9	Chemicals of global concern and their waste reduced (metric ton of toxic chemicals reduced)			9.4: 1 country 9.5: 2 systems 9.7: 1137 t HHPs 9.8: 4,770t plastic			SMEDA PMU
Project Core Indicator 10	Persistent organic pollutants to air reduced (gram of toxic equivalent gTEQ)			34 gTEQ			SMEDA PMU
Project Core Indicator 11	People benefiting from GEF-financed investments disaggregated by sex (count)	--	36,000 beneficiaries (50% women)	73,000 beneficiaries (50% women)	Workshop and consultation reports/Number of participants/Annual reports/ Mid-term review/Final Evaluation/Terminal report.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
Component 1: Circular business model for climate-friendly and nature-positive innovative material.							
Outcome 1: Regenerative and innovative products are produced from banana pseudo stems waste using circular business models.							
Output 1.1 An enabling environment is created for adopting banana fibre in the textile value chain, which benefits smallholders, vulnerable communities, and women.	Activity 1.1.1: Stakeholder consultations and carrying out a study/gap analysis of regulations, financing, policies and institutional mandates and capacities to propose/recommend an improvement for circular and innovative banana fibre adoption in the textile value chain with special consideration to the integration of smallholders, vulnerable communities, and women.	--	Published report in local language and in English. At least 2 workshops and consultations. 35 participants for each workshop, of which 50% will be women.	The report is disseminated through stakeholders' network at global, national, and provincial level. At least 4 workshops and consultations. 35 participants for each workshop, of which 50% will be women.	Creation of a bioeconomy cross-sectoral mechanism with governmental officials. Evidence of survey/interview with key stakeholders/ procedures/ TORs. Number of regulatory and financial frameworks associated with the sectors reviewed. Number of institutions consulted for the gap analysis. Measures recommended for integration of smallholders, vulnerable communities, and women.	Sufficient political and institutional support is received to conduct the survey and to implement recommendations. Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
					Workshop and consultation reports. Number Institutions (ministries, private sector, civil society, etc) involved during the consultation at national and provincial level. Number of participants involved during the consultation (50% women).		
	Activity 1.1.2: Adoptions of prioritized recommendations to create the enabling environment for promoting banana fibre use in the textile industry.	--	Recommendations are published for improving more than 4 legal frameworks (at least one in each agriculture and textile sector at the national and provincial level).	Recommendations are endorsed for improving more than 4 legal frameworks (at least one in each agriculture and textile sector at the national and provincial level).	Number of Policy and regulatory frameworks reviewed and included for improvement under bioeconomy principle recommendations. Number of recommendations made. Progress report/Meeting reports. Measures recommended for integration of smallholders, vulnerable communities, and women.	National and provincial governments, and associated authorities are committed to contribute towards identifying the improvement opportunities, examine and endorse the recommendations.	SMEDA PMU
	Activity 1.1.3: Designing and validating a non-grant-based financial mechanism and business incubation scheme for the promotion of banana fibre involving smallholders, vulnerable communities, and women.	--	2 consultations and meetings are conducted with relevant stakeholders started to develop the non-grant-based financial mechanism and business incubation scheme. 35 participants for each workshop, of which 50% will be women.	At least one non-grant-based financial mechanism and business incubation scheme is operational and endorsed. 4 consultations conducted for financial mechanisms and business incubation schemes. 35 participants for each workshop,	Number of financial mechanisms and business incubation scheme set, promoted and enforced. Plan for operationalizing the financial mechanism and business incubation scheme. Progress report/Meeting reports. Financial mechanism and business	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. National and provincial governments, public and private financial institutions, and associated authorities are committed to contribute towards developing financial	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
				of which 50% will be women.	incubation scheme recommended for smallholders, vulnerable communities, and women.	mechanism and business incubation scheme and endorse.	
Output 1.2: Sustainable and circular bioeconomy principles are implemented to ensure gender-responsive and inclusive impact and the achievement of global environmental benefits in the Textile and Banana value chains.	Activity 1.2.1.: Conducting socio-economic and global environmental benefits (health, employment, environment, etc.) assessments of project interventions, and value addition to the national economy, using FAO tools and the 10 principles for a sustainable bioeconomy as a framework to assess trade-offs.	--	Published report in local language and in English.	The report is disseminated through stakeholders' network at global, national, and provincial level.	Evidence of survey/interview with key stakeholders/ published report.	Sufficient political and institutional support is received to conduct the assessment.	SMEDA PMU
	Activity 1.2.2: Conducting national and provincial level workshops and consultations with key stakeholders with gender-balanced participation to disseminating the socio-economic impact assessment study outcome and gender and social action plan.	--	At least 2 workshops and consultations. 35 participants for each workshop, of which 50% will be women. One socio-economic impact assessment study with a focus on the gender balance is published in local language and English. Gender and Social Action plan is adopted.	At least 4 workshops and consultations. 35 participants for each workshop, of which 50% will be women. Socio-economic impact assessment study is disseminated through stakeholders' network with a gender balance at global, national, and provincial level. Gender and Social Action plan is disseminated through stakeholder's network.	Workshop and consultation reports. Number Institutions involved during the consultation. Number of participants involved during the consultation (50% women). Published Socio-economic impact assessment study. Gender and Social Action plan.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	Activity 1.2.3: Developing project-relevant technical information materials on sustainable agriculture practices of banana cultivation in local language for different audiences including smallholders, vulnerable communities, and women.	--	2 knowledge materials drafted with a focus on smallholders, vulnerable communities, and women are published in local language and English.	2 knowledge materials with a focus on smallholders, vulnerable communities, and women are disseminated through stakeholders' networks at global, national, and provincial level.	Workshop and consultation reports. Published report.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 1.2.4: Developing project-relevant technical information materials on bioeconomy practices in textile industry in local language.	--	2 knowledge materials drafted with a focus on smallholders, vulnerable communities, and women are published in local language and English.	2 knowledge materials with a focus on smallholders, vulnerable communities, and women are disseminated through stakeholders' network at global, national, and provincial level.	Workshop and consultation reports. Published report.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 1.2.5: Designing training courses, improving, or complementing the academic curricula on the concept of circular/bioeconomy and project-suggested technologies.	Designated academic institution exists related to textile sector with research scale expertise on banana fibre extraction, and processing. There is sporadic individual industry level intervention, but banana fibre use is not adopted for the whole textile sector.	Curricula is developed based on the language of instruction for at least three universities on the project-suggested technologies and guidelines.	Curricula is endorsed and adopted for at least three universities on the project-suggested technologies and guidelines.	Evidence of agreements/ procedures/ Curricula. Workshop and consultation reports.	Sufficient political and institutional support is received to adopt the Curricula at the universities.	SMEDA PMU
	Activity 1.2.6: Reviewing and ensuring the gender aspects and inclusive approaches are properly addressed in all relevant project outcomes, reports, training	--	The guideline for reviewing and ensuring the gender aspects and inclusive approaches in all project outcomes, reports, training materials and	Project outcomes, reports, training materials and knowledge products are disseminated throughout the project.	Published guidelines. Number of reports, training materials and knowledge products disseminated	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	materials, and knowledge products before dissemination.		knowledge products is prepared and disseminated with stakeholder's network. 1 Gender assessment report is prepared of all project activities. More than 1 national and provincial stakeholder workshops to confirm the Gender plan and guideline.		following the guidelines. Workshop and consultation reports.		
Component 2: Sustainably sourced, and bio-based products manufacturing that requires no hazardous chemicals and produces less pollution and waste.							
Outcome 2: The banana fibre value chain offers a sustainably sourced, innovative, responsibly managed, regenerative, and nature-based material in products following circular bioeconomy principles and sustainable practices.							
Output 2.1. Banana waste fibre is integrated into textile value chains to utilize the left-over materials for promoting reuse and upcycle and less pollution and waste-intensive production.	Activity 2.1.1: Wastes mapping and characterization of the left-over materials of banana fibre value chain.	--	1 waste mapping report for the country is published in local and English language.	The report is disseminated through stakeholders' network at global, national, and provincial level.	Published report. Number of characterization and left-over materials included.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 2.1.2: Techno-economic feasibility study of banana fibre extraction and softening to identify potential applications and creation of green jobs, as well as dissemination and adoption of the study outcome.	--	1 Review report on Techno-economic feasibility study covering administrative, managerial, financial, and technical aspects. Published techno-economic feasibility study in local and English language.	The report is disseminated through stakeholders' network at global, national, and provincial level.	Published report. Number of potential applications included. Recommended measures for the creation of green jobs.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU
	Activity 2.1.3: Techno-economic feasibility study for different banana-based products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.), gender-responsive business models, and market analysis.	--	1 Review report on Techno-economic feasibility study of different products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.), business model and market analysis	The report is disseminated through stakeholders' network at global, national, and provincial level.	Published report. Number of potential products included. Recommended business model.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
			from the left-over materials. Published techno-economic feasibility study report in local and English language.				
	Activity 2.1.4: Conducting national and provincial stakeholder consultations and workshops to disseminate the study outcome on alternative products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.) from the left-over materials of the banana fibre value chain.	--	At least 2 workshops and consultations at national and provincial level. 35 participants for each workshop, of which 50% will be women.	At least 4 workshops and consultations at national and provincial level. 35 participants for each workshop, of which 50% will be women.	Workshop and consultation reports. Number Institutions (ministries, private sector, civil society, etc) involved during the consultation at national and provincial level. Number of participants involved during the consultation (50% women).	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 2.1.5: Develop knowledge materials and informative documentaries on alternative products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.) from the leftover materials of the banana fibre value chain.	--	Publication and dissemination of knowledge materials and informative documentaries on sanitary pads, and handicrafts from leftover materials of the banana fibre in local and English language.	Publication and dissemination of knowledge materials and informative documentaries on liquid fertilizers and food products from leftover materials of the banana fibre in local and English language.	Published report. Number of potential products included. Recommended business model.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU
	Activity 2.1.6: Review global innovative business practices and models and recommend appropriate gender sensitive business models for banana fibre benefiting smallholders, vulnerable communities, and women.	--	A report on global innovative business practices and business models with a focus on smallholders, vulnerable communities, and women is publishes in local and English language.	The report is disseminated through stakeholders' network at global, national, and provincial level.	Published report. Number of business model included. Recommended measures for smallholders, vulnerable communities, and women.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU
	Activity 2.1.7: Establishing mechanisms and developing linkages for easy access to ongoing domestic and international financial and entrepreneurial programmes,	--	Conversation started with different stakeholders for linking with domestic and international financial and	Linking with more than two domestic and international financial and entrepreneurial programs.	Progress report/Meeting reports. Number of smallholders, vulnerable communities, and women connected with domestic and	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	training, and resources focusing on smallholders, vulnerable communities, and women.		entrepreneurial programs. 4 targeted training. 35 participants for each training, of which 50% will be women. 2 resource materials on domestic and international financial and entrepreneurial programs with a focus on gender balance are published in local language.	8 targeted trainings. 35 participants for each training, of which 50% will be women. 4 resource materials on domestic and international financial and entrepreneurial programs with a focus on gender balance are published in local language.	international financial and entrepreneurial programmes. Number of domestic and international financial and entrepreneurial programmes connected. Number of trainings organized. Number of training participants (50% women). Training reports. Number of resource materials published.		
Output 2.2 Increased productivity and sustainability through Sustainable Agriculture Practices (SAP) focusing on smallholders, vulnerable communities, and women banana growers in target districts.	Activity 2.2.1: Developing sustainable banana production technologies and guidelines to increase productivity and improve environment.	--	Best practices and guidance documents are published, disseminated and field tested. At least 6 workshops conducted in Sind province on best practices and guidance documents. 35 participants for each workshop, of which 50% will be women.	Best practices and guidance documents are followed by the banana growers at provincial and national level. At least 12 workshops are conducted in Sind province on best practices and guidance documents. 35 participants for each workshop, of which 50% will be women.	Evidence of survey/interview with key stakeholders/ procedures/ TORs/published report. The number of participants/training workshop materials/ workshop proceedings/recorded workshop lecture/ Training assessment surveys.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU
	Activity 2.2.2: Supporting and improving agricultural inputs and their use efficiency (e.g. land management, water use, varieties, farm equipment, on-farm renewable energy, integrated nutrient, and pest management, etc.) in banana production for Sustainable Agriculture Practices (SAP) adoption.	--	Supporting necessary agriculture inputs to banana growers involve with 6 pilot demonstration and business incubation focusing on smallholders, vulnerable communities, and women. The beneficiaries will be at least 50% women.	Supporting necessary agriculture inputs to banana growers involve with 12 pilot demonstration and business incubation focusing on smallholders, vulnerable communities, and women. The beneficiaries will be at least 50% women.	Investment intervention in pilot facilities. Number of equipment and technology transferred. Quantity of banana fibre made available.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	Activity 2.2.3: Conduct capacity building of the smallholders' farmers on sustainable and climate-smart agriculture practices for banana production.	--	At least 6 training workshops are conducted in Sind province. 35 participants for each training, of which 50% will be women.	At least 12 training workshops are conducted in Sind province. 35 participants for each training, of which 50% will be women.	The number of participants/training workshop materials/ workshop proceedings/recorded workshop lecture/ Training assessment surveys.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Staff turnover will not undercut capacity development.	SMEDA PMU
Output 2.3 Banana fibre value chains following sustainable and regenerative practices are piloted.	Activity 2.3.1: Establishing network group to support and guide the banana fibre extraction and processing.	There is sporadic individual industry products are selling to buyers, but there is a lack of awareness about the buyers among the other textile sector actors.	1 Network group is established. 1 national strategy document is published for facilitating the linkage with potential buyers and fashion brands. 1 guideline on the prequalification process of the potential buyers and fashion brands is published. More than 2 national and provincial workshops are conducted to disseminate strategy documents and guidelines involving global, national, and provincial actors.	Textile sector actors are following the strategy document and guideline and comply with the prequalification process. More than 2 purchase and cooperation agreement is signed with global fashion brands by the textile sector actors.	Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report. Number of institutions involved in the process. Published strategy document and guideline. Signed purchase and cooperation agreement.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 2.3.2: Identifying potential and emerging buyers and fashion brands in domestic and global markets for banana fibre and associated products.	There is sporadic individual industry products are selling to buyers, but there is a lack of awareness about the buyers among the other textile sector actors.	1 potential and emerging buyers in domestic and global markets report is published. More than 1 national and provincial stakeholder workshops conducted to disseminate the report. 35 participants for each workshop,	Textile sector actors are linked with the identified buyers in domestic and global markets. More than 2 national and provincial stakeholder workshops conducted to disseminate the report. 35 participants for each workshop,	Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report. Number of institutions involved in the process.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
			of which 50% will be women.	of which 50% will be women.			
	Activity 2.3.3: Conducting training and capacity building on fibre extraction and softening to the potential pilots interested in using banana fibre or developing banana-based products.	--	At least 6 training workshops are conducted in Sind province. 35 participants for each training, of which 50% will be women.	At least 12 training workshops are conducted in Sind province. 35 participants for each training, of which 50% will be women.	The number of participants/training workshop materials/ workshop proceedings/recorded workshop lecture/ Training assessment surveys.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Staff turnover will not undercut capacity development.	SMEDA PMU
	Activity 2.3.4: Establishing 6 pilot demonstrations of sustainable banana cultivation by providing necessary technology, equipment, and operation manuals to farmers and businesses.	--	3 pilot demonstration and business incubation of sustainable banana cultivation with equipment and technology transfer. The beneficiaries will be at least 50% women.	6 pilot demonstration and business incubation of sustainable banana cultivation with equipment and technology transfer. The beneficiaries will be at least 50% women.	Investment intervention in pilot facilities. Number of equipment and technology transferred. Quantity of banana fibre made available.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 2.3.5: Establishing 6 pilot demonstrations of banana fibre extraction and softening by providing necessary technology, equipment, and operation manuals to farmers and businesses.	There is sporadic individual banana fibre extraction equipment installed by the growers, but it is not adopted at wider scale and there is lack of technical capacity.	3 pilot demonstration and business incubation of fibre extraction and softening by providing necessary technology, equipment, and operation manuals to farmers and businesses. The beneficiaries will be at least 50% women.	6 pilot demonstration and business incubation of fibre extraction and softening by providing necessary technology, equipment, and operation manuals to farmers and businesses. The beneficiaries will be at least 50% women.	Investment intervention in pilot facilities. Number of textile industry involved. Quantity of banana fibre products made available to the market.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 2.3.6: Piloting the most applicable options for yarn and product manufacturing from banana fibre in at least 2 textile facilities.	There is sporadic individual industry level interventio n, but banana fibre use is not adopted for the whole textile sector.	At least 2 textile facilities are using banana fibre for yarn and product manufacturing. The beneficiaries will be at least 50% women.	2 textile facilities increased the use of banana fibre and product manufacturing based on market demand. The beneficiaries will be at least 50% women.	Investment intervention in pilot facilities. Number of textile industry involved. Quantity of banana fibre products made available to the market.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
Component 3: Supporting less pollution and waste-based manufacturing and production in the banana fibre value chain.							
Outcome 3: An operational traceability system and capacity building of the manufacturer is achieved to ensure less pollution and waste-based banana fibre use in the value chain.							

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.1: A System is developed for banana pseudo stem-derived fibre traceability, standards, and certification in the textile value chains for the benefit of smallholders, vulnerable communities, and women.	Activity 3.1.1: Strengthening the monitoring capacities through training to ensure the traceability of input materials, products, and wastes from banana for the textile industry stakeholders.	--	At least 4 workshops conducted at national and provincial level to develop the traceability system. 35 participants for each workshop, of which 50% will be women.	At least 8 workshops conducted at national and provincial level to develop the traceability system. 35 participants for each workshop, of which 50% will be women.	Evidence of agreements/ procedures/ TORs/tools and hardware procured for the system.	Sufficient political and institutional support is received to implement a traceability scheme.	SMEDA PMU
	Activity 3.1.2: Developing and implementing a technology-based pilot scheme for traceability of input materials, products, and wastes from banana for the textile value chain.	--	Identification and contract with the service provider for implementation of a technology-based pilot scheme is completed.	An operational traceability scheme involving the developed project pilot in the targeted districts of Sindh province.	Evidence of agreements/ procedures/ TORs/published report.	Sufficient political and institutional support is received to implement a traceability scheme.	SMEDA PMU
	Activity 3.1.3: Capacity-building and training for the banana growers with gender-balanced participation in the traceability system.	--	At least 6 training workshops at national and provincial level. 35 participants for each training workshop, of which 50% will be women.	At least 12 training workshops at national and provincial level. 35 participants for each training workshop, of which 50% will be women.	The number of participants/worksh op reports/drafting the protocols, and guidelines. and indicators.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Staff turnover will not undercut capacity development.	SEMDA PMU
Output 3.2 Sustainability standards and certification process for banana fibre developed, disseminated, and agreed upon in the textile value chain.	Activity 3.2.1: Assessment of environmental impacts from banana fibre value chain.	--	1 Review report on environmental impacts from banana fibre value chain. Published report on environmental impacts from banana fibre value chain with a focus on gender balance in local and English language.	The report is disseminated through stakeholders' network with a focus on gender balance at global, national, and provincial level.	Published report. Number of potential products included. Recommended business model.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU
	Activity 3.2.2: Develop an environmentally sound management (ESM) plan for the banana fibre value chain.	--	Environmentally sound management (ESM) plan is published and endorsed.	Industries are following the ESM plan.	Evidence of agreements/ procedures/ TORs/drafting and published copy of the ESM and operating procedure.	Sufficient political and institutional support is received to implement recommendations.	SMEDA PMU
	Activity 3.2.3: Developing, disseminating, and advocating Standards Operating		Standards operating procedures (SOPs) is published and endorsed.	Industries are following the SOP.	Evidence of agreements/ procedures/ TORs/drafting and published copy of the SOPs.	Sufficient political and institutional support is received to implement	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	Procedures (SOPs) for handling and usage of banana fibre to yarn and products involving the participating textile industries.					recommendations.	
	Activity 3.2.4: Technical capacity building training of the key stakeholders on developed ESM and SOP for the banana fibre value chain.	--	At least 4 training workshops at national and provincial level. 35 participants for each training workshop, of which 50% will be women.	At least 8 training workshops at national and provincial level. 35 participants for each training workshop, of which 50% will be women.	The number of participants/training workshop materials/ workshop proceedings/recorded workshop lecture/ Training assessment surveys.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Staff turnover will not undercut capacity development.	SMEDA PMU
Output 3.3: Technical and financial capacity of the private sector engaged in textile value chains to comply with the sustainability criteria of the global market strengthened.	Activity 3.3.1: Developing training materials and guidelines on sustainability of banana fibre for yarn and product manufacturing.	--	Identification and contract with the service provider is completed. At least 2 training materials and technical guidelines on blending banana fibre for yarn and products is developed in local and English language with a focus on gender balance.	The training materials and technical guidelines is disseminated with a focus on gender balance through stakeholders' network at global, national, and provincial level, and used during the capacity building process of the project.	Evidence of agreements/ procedures/ TORs/published report.	Sufficient political and institutional support is received to implement a traceability scheme.	SMEDA PMU
	Activity 3.3.2: Conducting training for building the capacity of key stakeholders with gender-balanced participation for sustainable banana fibre into yarn and product manufacturing.	--	At least 6 training workshops at national and provincial level. 35 participants for each training workshop, of which 50% will be women.	At least 12 training workshops at national and provincial level. 35 participants for each training workshop, of which 50% will be women.	The number of participants/training workshop materials/ workshop proceedings/recorded workshop lecture/ Training assessment surveys.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Staff turnover will not undercut capacity development.	SMEDA PMU
	Activity 3.3.3: Recommend a financial incentive for the promotion of banana fibre in the textile sector by collaborating with public actors, local banks, investors, and financial institutions.	--	4 consultations and meeting are conducted with relevant stakeholders started to identify and develop the financial incentive. 35 participants for each consultation, of which 50% will be women.	At least one non-grant-based financial incentive mechanism is operational and endorsed. More than 8 consultations conducted to identify and developing the financial incentive. 35 participants for each training consultation, of	Number of financial incentive set, promoted, and enforced. Plan for operationalizing the financial incentive. Progress report/Meeting reports. Number of public actors, local banks, investors, and	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. National and provincial governments, public and private financial institutions, and associated authorities are committed to contribute towards	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
				which 50% will be women.	financial institutions involved.	developing financial incentive, and endorse	
Component 4: Knowledge management.							
Outcome 4: Knowledge sharing of the project interventions is in place.							
Output 4.1: Lessons learned on bioeconomy documented and disseminated through awareness campaigns, Regional and Global knowledge events, and platforms.	Activity 4.1.1: Map the different regional and global knowledge events on the fashion value chain to disseminate the project success stories.	--	Report on different regional and global knowledge events on the fashion value chain is published.	Textile sector actors are linked with the identified regional and global knowledge events.	Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report. Number of institutions involved in the process.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 4.1.2: Linking the project stakeholders with the global regional and national sustainable exchange mechanism and platform (e.g., the UN Alliance for Sustainable Fashion) to synthesize and disseminate project information and knowledge.	--	1 national strategy document and guideline are published with a focus on gender balance for facilitating the linkage with the global and regional sustainable exchange mechanism and platform. More than 2 national and provincial workshops are conducted to disseminate the strategy document and guidelines to facilitate the linkage with the global and regional sustainable exchange mechanism and platform involving global, national, and provincial actors. 35 participants for each workshop, of which 50% will be women.	Textile sector actors are following the strategy document and guideline to establish and continue the linkage with the global and regional sustainable exchange mechanism and platform with a focus on gender balance. More than 2 cooperation agreement is signed with global and regional sustainable exchange mechanism and platform by the textile sector actors. 50% beneficiaries will be women.	Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report. Number of institutions involved in the process. Published strategy document and guideline. Signed cooperation agreement.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 4.1.3: Support and participate in national and global events relevant to	--	At least 1 South-South Global events, exchange mechanism and platform	At least 3 South-South Global events, exchange mechanism and platform	Evidence of interview with key stakeholders/ drafted reports	Stakeholders have sufficient intrinsic and extrinsic	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	project stakeholders to disseminate project information and knowledge.		attended. 50% beneficiaries will be women.	attended. 50% beneficiaries will be women.	/workshop and consultation report. Number of institutions involved in the process.	motivation to engage.	
	Activity 4.1.4: Develop awareness campaigns on promotion of circular and bioeconomy at the provincial and national level by involving relevant NGOs, chambers of commerce, and other civil society organizations.	--	Workplan is developed for the sustainable implementation of awareness campaigns on promotion of circular and bioeconomy at the provincial and national level. At least 3 awareness campaigns events are organized at national and provincial levels involving NGOs, chambers of commerce, and other civil society organizations. 50% beneficiaries will be women.	Workplan for the awareness campaigns is endorsed at the provincial and national level to ensure the continuation after the project. At least 6 awareness campaigns events are organized at national and provincial levels involving NGOs, chambers of commerce, and other civil society organizations. 50% beneficiaries will be women.	Evidence of interview with key stakeholders/ drafted terms of reference of the awareness campaigns /workshop and consultation report. Endorsed workplan for the awareness campaigns at national and provincial level. Number of institutions involved in the awareness campaigns. Number of participants (50% women) involved in the awareness campaigns. Number of awareness campaigns.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Sufficient political and institutional support is received to endorse awareness campaigns. Government funding will be available after the project implementation for the awareness campaigns.	SMEDA PMU
	Activity 4.1.5: Documenting the lessons learned and pilot experiences, and sharing through National and Regional Platforms, Global Forums, and other global channels on the fashion industry (e.g., Global Fashion Summit).	--	4 original publications (blogs, news articles, events, etc.) based on project interventions with a focus on gender balance are disseminated through global and regional exchange mechanisms and platforms.	10 original publications (blogs, news articles, events, etc.) based on project interventions with a focus on gender balance are disseminated through global and regional exchange mechanisms and platforms.	Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report. Number of institutions involved in the process.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU
	Activity 4.1.6: Preparing video documentaries on the project intervention improving the socioeconomic condition of the	--	2 original video documentaries on project intervention improving the socioeconomic condition of the smallholders,	4 original video documentaries on project intervention improving the socioeconomic condition of the smallholders,	Number of video documentaries. Dissemination media (e.g., electronic	Stakeholders have sufficient intrinsic and extrinsic motivation to engage.	SMEDA PMU

Results Framework	Activities	Baseline	Indicator- Mid-term target	Indicator- -Final target	Means of verification	Assumptions	Responsible for data collection
	smallholders, vulnerable communities, and women, and disseminating the national and global platforms.		vulnerable communities, and women are prepared and disseminated with a focus on gender balance.	vulnerable communities, and women are prepared and disseminated with a focus on gender balance.	media, fakebook, twitter, etc.)		
Project Monitoring & Evaluation (M&E).	Activity: Project progress monitoring and reporting.	--	6 biannual and annual reports are completed.	12 biannual and annual reports are completed.	Progress reports. Documents approved by the relevant authorities. Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Political, natural disasters and epidemic will not delay the project progress.	SMEDA PMU
	Activity: Mid-term review and final evaluation of the project conducted.	--	Mid-term review is completed.	Final evaluation of the project is completed.	Mid-term review and final evaluation reports. Evidence of interview with key stakeholders/ drafted reports /workshop and consultation report.	Stakeholders have sufficient intrinsic and extrinsic motivation to engage. Political, natural disasters and epidemic will not delay the project progress.	SMEDA PMU

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

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

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount ($)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Contracts	10,600.00	3,750.00	6,850.00
Salaries Professional	6,590.00	0.00	6,590.00
Consultants	87,750.00	45,329.00	42,421.00
Training	11,060.00	7,873.00	3,187.00
Travel	34,000.00	22,719.00	11,281.00
Total	**150,000.00**	**79,671.00**	**70,329.00**

ANNEX E: PROJECT MAP AND COORDINATES

Please provide geo-referenced information and map where the project interventions will take place

Location Name	Latitude	Longitude	GeoName ID
Khairpur	27.52948	68.75915	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Shaheed Benazirabad	26.23939	68.40369	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Matiari	25.87582	68.41338	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Tando Allahyar	25.4605	68.71745	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Mirpur Khas	25.5276	69.01255	

Location Description:

Activity Description:

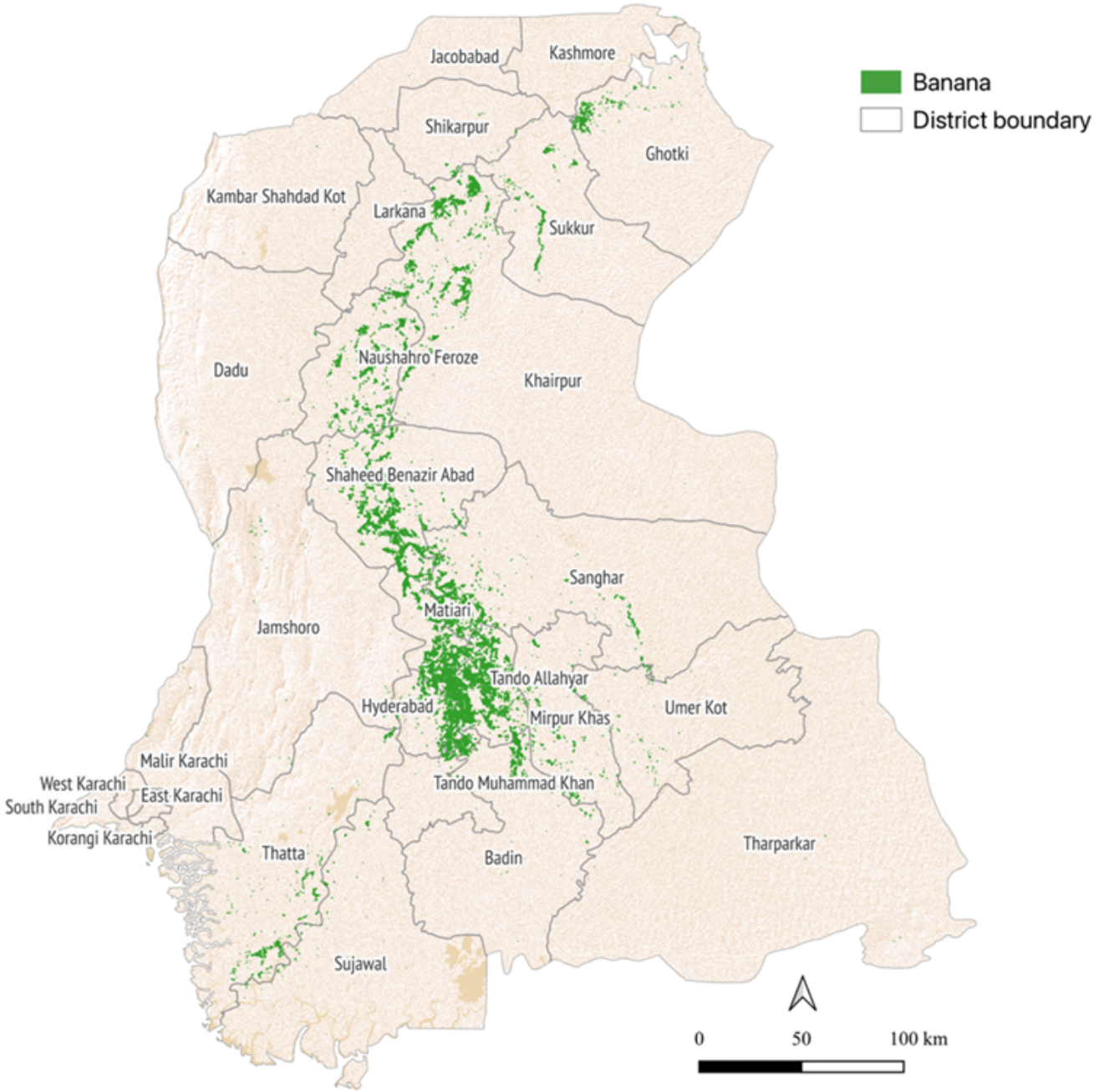
Location Name	Latitude	Longitude	GeoName ID
Thatta	24.74745	67.92353	

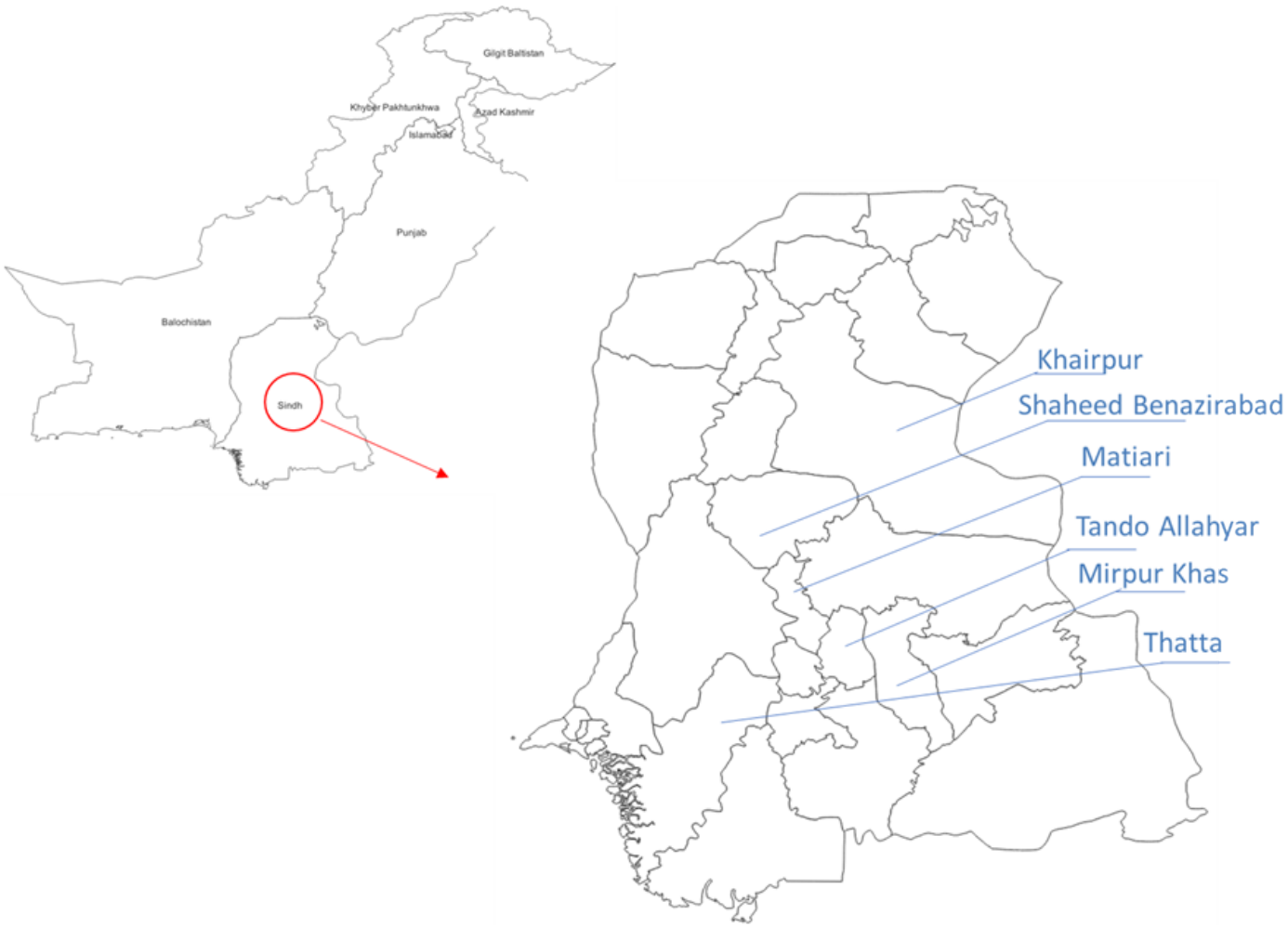
Location Description:

Activity Description:

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.


India
Afghanistan
Pakistan
Nepal


Banana
District boundary
Jacobabad
Kashmore
Shikarpur
Ghotki
Kambar Shahdad Kot
Larkana
Sukkur
Naushahro Feroze
Dadu
Khairpur
Shaheed Benazir Abad
Sanghar
Matiari
Jamshoro
Tando Allahyar
Hyderabad
Umer Kot
Mirpur Khas
Malir Karachi
West Karachi
East Karachi
South Karachi
Korangi Karachi
Tando Muhammad Khan
Thatta
Badin
Tharparkar
Sujawal
0
50
100 km



ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS DOCUMENTS INCLUDING RATING

Attach agency safeguard datasheet/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts (as applicable).

Title
Environmental and Social Analysis and Risk Management Plan
Pakistan CW_ESIA_June 2024
Pakistan - Climate risk screening - Climate Risk Team
Full ES Risk Screening checklist for project entity 744376

ANNEX G: BUDGET TABLE

Please upload the budget table here.

Descriptions	Component 1:	Component 2:	Component 3:	Component 4:	M&E	PMC	TOTAL GEF	Responsible Entity
5570 International Consultants & National Consultants								
Banana Fibre and Textile Value Chain Specialist	-	24,000	24,000	-			48,000	SMEDA
Sustainable Agriculture Specialist	-	48,000	-				48,000	SMEDA
Bioeconomy Expert	12,000	12,000	12,000	12,000	-		48,000	SMEDA
Traceability System Specialist	-		48,000	-			48,000	SMEDA
Sub-total international Consultants	12,000	84,000	84,000	12,000	-		192,000	
National consultants								
National Technical Advisor	44,650	44,650	44,650	44,650	-	1,400	180,000	SMEDA
National Banana Fibre and Textile Value Chain Specialist	-	39,600	39,600	-			79,200	SMEDA
National Sustainable Agriculture Specialist	-	132,000	-				132,000	SMEDA
National M&E and Knowledge Management Officer	30,000	30,000	30,000	30,000	-		120,000	SMEDA
National Gender and Safeguards Expert	18,000	18,000	18,000	18,000	-		72,000	SMEDA
National Traceability System Specialist	-		79,200	-			79,200	SMEDA
National Institutional and Policy Assessment Expert	72,000	-					72,000	SMEDA
Finance/Admin Assistant	-					86,400	86,400	SMEDA
Sub-total national Consultants	164,650	264,250	211,450	92,650	-	87,800	820,800	
5570 Total consultants	176,650	348,250	295,450	104,650	-	87,800	1,012,800	
5650 Contracts							-	
Mid-term review (MTR)	-				35,000	-	35,000	FAO
Final Evaluation (FE)	-				40,000	-	40,000	FAO
Inception workshop	-				10,250	-	10,250	SMEDA
National Meeting (including PSC meetings)	14,400	-					14,400	SMEDA
Final Workshop	-				10,250	-	10,250	SMEDA
Consultation for gap analysis on circular and innovative banana fibre adoption	12,000	-					12,000	SMEDA

Consultation and coordination to operationalize non-grant-based financial mechanism.	12,000	-					12,000	SMEDA
National and provincial level workshops to disseminate the socio-economic impact assessment study.	16,000	-					16,000	SMEDA
National and provincial workshops to disseminate the study outcome on alternative products.	-	16,000	-				16,000	SMEDA
Capacity building training on fibre extraction and softening.	-	48,000	-				48,000	SMEDA
Capacity building training on traceability in Banana fibre value chain.	-		32,000	-			32,000	SMEDA
Capacity building training on developed traceability system.	-		48,000	-			48,000	SMEDA
Gap analysis study on circular and innovative banana fibre adoption in the textile value chain.	15,000	-					15,000	SMEDA
Adoptions of prioritized recommendations to create the enabling environment.	8,000	-					8,000	SMEDA
Designing and validating a non-grantbased financial mechanism.	13,000	-					13,000	SMEDA
Socio-economic and global environmental benefits assessments of project interventions.	25,000	-					25,000	SMEDA
Project-relevant technical information materials on bioeconomy practices in the textile industry.	10,000	-					10,000	SMEDA
Reviewing , ensuring gender aspects and inclusive approaches.	5,000	-					5,000	SMEDA
Wastes mapping and characterization of the left-over materials.	-	10,000	-				10,000	SMEDA
Techno-economic feasibility study of banana fibre extraction and softening.	-	15,000	-				15,000	SMEDA
Techno-economic feasibility study for different banana-based products (e.g., sanitary pads, handicrafts, liquid fertilizers, food products, etc.).	-	15,000	-				15,000	SMEDA
Develop knowledge materials and informative documentaries on alternative products.	-	10,000	-				10,000	SMEDA
Review global innovative business practices and models for banana fibre.	-	10,000	-				10,000	SMEDA
Developing linkages for easy access to ongoing domestic and international financial and entrepreneurial programmes.	-	30,000	-				30,000	SMEDA
Establishing network group to support and guide the banana fibre extraction, processing and use.	-	20,000	-				20,000	SMEDA
Identifying potential and emerging buyers and fashion brands in domestic and global markets.	-	10,000	-				10,000	SMEDA

Descriptions	Component 1:	Component 2:	Component 3:	Component 4:	M&E	PMC	TOTAL GEF	Responsible Entity
Piloting of yarn and product manufacturing in 2 textile facilities.	-	100,000	-	-	-	-	100,000	SMEDA
Developing a technology-based pilot scheme for traceability, and associated information management system	-	-	212,158	-	-	-	212,158	SMEDA
Recommend a financial incentive for the promotion of banana fibre in the textile sector.	-	-	20,000	-	-	-	20,000	SMEDA
Maping knowledge events on the fashion value for project success stories dissemination.	-	-	-	15,000	-	-	15,000	SMEDA
Documenting the lessons learned and pilot experiences, and sharing.	-	-	-	15,000	-	-	15,000	SMEDA
Preparing video documentaries on the project interventions.	-	-	-	10,000	-	-	10,000	SMEDA
Annual audit	-	-	-	-	-	27,000	27,000	FAO
Spot checks	-	-	-	-	18,000	-	18,000	FAO
Terminal Report	-	-	-	6,550	-	-	6,550	FAO
5650 Sub-total Contracts	130,400	284,000	312,158	46,550	113,500	27,000	913,608	
5900 Travel								
International travel (international consultant missions including security related costs)	22,500	22,500	22,500	22,500	-	-	90,000	SMEDA
Activity 4.1.3: Support and participate in national and global events.	-	-	-	60,000	-	-	60,000	SMEDA
National Travel	22,500	22,500	22,500	22,500	-	-	90,000	SMEDA
5900 Sub-total travel	45,000	45,000	45,000	105,000	-	-	240,000	
5023 Training and workshops								
Capacity building training on sustainable and climate-smart agriculture practices.	-	48,000	-	-	-	-	48,000	Agriculture Department
Capacity building training on ESM and SOP.	-	-	24,000	-	-	-	24,000	SEPA
Capacity building training on blending banana fibre to yarn and subsequent products.	-	-	48,000	-	-	-	48,000	NTU
5023 Sub-total training and	0	48,000	72,000	0	0	0	120,000	

6000 Expendable procurement								
Project-relevant technical information materials on sustainable agriculture practices.	10,000	-	-	-	-	-	10,000	Agriculture Department
Complementing and updating the academic curricula at the university.	20,000	-	-	-	-	-	20,000	SMEDA, Agriculture Department, SEPA, NTU
Developing sustainable banana production technologies and guidelines.	-	30,000	-	-	-	-	30,000	Agriculture Department
Supporting agricultural inputs for Sustainable Agriculture Practices (SAP).	-	240,000	-	-	-	-	240,000	Agriculture Department
Establishing 6 pilot demonstrations of sustainable banana cultivation.	-	180,000	-	-	-	-	180,000	Agriculture Department
Establishing 6 pilot demonstrations of banana fibre extraction and softening.	-	300,000	-	-	-	-	300,000	SMEDA and NTU
Assessment of environmental impacts from banana fibre value chain.	-	-	15,000	-	-	-	15,000	SEPA
Environmentally sound management (ESM) plan development.	-	-	20,000	-	-	-	20,000	SEPA
Developing Standards Operating Procedures (SOPs).	-	-	15,000	-	-	-	15,000	SEPA
Developing training materials and guidelines on sustainability of banana fibre for yarn and product manufacturing.	-	-	28,000	-	-	-	28,000	NTU
Linking with the global and regional and national sustainable exchange mechanism and platform.	-	-	-	40,000	-	-	40,000	MoCCEC

Descriptions	Component 1:	Component 2:	Component 3:	Component 4:	M&E	PMC	TOTAL GEF	Responsible Entity
Developing awareness campaigns on promotion of circular and bioeconomy.	-		-	30,000	-		30,000	MoCCEC
6000 Sub-total expendable	30,000	750,000	78,000	70,000	0	0	928,000	
6100 Non-expendable procurement								
Communication equipment (cameras, palmtops, etc)	300	300	300	300	-	300	1,500	SMEDA
Printers & Photocopier	925	925	925	925	-	300	4,000	SMEDA
Office furniture	-		-	-	-	3,174	3,174	SMEDA
Laptops	2,925	2,925	2,925	2,925		300	12,000	SMEDA
6100 Sub-total non-expendable	4,150	4,150	4,150	4,150	-	4,074	20,674	
6300 GOE budget								
Office operation (stationeries, internet, & other utilities, etc) for the project	-			-		36,936	36,936	SMEDA
6300 Sub-total GOE budget	-			-		36,936	36,936	
TOTAL	386,200	1,479,400	806,758	330,350	113,500	155,810	3,272,018	

Component 1	386,200
Component 2	1,479,400
Component 3	806,758
Component 4	330,350
M&E	113,500
Subtotal	3,116,208
Project Management Cost (PMC)	155,810
TOTAL GEF	3,272,018

Please explain any aspects of the budget as needed here

ANNEX I: 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.