

Libya Green Climate Fund Country Program

READINESS LIBYA II PROJECT

Enhancing institutional, human and technical capacity of libya system for climate finance

August 2026

Sahara and Sahel Observatory - OSS

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1- Country context

1.1- Sustainable Development Agenda

Libya's sustainable development context is strongly shaped by post-conflict reconstruction, hydrocarbon dependence, demographic trends, climate vulnerability, and the country's long-term goal of developing a more inclusive, resilient, and diversified economy.

The Sustainable Development Goals (SDGs) have become one of the most important strategic frameworks for organizing national development priorities and for coordinating the support provided by international development partners. The sustainable development of Libya is demonstrated in national planning documents, led by the Ministry of Planning, the Voluntary National Reviews submitted to the United Nations, and sector strategies for infrastructure, energy, water, local development and social services.

From an economic perspective, Libya still ranks among the richest countries in North Africa in terms of GDP per capita, as a result of the vast oil and gas resources. The most recent estimation of GDP is of around USD 50 billion, but national production continues to be volatile and closely linked with hydrocarbon production, and international oil prices. National GDP growth has been volatile over recent years due in part to disruptions in oil production and general market changes. The overall Gross National Income per capita is around USD 6,300.

Table 1: Selected development and macroeconomic indicators of Libya

Indicators	Figures	Interpretation
GDP	US$52.45 billion, estimate for 2024[1]	A hydrocarbon-dependent economy with large swings in output and public revenue linked to oil production, prices and institutional disruptions.
Real GDP growth	World Bank: -2.7% in 2024; projected +13.3% in 2025[2]	Recent growth is highly oil-driven; recovery prospects depend on production stability and macroeconomic coordination.
GNI per capita	US$6,310 Atlas method; US$14,050 PPP, 2024[3]	Libya remains classified as an upper-middle-income economy, but income levels mask uneven access to services and regional disparities.
Human Development Index	HDI 0.746; rank 92/193; high human development category, 2022[4]	Human development outcomes remain comparatively high, but conflict, service disruption and governance gaps constrain progress.
Domestic credit to private sector	Around 13.6% of GDP in 2024[5]	Low financial intermediation limits private investment, SME growth and diversification.
Ease of doing business	Rank 186/190; score 32.7 in Doing Business 2020[6]	The business environment is highly constrained; the indicator is historical because the World Bank discontinued Doing Business after 2020.
SDG implementation status	Second VNR submitted in 2024; SDG reporting supported by UN and national institutions[7]	Implementation is progressing, but constrained by institutional fragmentation, data limitations and financing gaps.

Libya's Human Development Index is also relatively high compared to the African average, supported by historical investments in health, education and other social services. But development results are mixed by location and population groups.

Structural constraints persist in Libya's financial and business landscape. This means that domestic credit to the private sector is lacking compared to regional standards, meaning SMEs cannot invest and the economic diversification is slowing down. Challenges remain with access to finance, fragile institutional intermediation, regulatory uncertainties and fragmented governance all undermining the growth of entrepreneurship and the private sector.

The World Bank discontinued the Doing Business report after 2020; therefore, no current ranking is available, the environment for investment is still unfavourable while there are large problems associated with the process of licensing, quality of public administration, legal certainty and banking reform. Libya with its ongoing stable growth prospects also has strong long-term potential. Hydrocarbons continue to be the dominant

1 International Monetary Fund (2024). Libya: 2024 Article IV Consultation- Press Release, Staff Report and Statement by the Executive Director for Libya.

2 World Bank (2024/2025). Libya Economic Monitor and Libya country data; World Development Indicators, including GNI per capita and domestic credit to private sector.

3 World Bank (2024/2025). Libya Economic Monitor and Libya country data; World Development Indicators, including GNI per capita and domestic credit to private sector.

4 UNDP (2024). Libya Human Development Summary 2023-2024, Human Development Report country note.

5 World Bank (2024/2025). Libya Economic Monitor and Libya country data; World Development Indicators, including GNI per capita and domestic credit to private sector.

6 World Bank (2020). Doing Business 2020- Economy Profile: Libya.

7 Government of Libya (2024). Voluntary National Review on the Sustainable Development Goals, presented at the UN High-Level Political Forum.

economic driver and the biggest source of public revenue in the nation but the country is also focusing on diversification initiatives in areas such as renewable energy, logistics, industry, agriculture, services and infrastructure. Libya's strategic location in the Mediterranean basin provides further incentives for trade, energy connectivity and green industrial development, including an opportunity for establishing positioning in green hydrogen and renewable electricity value chains.

The country's development potential has strong links with macroeconomic stabilization and fiscal reform. The public finances are still massively reliant on oil revenues, making them sensitive to commodity price volatility. Fiscal policy thus remains oriented towards revenue stabilization, public spending control, reconstruction financing and the restoration of critical infrastructure and public services. Economic resilience will rest on effective fiscal governance, bolstering of public sector institutions and leveraging private investment that will gradually expand the productive base. Investment in infrastructure is a key cornerstone of Libya's sustainable development path. National priorities in investment include upgrading and extending electric power distribution systems, transport corridors, roads, ports, airports, urban infrastructure, housing and water supply systems, wastewater treatment and solid waste management services. Urban recovery and municipal infrastructure are important in particular because of the loss, brought on by conflict, and lack of investment. Transport infrastructure and territorial connectivity are other key priorities for promoting regional economic ties and the development of internal markets.

Social inclusion plays an important role in the sustainable development agenda. Libya still has regional inequalities in services, employment and opportunities. National strategies are progressively underscoring the needs for youth inclusion, employment generation, the women's role in economic development, better social protection and resilience of vulnerable communities. Gender considerations are increasingly being integrated into development programmes with the backing of the UN bodies and international partnerships. Special emphasis is also given to local development and equitable access to medical care and education and resilience for vulnerable communities.

Poverty alleviation and robust recovery are becoming a fundamental aspect of development planning. While conventional poverty data remain scarce, economic insecurity, unemployment-induced vulnerability, youth unemployment and territorial inequalities are issues of significant development relevance. The focus of recovery efforts is no longer just rebuilding infrastructure, but also on strengthening economic resilience, local livelihoods and institutional capacity. This is a resilience-based response connecting rebuilding with sustainability and social unity within the long run.

Environmental sustainability is increasingly a national priority. Libya faces environmental pressures including water scarcity, groundwater depletion, desertification, coastal erosion, biodiversity loss and pollution. These pressures increase vulnerability to climate changes. In response, environmental sustainability is increasingly represented in policy debates on water management, land restoration, climate adaptation, coastal resilience and pollution control. Libya's participation within the Paris Agreement, and NDC in particular, provides evidence for increasing convergence between climate and development issues. Energy development for renewables, in particular solar, has received more and more policy interest because of Libya's extraordinary resource potential. Meanwhile, energy efficiency, sustainable urban development, circular-economy approaches and low-carbon industrial development are among the areas where the drive is also moving ahead, and are taking effect. Green hydrogen is being talked about more and more as a potential strategic area connected to export prospects, industrial diversification and regional energy cooperation with Europe and other countries in future.

1.2- Climate Change Profiles

Although Libya accounts for a small share of global greenhouse gas emissions, it is one of the Mediterranean and North Africa countries most exposed to climate change. Such environmental impacts include acute water scarcity, reliance on coastal infrastructure linked to climatic activity, rising temperatures, and frequent extreme weather.

Libya's economy is largely hydrocarbon dependent, with oil and gas accounting for its main export and public revenue and energy source. As a result of this, more emissions per capita are produced compared to the regional average, primarily in power generation, oil and gas extraction, and transportation. Libya has great potential for mitigation if it adopts renewable energy and improves energy efficiency; reduces methane release from the oil and gas sector; and improves urban planning and transport.

Based on World Bank Climate Change Knowledge Portal and latest regional surveys data, average annual temperatures are expected to increase 1.4°C to 2.7°C by 2060[8], with larger increases expected in high emission scenarios. Heatwaves are projected to grow in frequency, duration, and severity especially in southern and inland regions. Annual precipitation is expected to drop 5 to 10% by mid-century, with more variability between years and longer periods of drought[9]. Such changes will contribute to increasing evapotranspiration rates, lower groundwater replenishment, and intensify pressure on already sparse freshwater resources. Since Libya relies on fossil groundwater supplies through the Great Man-Made River for its water needs, climate change is a clear threat to national water security as well as productivity of agricultural systems.

The effects of climate change are already manifesting both nationally and sub-nationally. The increased threats from sea-level rise and storm surges, coastal erosion, and flooding, which could affect coastal towns like Tripoli, Misrata, Benghazi, and Derna, are piling up on the landscape. The Derna floods that hit in 2023 revealed the extreme disaster risk caused by heightened vulnerability to climate change, where heavy rains combined with weak infrastructure led to human misery and economic losses.

In agricultural areas, increasing temperatures associated with falling precipitation prevent crops from growing, and damage livestock health and soil quality because of desertification and degradation processes. These challenges are increasingly posing threats to food security and local economies as well as migration patterns in rural communities. This vulnerability is further heightened by lack of institutional capacity; outdated infrastructure; and disparities in access to services that foster resilience to climate change. These risks suggest the need for climate action to be embedded in Libya's recovery efforts prioritizing resilience-oriented and long-term development objectives. By developing immediate, resilient efforts for water management and rehabilitation of other infrastructure, there is hope of large co-benefits if these are based on a resilience-improving model.

The deployment of decentralized renewables including solar-powered water pumps as well as resilient agribusiness can be used as a mechanism towards livelihood boosting, and reducing net vulnerability overall — providing a synergy that marries recovery programming with adaptation for sustainable economic diversification. Libya has a significant set of investments on the agenda for adaptation toward low-emission pathways based on resilient development architectures: priority areas of investment include integrated water resource management; wastewater recycling; renewable-energy powered desalination plants; coastal defence structures; flood risk management systems; early warning systems; agriculture adapted for climate change management; drought resilience strategies; and ecosystem restoration projects. That kind of investment looks right when there is a significant benefit in avoiding the costs of disaster recovery – whether from water insecurity or dropping agricultural yields.

On mitigation fronts, too — the most promising choices are in utility-scale solar photovoltaic installations combined with distributed generation from solar sources and improving investments in grid infrastructure modernization designed to improve total energy efficiency in buildings or public facilities. Libya also enjoys one of the greatest volumes of solar radiation in the world, making it financially favourable for sustainable solar projects with expected green hydrogen production capacities in the future through medium-long term projections. Various alternatives emerge that offer economic viability, but also catalytic utility in a pan-community context: the deployment of renewable energy resources could reduce dependence on liquid fuels consumed at home, thereby relieving financial pressures associated with fuel use and simultaneously promoting integrated nationwide energy security as a whole—while methane reduction efforts may offer on an immediate basis lower emission as well as profitable financial dividends.

Investing to strengthen water security and flood-response can pay out dividends of vital value via protection mechanisms that alleviate displacement risks while protecting productive sectors — potential investment opportunities that provide momentum to attract resources through external means due to the flow of capital in private channels that will lead to future climate finance projects, especially in light of ongoing debates around climate financing strategies to date that closely align with Libya's NDC process and various adaptation actions combined with technology assessments that underpin sustainable development for achieving ambitious and sustainable long-term goals focused on addressing climate change-induced dual challenges across national borders effectively and across civil society that include multi-stakeholders including governments and private sector (municipal authorities, utilities, civil institutions, the private industry) whose participation can help drive ownership and technology feasibility coherence underlain by long-standing sustainable development agendas with a Libyan context for informing responses going forward.

[8] World Bank Group. Climate Risk Country Profile – Libya, 2025.

[9] World Bank Group. Climate Risk Country Profile – Libya, 2025.

2- Climate finance strategy and priorities

2.1- Climate Finance sector Landscape in Libya

Libya's financial sector operates within an economy dominantly driven by the oil and gas industry, which accounts for the vast majority of exports and government revenue. This heavy dependence gives the financial sector a crucial role in supporting economic activity beyond hydrocarbons, although structural and institutional challenges remain. The Libyan financial system is mainly composed of:

1. Central Bank of Libya (CBL)

It is the monetary authority and regulator of the banking system. The CBL, started its operations in 1956, is established as an autonomous institution and its mandate is defined by the law establishing the Central Bank and subsequent amendments, most recently the Banking Law No. (1) of 2005 as amended by Law No. (46) of 2012. Its main functions are issuance of currency and management of foreign reserves; supervision of commercial banks to maintain financial soundness; regulation of payment and settlement systems.

One of the priorities of the strategic plan of the CBL is to provide active support to any economic development strategy for the government[10]. This should be considered as a useful support for the implementation of the Climate Change Strategy of the Libyan Government.

The key challenges of the CBL are political fragmentation and governance issues, affecting monetary policy and institutional independence, and the limited development of modern regulatory frameworks aligned with international banking standards.

2. Commercial Banks

There are state-owned and private banks providing retail, corporate, and development finance services. Commercial banks are the central pillar of Libya's financial sector. The different categories of banks are:

- State-owned banks;
- Private and joint-stock banks.

At the end of 2024, the number of banks operating in Libya were 21 banks[11]. These banks operate through 672 banking branches and agencies.

The largest banks are Jumhouria, National Commercial Bank, Wahda, and Sahara which accumulate at the end of 2024, 65.9% of the total assets, 66.2% of the total deposit liabilities and 85.4% of the total loans of the banking sector.

Loans and credit facilities granted by the banking sector remain very low. They accounted only for 22.3% of total depository liabilities and 17.5% of total assets at the end 2024. The balance of loans granted to the private sector represents 77.2% of total loans and credit facilities granted and the balance of loans granted to Individuals represents 50% of total loans and credit facilities granted at the end of 2024.

Bank assets to Gross Domestic Product (GDP) are relatively low by regional standards, reflecting underdeveloped intermediation (about 12% of GDP).

During last years, the CBL enforced prudential rules and internal controls in commercial banks to promote stability.

3. Investment Funds and Specialized Banks

These entities focus on strategic sectors (e.g. agriculture, real-state, industry). They include Libyan Investment Authority (LIA) – the sovereign wealth fund managing state investments domestically and abroad – and mainly Three (3) specialized State-owned banks:

10 https://cbl.gov.ly/en/strategic-plan/
11 including the Libyan Dinar unit at the Libyan Foreign Bank

- Agricultural Bank;
- Development Bank;
- Real Estate Savings and Investment Bank.

These entities help channel long-term capital but often face institutional constraints and limited diversification. The main financial resources of the specialized banks are allocated annually by the Government for granting loans and credit facilities for investors and individuals. Their customer deposits don't constitute a primary source.

4. Capital Market

It is currently undeveloped, with very limited trading activity or established equity/debt markets. The Libyan capital market is very shallow or essentially dormant: limited stock exchange activity, with only a handful of listings when active, and absence of a vibrant government or corporate bond market, reducing alternative financing channels. This limits the financial system's ability to support longer-term investments through equity or debt markets.

It is managed by the Libya Stock Market whose is supervised by the Libyan Capital Market Authority (LCMA) created in 2010 (law n°11).

5. Insurance Sector

It is operating under regulation and is relatively small and underdeveloped compared with banking, but it is growing. Insurers primarily provide motor and property insurance; risk coverage for businesses and individuals (broader climate-related or parametric products are limited). There is potential for growth in this sector, particularly if new products (e.g., micro-insurance, climate risk coverage) are introduced.

6. Non-Bank Financial Institutions

Including microfinance or digital finance initiatives (limited in scale), and also an automated clearing and settlement system for inter-bank transactions. Digital financial services and mobile money penetration remain low but are emerging as areas for potential development in financial inclusion. There are 11 electronic payment companies licensed by the CBL[12] offering digital Wallet, local cards and mobile banking services.

In conclusion, the Libyan financial sector remains bank-centric, with the central bank at its core. While banks play a crucial role in financial intermediation and liquidity provision, the overall system lacks depth in markets and insurance products. Public and private stakeholders need continued reforms to strengthen regulatory frameworks, expand financial inclusion, and develop new markets and institutions. It faces several structural limitations:

- Heavy dependence on oil revenues and limited economic diversification;
- Political and institutional fragmentation, leading to coordination challenges;
- Underdeveloped capital markets and financial products;
- High reliance on traditional banking and low financial penetration in some regions.

2.2- Climate finance opportunities and challenges in Libya

The climate finance landscape in Libya is still developing, presenting both opportunities and obstacles.

Multilateral Access: Libya has initiated readiness activities with the Green Climate Fund (GCF) and the Global Environment Facility (GEF), but no significant projects have received complete financing approval yet. Although initial concept notes exist and technical support from partners has been secured, considerable effort remains to create bankable proposals aligned with national priorities.

12 Source : website of the CBL (https://cbl.gov.ly/en/electronic-payment/)

Official Development Assistance (ODA) and Bilateral Cooperation: The flow of ODA is currently low, estimated at USD 200–300 million per year, which has seen a downward trend recently. Major bilateral donors include the EU, Germany, and the US; however, most assistance tends to be project-oriented rather than directly addressing countries' climate adaptation needs.

Domestic Finance: Oil revenues account for approximately 97 percent of Libya's national income and remain crucial to public finances. Nonetheless, the lack of a unified treasury account coupled with irregular budget cycles hampers effective tracking as well as predictability in adaptation spending. A recent development includes establishing an Environmental Protection Fund through Cabinet Decision No. 574/2023 aimed at institutionalizing it by October 2024 after its organizational structure was approved in March 2024. While this fund is not fully operational yet, it holds potential as a national mechanism to channel climate adaptation funds towards specific initiatives—particularly those related to decentralized efforts, nature-based solutions, and ecosystem restoration.

Private Sector Participation: Private sector involvement in adaptation initiatives is minimal due primarily to regulatory hurdles and political instability that diminish investment prospects for long-term or ecosystem-focused ventures. However, there are emerging but fragmented projects within sectors such as solar energy production, off-grid water filtration systems, and sustainable construction practices typically driven by partnerships with NGOs abroad or pilot actions.

Innovative Financing Options: Libya aims to explore innovative financial mechanisms like green bonds, climate sukuk, and performance-linked payment models. Yet these instruments remain largely theoretical without appropriate regulatory frameworks, technical expertise or pipelines ready for implementation.

Libya faces key challenges identified through recent policy diagnostics: creating financially viable strategies for sustainable adaptations while ensuring large-scale funding availability along geographic social equity lines. To address these issues effectively will require coordinated investments plans, supporting credit systems preparation facilities alongside enabling policies designed de-risk climate investments.

As a summary, the following SWOT analysis highlights the challenges and the opportunities of climate investment and financing in Libya:

Table 2: SWOT analysis of the green investment framework in Libya

Strengthens	Weaknesses
• There is a real political will to diversify the Libyan economy and to consider green investment as a new engine of growth; • Libya currently has high income from oil and gas that can be used in part to support the greening of the Libyan economy; • The policy decision-makers are open to support the development of Green Finance; • The Libya Central Bank is already member of the Network for Greening the Financial System (NGFS);	• Lack of information and studies on key sectors concerned by green investments (energy, water resources, solid and liquid waste, coastal areas, biodiversity, agriculture, etc.); • Lack or even absence of sectoral strategies integrating the green dimension • Poor knowledge of the vulnerability of different sectors and ecosystems to climate change; • Lack of a specific institutional framework to support an adequate green investment policy; • Lack or even absence of specific incentives to encourage green investments in the different sectors; • The dominance of oil and gas in the Libyan economy which remains very little diversified; • State dominance and weak private sector development; • Lack of a regulatory framework to involve and motivate the private sector in general and in particular for green investments (Public-private partnership, access to the electricity market through renewable energies, PPP in solid and liquid waste, etc.); • Lack of interest of the Libyan financial sector to be proactive in financing green investments and developing green finance policy; • Low development of international cooperation in the field of green investments

Opportunities	Threats
• There are huge green financing opportunities at international donors; • Libya is currently in the radars of international large investors in green sectors; • International cooperation including countries and donors are interested to support Libya for energy and climate transition.	• The lack of political and security stability; • The perception of foreign investors of high-risk investment in Libya; • Strong competition from other countries in the region for international green investment.

2.3- Climate Finance needs in Libya

2.3.1- Financing needs for mitigation

The total financing required to implement Libya's mitigation measures considered in first NDC (2025) is estimated at USD 29.6 billion over the implementation period (2026–2035), as presented in the following table:

Table 3: Investments required to support the low-carbon scenario of the NDC over the period 2026–2035 (USD million)

Funding requirements (MUS$)	TOTAL
Gas Flaring Recovery	1 863
Prime Minister 100 M Tree planting Program	489
Agriculture Sector 10 M Tree planting Program	232
Electricity Demand	1 941
Thermal Energy Demand	728
Power generation	7 472
Renewable in power generation	7 093
Cement Production (Processes)	0
Cement Production (Energy)	110
Iron and Steel (Processes)	91
HFCs	373
Solid Waste sector	247
Wastewater sector	165
Transport sector	8 753
TOTAL	29 557

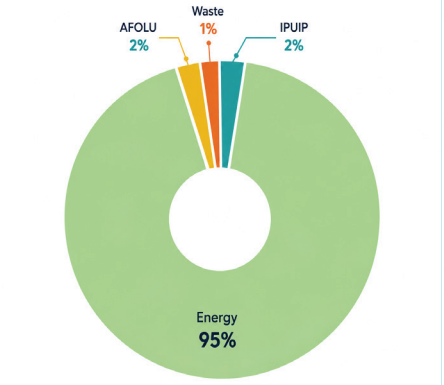


Figure 1: Financing needs share by emission sector (Source: NDC, 2025)

Of this USD 29.6 billion, USD 9.2 billion (31%) is expected to be mobilized through domestic and unconditional resources, while USD 20.3 billion (69%) will require international support.

The energy sector overwhelmingly dominates Libya's mitigation financing needs, accounting for approximately 95% of total required investment (around USD 28 billion), followed by AFOLU sector (2%) and IPPU (2%) and Waste (1%).

In energy sector, investment in transport sector comes in the first position with 31% of the sector needs, reflecting the need to modernize the vehicle fleet, promote fuel efficiency, and introduce alternative fuels and electrification of the fleet, while also promoting public transportation modes.

Renewable energy (solar and wind) for power generation represents around 25% of the total sector investment needs, followed by gas flaring recovery and EE in electricity demand (7% each), as shown by the following chart:

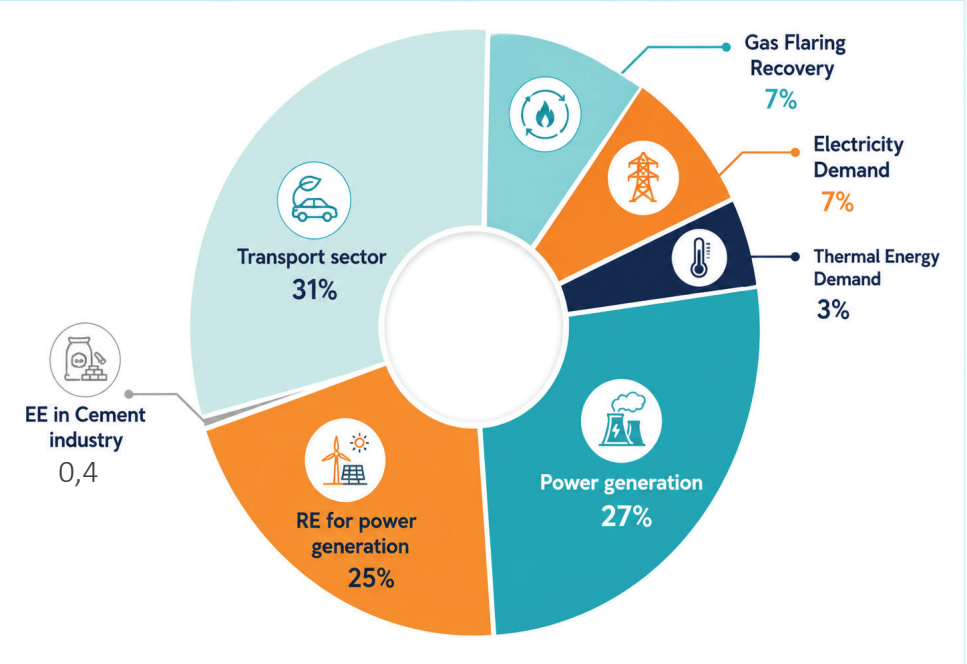


Figure 2: Financing needs in energy sector by type of measures (Source: NDC, 2025)

2.3.2- Financing needs for adaptation

According to Libyan NAP (2025), the total financing needs for adaptation over the period 2025–2035 are estimated at between USD 1.9 and 2.4 billion. This estimate takes into account variations in institutional readiness, geographic scope, technological complexity, and the potential for co-financing.

Table 4: Share of investment required by NDC adaptation program over 2026–2035, by area

Areas	Share of financing needs
Water Security and Governance	32%
Agriculture and Food Systems	25%
Ecosystems and Coastal Areas	18%
Critical Infrastructure	15%
Capacity Systems, Data, and Monitoring & Evaluation	10%

The cost structure of adaptation measures is divided into capital expenditures (CAPEX) and operational expenditures (OPEX):

- Capital expenditures (approximately 65–70%) include large-scale infrastructure (e.g., groundwater recharge systems, resilience hubs and water–energy–food–ecosystem nexus centres, coastal defences), digital platforms (e.g., climate intelligence and decision-support systems, national adaptation information and coordination platforms), and ecosystem restoration (e.g., dryland ecosystem corridors);
- Operational expenditures (approximately 30–35%) relate to recurring programmatic costs such as agricultural extension services, monitoring, support to local governance, capacity development, and early warning services.

3- Identified climate investment options

3.1- Climate change high level priorities

3.1.1- Accelerating the Energy Transition and Decarbonization

The transformation of the energy sector constitutes Libya's foremost climate priority and the principal pillar of its mitigation strategy. The country's economy remains highly dependent on oil and gas production, while the energy sector accounts for approximately 88% of national greenhouse gas emissions. Electricity generation, fugitive emissions from oil and gas operations, and transport activities collectively represent the largest sources of emissions, making energy sector decarbonization essential for achieving Libya's climate objectives.

Libya's long-term vision is to build a more diversified, efficient, and sustainable energy system capable of supporting economic growth while reducing carbon intensity. Under the 2025 NDC, the country aims to significantly reduce the carbon intensity of its economy by 2035 through a combination of domestic efforts and international support. The energy sector alone is expected to deliver more than 90% of the cumulative emission reductions envisaged under the NDC, confirming its central role in the national mitigation agenda.

A first priority consists of reducing emissions from the oil and gas sector, particularly through the recovery and utilization of associated gas currently lost through flaring. Reducing gas flaring and methane emissions represents the single largest mitigation opportunity identified by Libya and is expected to generate the largest share of cumulative emission reductions over the coming decade. These actions will simultaneously improve resource efficiency, increase the availability of domestic gas supplies, and strengthen the overall performance of the hydrocarbon sector.

A second priority is the modernization and decarbonization of the electricity sector. Libya continues to face important challenges related to aging infrastructure, technical losses, growing demand, and supply shortages. Strategic investments are therefore needed to rehabilitate generation facilities, modernize transmission and distribution networks, reduce technical losses, and improve overall system reliability and efficiency. The transition toward cleaner electricity generation will also require increasing the share of natural gas and expanding the use of high-efficiency combined-cycle technologies.

Expanding renewable energy deployment constitutes another major national priority. Libya possesses some of the world's most favourable solar resources as well as significant wind energy potential, creating strong opportunities for large-scale renewable electricity generation. The country's renewable energy strategy seeks to progressively integrate solar and wind power into the national energy mix, diversify electricity supply sources, reduce dependence on fossil fuels, and create new opportunities for private sector participation and green investment. Renewable energy development is expected to become a key driver of long-term economic diversification and energy security.

Improving energy efficiency across all sectors of the economy is equally important. Libya currently exhibits relatively high energy intensity compared to many regional and international benchmarks, indicating substantial opportunities for efficiency improvements. Priority actions include improving the efficiency of buildings and public infrastructure, promoting efficient lighting and appliances, introducing energy management systems in industry, reducing electricity losses, and strengthening demand-side management measures. Enhanced energy efficiency will contribute to reducing emissions while lowering energy costs and improving economic competitiveness.

Finally, Libya seeks to promote the gradual decarbonization of the transport sector through cleaner mobility solutions, improved public transportation systems, enhanced fuel efficiency standards, and the introduction of hybrid and electric vehicles. Looking further ahead, the country is also exploring emerging opportunities associated with green hydrogen and other low-carbon technologies that could strengthen Libya's position within future regional and international energy markets.

3.1.2- Strengthening Water Security and Climate Resilience

Water security represents the most critical adaptation challenge facing Libya. The country relies heavily on non-renewable groundwater resources while facing increasing climate pressures that threaten water availability, quality, and accessibility. Rising temperatures, prolonged droughts, salinization, and growing demand from urban and agricultural users are increasing pressure on already limited resources. National adaptation priorities therefore focus on:

- Integrated water resources management;
- Protection and restoration of groundwater systems;
- Climate-resilient water governance;
- Improved water-use efficiency;
- Sustainable management of oasis ecosystems;
- Expansion of renewable-energy-powered water and sanitation systems;
- Strengthening resilience of communities dependent on vulnerable water resources.

3.1.3- Enhancing Food Security and Climate-Resilient Agriculture

Climate change poses increasing risks to agricultural productivity, rural livelihoods, and food security. Libya's dependence on imported food, combined with increasing climate variability and pressure on water resources, increases vulnerability to both environmental and economic shocks. Priority areas include:

- Climate-smart agriculture;
- Sustainable soil management;
- Regenerative land-use practices;
- Agricultural diversification;
- Strengthening food supply chains;
- Enhancing resilience of farming communities;
- Improving management of water resources for agricultural production.

3.1.4- Protecting Coastal Zones and Urban Areas

Libya's coastal areas constitute the country's primary demographic and economic centre. Consequently, sea-level rise, coastal erosion, saltwater intrusion, storm surges, and flood risks represent major threats to infrastructure, economic assets, ecosystems, and human settlements. More than 90% of the population and key infrastructure are concentrated along the coast. Key priorities include:

- Coastal protection infrastructure;
- Nature-based coastal resilience solutions;
- Restoration of coastal ecosystems and wetlands;
- Sustainable management of marine resources;
- Urban flood management;
- Green infrastructure development;
- Climate-resilient municipal planning.

3.2- Mapping of existing and projected climate related activities

International technical and financial partners (ITFP) currently show strong interest in Libya and have launched various climate change initiatives and activities in the country (OSS, FAO, UNDP, GIZ, UNOPS, IFAD, etc.) with many sources of funding (EU, GCF, Adaptation Fund, Bilateral cooperation, etc.) who are working with different national technical institutions (Ministries, Sectoral public institutions, NGOs, etc.).Here are the main large climate related projects and initiatives in Libya:

Table 5: Mapping of key existing and projected climate-related activities supported by financial and technical partners in Libya (Source: Investigation of consultant from various sources)

Project	Objective	Financing entity	Period of implementation	Components
Sustainable Transition, Energy and Environmental Partnership (STEP)	Improvement of sustainable energy and adaptation to climate change impacts at national and local levels	5.3 M€ by BMZ and 9 M€ by EU	Feb 2024-Jan 2027	• Improvement of climate change Regulatory Framework by developing climate adaptation strategies; • Knowledge products to address policy gaps: National Studies Related to Climate Change; • Capacities and Structures for Steering coordinated climate actions improved; • Knowledge sharing and learning; • International cooperation and knowledge sharing.
Strengthening governance and institutional framework for integrated climate change, water, energy and food security strategies in Libya	Advance Water-Energy-Food-Ecosystem nexus approaches and solutions	USD 999,790 from GCF	1 January 2025; end date to be confirmed	• Desk review of existing studies and data on energy and water use in agriculture; • Mapping of agri-food value chains and biomass availability; • Stakeholder identification and interviews across energy, agriculture, water, and environment sectors; • Inventory of current energy use in agri-food chains and gap analysis; • Spatial assessment of bioenergy potential and solar energy applications; • Pre-feasibility analysis and recommendations for renewable energy interventions in agriculture.
REsilience to NEgative impacts of climate-aggravated Water scarcity in the agriculture sector in Libya (RENEWAL)	Enable Government and rural communities to adapt to climate-aggravated water scarcity	USD 9,995,758 from the Adaptation Fund (grant)	28 April 2025 to 28 April 2030	• Climate risk assessments and integration into national/local planning; • Climate resilient investment in concrete activities in the agriculture sector; • Climate resilient investment in concrete activities in the livestock sector; • Disseminating knowledge and best practices for climate resilience.
EU4SKILLS	Enhance employability and foster economic growth in Libya	7.15 M€ by EU and French Government	March 2025 to December 2027	• Strengthen employability governance and mechanisms within the Libyan education system; • Boost employability and business opportunities by reinforcing digital transformation; • Promote skills development in the green and blue economies; • Enhance the skills and capacities of financial sector actors.

3.3- Climate investment options in Libya

3.3.1- Mitigation options

From the NDC3.0 we identified 24 the key mitigation options that imply investment projects. They cover 10 area including:

- Gas Flaring Recovery;
- Tree planting Programs;
- Electricity Demand;
- Thermal Energy Demand;
- Power generation;
- Renewable in Power generation;
- Transport sector;
- Cement Production (Processes and energy);
- Iron & Steel (Processes and energy);
- Solid Waste and Wastewater sector.

The mitigation measures are detailed in the following table:

Table 6: Identified mitigation options (source: NDC3.0)

Options	Keys measures
Gas Flaring Recovery	M1. Reducing GHG emissions from flaring at oil and gas in 22 sites + Implementation of an MRV system
Tree planting Programs	M2. Prime Minister Initiative-Tree planting Program (100 M trees) M3. Agriculture Sector (Tree planting Program: 10 M trees)
Electricity Demand	M4. Improve energy efficiency by 40% in street lighting M5. Improve electricity efficiency by 15% in other sectors
Thermal Energy Demand	M6. EE programs in the major consumer sectors and entities (Energy Audits, process-heat optimization, Insulation of heating and cooling circuits, efficient motors, etc. M7. Ambitious program to developing Cogeneration and Trigeneration where relevant
Power generation	M8. Grid modernization, including upgrades to transmission infrastructure and distribution networks M9. Increase the share of NG in electricity production from 67% to 85% by 2035 (including increasing the share of combined cycle power plants in electricity production from 45% to 90% by 2035)
Renewable in Power generation	M10. Increase the share of renewables in electricity production to 22% by 2035 (including PV self-consumption)
Transport sector	M11. Enhance the National Mobility System by building capacity for public/mass transport, including improvements to the bus system M12. Promote Hybrid and Electrical vehicles (target: 100.000 vehicles in use in 2035), M13. Promote EE +" MEPS" + Maximum age of imported vehicles+ promoting driving practices + maintenance practices
Cement Production (Processes and energy)	M14. Reduce the clinker/cement ratio from 0.93 to 0.90 by 2035 M15. 15% improvement in Energy Efficiency in 2035 in cement production M16. Switch from heavy oil to Natural Gas in cement production by 20% in 2035
Iron & Steel (Processes and energy)	M17. 10% improvement in Energy Efficiency in 2035 in iron & steel industry M18. Reduce emissions from reheating furnaces (calcination, billet rolling, profile rolling and hot rolling) in the Iron & steel industry

Options	Keys measures
Solid Waste and Wastewater sector	M19. Rehabilitation and retrofit of 4 among the largest uncontrolled landfills (Tripoli, Benghazi, Misrata and Sabha) and installation of biogas extraction networks and Flaring utilities M20. Implementing 4 new sanitary controlled landfills (Tripoli, Benghazi, Misrata and Sabha) with CH4 capture network and power generation utilities M21. Implementing 4 large-composting facilities M22. Implementing 4 mechanical biological treatment (MBT) facilities M23. Rehabilitation and retrofitting of all Wastewater facilities M24. Generalization of aerobic treatment processes in the Wastewater facilities

3.3.2- Adaptation options

For adaptation, 11 options are identified in the NDC3.0 which also used the NAP outputs. These measures are detailed in the following table:

Table 7: Identified adaptation options (source: NDC3.0 + NAP)

Measure	Timeframe	Specific Targets
A1. Ecosystem-Based Groundwater Recharge and Protection Initiative	2026–2036	• More than 15% recharge volume; • 25,000 ha restored; • Unsustainable extraction reduced to <30%.
A2. National Integrated Water Governance for Climate Resilience (NIWG-CR)	2025–2028	• National/subnational policies revised; • 30% reduction in water stress.
A3. Climate-Smart Crop Diversification and Risk Reduction Program	2025–2029	• 50,000 ha under CSA; • 10,000 farmers reached.
A4. Secure Land Rights and Regenerative Soil Management Initiative	2025–2029	• 25,000 land titles issued (30% to women); • 100,000 ha. restored.
A5. DERR-C: Dryland Ecosystem Restoration Corridors	2025–2030	• 80,000 ha. restored; • 12 corridors operational.
A6. SGI-Res: Strategic Green Infrastructure for Urban Resilience	2025–2030	• More than 20% green space; • Flood losses reduced 30%.
A7. ReBECLE: Resilient Blue Economy for Coastal Communities	2026–2031	• 5,000 ha marine areas restored; • 200,000 people reached.
A8. NAICP: National Adaptation Intelligence and Coordination Platform	2025–2030	• 100% of regions with climate risk maps; • 6 sectors integrated.
A9. CIDSS: Climate Risk Intelligence and Decision-Support System	2025–2027 (dev); 2028+ (ops)	• Fully operational portal; • Early warning linked to health/agri sectors.
A10. WEFE Resilience Hubs	2025–2030	• operational hubs; • 60% increase in water-use efficiency.
A11. RSFSC: Resilient and Secure Food Supply Corridors	2025–2030	• Reduced food losses by 25%; • Diversified supply routeS.

4- Climate options funding priorities

4.1- General approach

4.1.1- Climate option identification: sources of information

The climate options are identified based on information from the CDN3.0, NAP and other sectoral recent strategies. In fact, these documents are considered as reliable since they were developed according to large consultation process, involving national stakeholders, sectoral institutions, development partners, and private sector representatives.

For information, the NDC and the NAP were developed by the end 2025 and piloted by the National Committee of Climate Change (NCCC) which organize a large consultation process with the sectoral and national stakeholders and also take in account the key strategies in the country.

In terms of mitigation, the NDC presents 47 options including 36 in energy sector, 3 in industry process, 2 in AFOLU and 6 solid and liquid waste.

For adaptation, the NDC includes 11 keys measures considered as high priority and which can be grouped with those of the 14 measures of the NAP.

4.1.2- The prioritization process: The Multi-Criteria Assessment

Accordingly, to promote the prioritization of climate investment options in a transparent, evidence-based and participatory manner, the Country Program uses a **Multi-Criteria Assessment** (MCA) approach. The MCA facilitates a systematic comparison of possible projects by addressing not only their technical and economic performance but also their strategic relevance, financial viability, environmental and social benefits, and capacity to mobilize private sector investment.

The evaluation criteria are uniform and used for each investment option using the same scoring system. This approach creates a well-balanced framework that embodies the national development priorities within Libya while remaining fully aligned with the Green Climate Fund's investment principles.

The multicriteria evaluation is conducted in four successive stages:

1. **Project identification**. The projects are identified based on information in the CDN3.0, NAP and other sectoral recent strategies. In fact, these documents are considered as reliable since they were developed according to large consultation process, involving national stakeholders, sectoral institutions, development partners, and private sector representatives;
2. **Scoring of evaluation criteria**. They evaluate every eligible project against five predefined criteria and score each project on a scale from 1 (very low performance) to 5 (excellent performance). Scores are given according to technical information, economic analyses, policy documents, and expert judgement available;
3. **Weighted aggregation**. As not all criteria are of the same strategic importance, the weighting factor assigned to each criterion measures the relative contribution by the criterion to successful implementation and transformational impact. This then totals the weighting factor, multiplying scores by their weight to obtain a weighted score for each criterion;
4. **Project ranking and validation**. The total weighted score was calculated for the projects and used to determine a prioritization ranking. These preliminary findings are then validated via stakeholder discussions to confirm consistency with national priorities and institutional perspectives.

4.1.3- Methodology Developed and Validated through a National Stakeholder Consultation Process

The methodology for the assessment, selection and prioritization of mitigation and adaptation options presented in this section was not developed as a purely technical exercise undertaken by the study team. Rather, it was developed through a ***participatory consultation process involving the main Libyan stakeholders concerned with climate change mitigation, adaptation and climate finance***, as part of a national consultation workshop bringing together key institutional and sectoral actors.

The workshop aimed, in particular, to ensure that the proposed prioritization methodology adequately reflects ***Libya's specific circumstances, development priorities, implementation constraints and institutional realities***, while remaining consistent with the principles and criteria applied by international climate finance mechanisms, particularly the ***Green Climate Fund (GCF)***. The consultation process provided an opportunity to discuss the proposed methodological approach with national stakeholders and to incorporate their knowledge and practical understanding of the conditions required for the effective implementation of climate actions in Libya.

Particular attention was given to:

- The definition of the assessment criteria and their respective weighting.
  The workshop provided a platform to discuss the ***relative importance and weighting of these criteria***, with the objective of ensuring that no single dimension would determine the prioritization outcome on its own. The resulting multi-criteria approach therefore seeks to achieve an appropriate balance between feasibility, national priorities, climate impact, economic and social benefits, implementation capacity and financing potential**.** This is particularly relevant in the Libyan context, where some options may offer significant climate benefits but require prior improvements in institutional capacity, regulatory frameworks, technical capabilities or financing conditions before they can be implemented at scale.
- **The scoring of the climate option according the to the selected assessment criteria**
  The consultation process also supported the adoption of a ***simple, transparent and comparable scoring system***, based on a five-point scale ranging from 1 ("Very Low") to 5 ("Very High"). The overall score of each option is calculated by aggregating the scores assigned to the individual criteria according to their respective weights. This approach makes the underlying trade-offs more explicit, facilitates comparison between interventions of different types and sectors, and provides a common analytical basis for discussion among the institutions involved.

  The scoring of the climate option has been carried out through 2 working groups, one for mitigation and the other for adaptation.

Beyond its technical function, the workshop therefore played an important role in strengthening ***national ownership of the prioritization methodology***. The involvement of Libyan stakeholders in discussing the criteria, their relative importance and the scoring approach enhances the legitimacy and relevance of the prioritization process. Consequently, the resulting rankings should not be viewed solely as an expert-driven assessment, but rather as the outcome of a ***structured process combining technical analysis with the knowledge, priorities and judgement of national stakeholders***.

The consultation process is also an important step in the validation of Libya's GCF Country Program**.** The methodology provides a common framework for first identifying and prioritizing national mitigation and adaptation options and, subsequently, selecting from these priorities the interventions with the strongest potential for inclusion in the GCF project pipeline. At this second stage, additional criteria that more directly reflect GCF priorities are considered, including paradigm-shift potential, impact potential, potential for private-sector involvement, and project preparation needs.

Overall, the proposed methodology should therefore be understood not only as a ***technical decision-support tool, but also as a framework for building national consensus around Libya's climate investment priorities***. Its participatory development helps ensure that the selected priorities combine the requirements of international climate finance with Libya's development objectives, implementation capacities and specific climate needs. It also establishes a transparent and replicable framework that can be revisited and updated as national circumstances, climate priorities and financing opportunities evolve.

4.2- Climate Option Prioritization

4.2.1- Assessment Criteria Definition

- **Criteria for mitigation options**

Five Key evaluation criteria are proposed to evaluate mitigation options:

1. **Technical and institutional feasibility:** This criterion evaluates the technical maturity and implementation readiness of the proposed measure. It considers technology availability, operational reliability, implementation complexity, availability of local technical expertise and operation capacities.
   Projects relying on commercially proven technologies with limited implementation risks receive higher scores than projects requiring significant technological development or institutional capacity building;

2. **Economic Feasibility for the investors:** This criterion assesses the economic viability and financial attractiveness of the project from the point of view of the investor. Key aspects include the level of required CAPEX and the expected economic returns for the investor. Projects demonstrating high return for the investor receive higher ratings;

3. **Economic Interest for the nation:** This criterion is focusing on macroeconomic benefits. It includes the return for the nation in terms of financial gain as well as broader economic benefits such as job creation and industrial development. Projects that ensure better long-term return at macroeconomic level and address critical national development challenges receive higher scores;

4. **Access to international Finance:** This criterion measures the likelihood that the project can secure adequate international financial resources for implementation. The assessment considers eligibility for climate finance, availability of concessional financing, potential to attract multilateral and bilateral funding, readiness for GCF support, and opportunities to mobilize blended finance mechanisms. Projects with diversified and realistic financing pathways receive higher scores;

5. **Environmental and Social Impacts:** This criterion evaluates the expected environmental and social co-benefits beyond climate impacts. The assessment includes improvements in air quality, resource efficiency, biodiversity conservation, resilience co-benefits, employment generation, gender equality, social inclusion, and potential environmental and social risks. Projects delivering significant positive environmental and social outcomes while presenting limited adverse impacts obtain the highest scores.

The following table presents the proposed weighting factor assigned to each criterion:

Table 8: Weight of each criterion for the prioritization methodology of mitigation options

Evaluation Criterion	Weight
Technical Feasibility	25%
Economic Feasibility for the investors	20%
Economic Interest for the nation	20%
Access to international Finance	15%
Environmental & Social Impacts	20%
Total	**100%**

- **Criteria for adaptation options**

For the adaptation options, we considered 5 key criteria of prioritization:

1. **Technical and institutional feasibility**: This criterion assesses whether the measure can be implemented with the technical, regulatory and institutional capacities currently available or mobilizable in Libya. In this case we should analyse the availability of skills, technological maturity, regulatory framework, capacity of responsible institutions;
2. **National priority**: It evaluates the degree of alignment with Libya's national development strategies sectoral policies, and broader socioeconomic priorities. Projects that directly support government priorities and address critical national development challenges receive higher scores;
3. **Scalability and sustainability**: It evaluates the possibility of replicating the measure on a national scale as well as its financial and institutional sustainability. To assess this criterion, we look at the replicability of the measure, the national ownership and the ease of integration into public policies;
4. **Access to international finance**: As above, this criterion measures the likelihood that the project can secure adequate international financial resources for implementation. The assessment considers eligibility for climate finance, availability of concessional financing, potential to attract multilateral and bilateral funding, readiness for GCF support, and opportunities to mobilize blended finance mechanisms;
5. **Environmental & social impacts**: This criterion evaluates the expected environmental and social co-benefits. The assessment includes resource efficiency, biodiversity conservation, resilience co-benefits, employment generation, gender equality, social inclusion, and potential environmental and social risks.

The following table presents the proposed weighting factor assigned to each criterion:

Table 9: Weight of each criterion for the prioritization methodology of adaptation options

Evaluation Criterion	Weight
Technical and institutional feasibility	20%
National priority	25%
Scalability and sustainability	20%
Access to international finance	10%
Environmental & social impacts	25%
Total	**100%**

4.2.2- Scoring system

Each criterion is scored on a five-point scale:

Table 10: Scoring system of options

Score	Interpretation
1	Very Low
2	Low
3	Moderate
4	High
5	Very High

The final project score is calculated using the following weighted formula:

Final Score = Σ (Criterion Score × Criterion Weight)

The maximum achievable score is **5** (that means **100%** of the score). Projects are subsequently ranked according to their overall weighted scores, providing an objective basis for identifying priority mitigation investments for inclusion in the GCF Country Program.

This methodology considers multiple dimensions of project prioritisation.

4.2.3- Multi-criteria assessment results: Climate options prioritization

4.2.3.1- Mitigation options screening

Based on the methodology presented above, the identified mitigation measures were rated to calculate their weighted score according to the selected criteria. The following graph presents this multi-criteria evaluation of the measures.

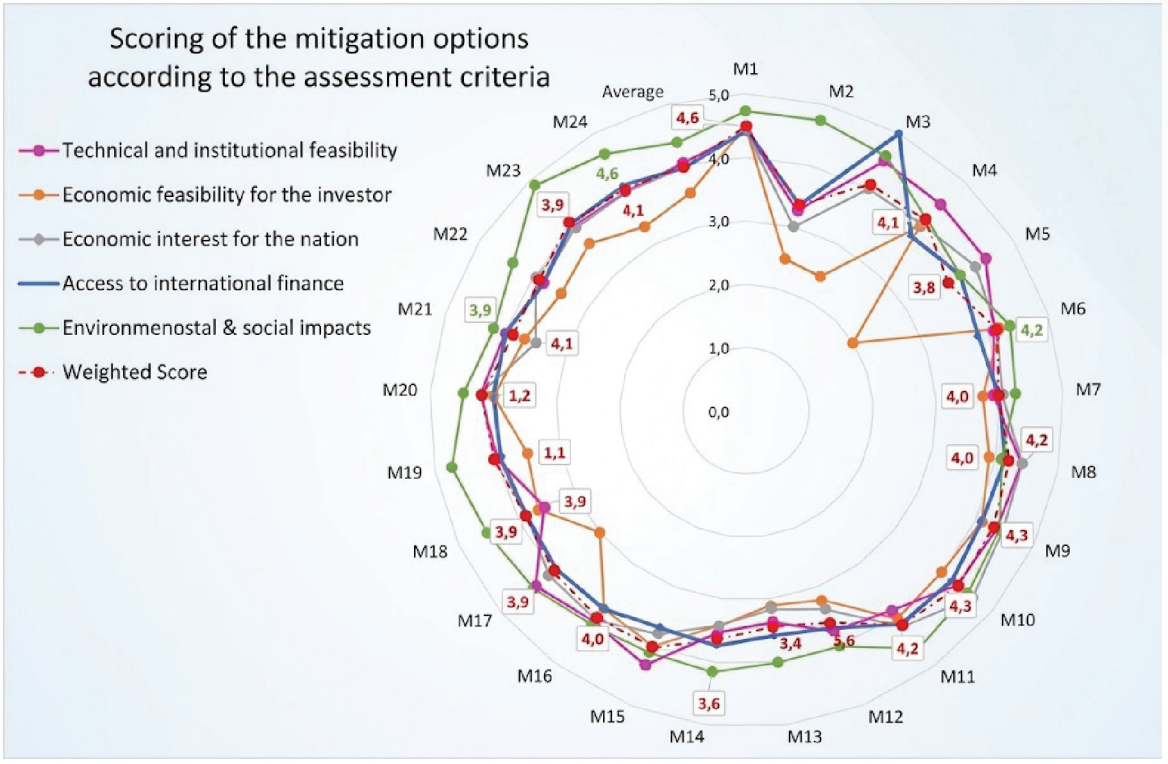


Figure 3: Scoring of the mitigation options according to the selected assessment criteria

The red dashed line represents the total weighted score of the measures according to the different criteria. The result can be also presented by the following chart presenting only the total weighted score of the measures (normalized to 100 = score 5):

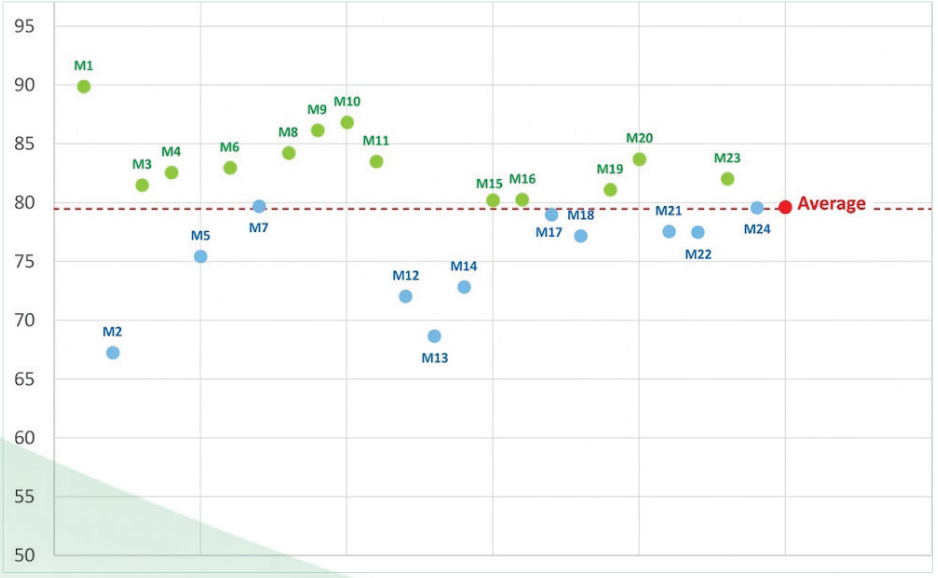


Figure 4: Weighted Score of the mitigation options (maximum score = 100)

Our proposal is to prioritize mitigation options whose score is above the average score. In this case, 12 mitigation options will be selected, as shown in the following table:

Table 11: Prioritised mitigation options

Options	Keys measures
Gas Flaring Recovery	M1: Reducing GHG emissions from flaring at oil and gas in 22 sites + Implementation of an MRV system
Tree planting Programs	M3: Agriculture Sector (Tree planting Program: 10 M trees)
Electricity Demand	M4: Improve energy efficiency by 40% in street lighting
Thermal Energy Demand	M6: Energy efficiency programs in the major consumer sectors and entities M7: Implementing an ambitious program to developing Cogeneration and Trigeneration where relevant
Power generation	M8: Grid modernization, including upgrades to transmission infrastructure and distribution networks M9: Increase the share of combined cycle power plants in electricity production from 45%
Renewable in Power generation	M10: Increase the share of renewables in electricity production to 22% by 2035 (including PV self-consumption)
Transport sector	M11: Enhance the National Mobility System by building capacity for public/mass transport, including improvements to the bus system
Solid Waste and Wastewater sector	M19: Rehabilitation and retrofit of 4 among the largest uncontrolled landfills (Tripoli, Benghazi, Misrata and Sabha) and installation of biogas extraction networks and Flaring utilities M20: Implementing 4 new sanitary controlled landfills (Tripoli, Benghazi, Misrata and Sabha) with CH4 capture network and power generation utilities M23: Rehabilitation and retrofitting of all Wastewater facilities

4.2.3.2- Adaptation option screening

Based on the methodology presented above, the identified adaptation options were rated to calculate their total weighted score according to the assessment criteria. The following graph presents this multi-criteria evaluation of these options.

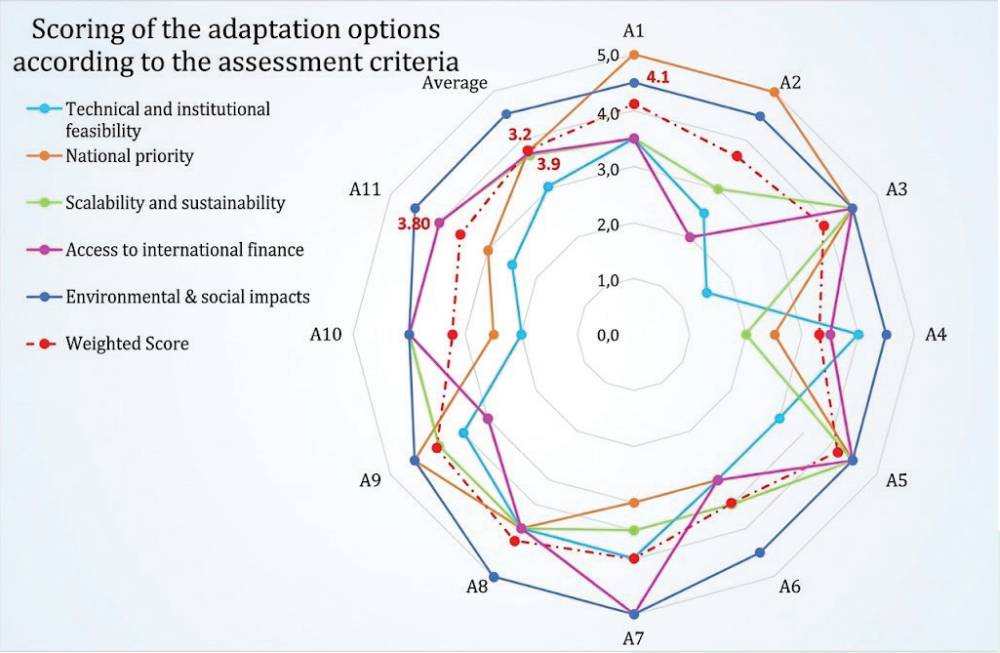


Figure 5: Scoring of the adaptation options according to the selected assessment criteria

The red dashed line represents the total weighted score of the measures according to the selected criteria. The following chart presents the total weighted scores of the adaptation options, normalised to a maximum of 100 (equivalent to a score of 5):



Figure 6: Weighted Score of the adaptation options (maximum score = 100)

The priority adaptation options are those whose total weighted score is above the mean. In this case, 6 adaptation options are selected, as shown in the following table:

Table 12: Prioritised adaptation options

Measure	Specific Targets
A1: Ecosystem-Based Groundwater Recharge and Protection Initiative	• More than 15% recharge volume; • 25,000 ha restored; • Unsustainable extraction reduced to <30%.
A3: Climate-Smart Crop Diversification and Risk Reduction Program	• 50,000 ha under CSA; • 10,000 farmers reached.
A5: DERR-C: Dryland Ecosystem Restoration Corridors	• 80,000 ha. restored; • 12 corridors operational.
A7: ReBECLE: Resilient Blue Economy for Coastal Communities	• 5,000 ha marine areas restored; • 200,000 people reached.
A8: NAICP: National Adaptation Intelligence and Coordination Platform	• 100% of regions with climate risk maps; • 6 sectors integrated.
A9: CIDSS: Climate Risk Intelligence and Decision-Support System	• Fully operational portal; • Early warning linked to health/agri sectors.

5- Proposed projects for the GCF pipeline

5.1- Screening methodology

Based on the mitigation and adaptation options previously identified as a priority for Libya, considering objective criteria specific to the country, the next step is to select a limited number, not exceeding 10 options, for the priority pipeline from the GCF's perspective. According to GCF guidance, the projects should be selected mainly on the following basis:

- Targeting the country's climate change priorities and the most impactful investments in the respective country context, informed by areas of high mitigation potential and adaptation needs, especially for the most vulnerable people and communities;
- Considering projects and programmes with potential for innovation, replication, scale and financial sustainability (paradigm shift), as well as those which deliver integrated mitigation, adaptation, and development and resilient recovery benefit;
- Working with accredited entities to choose from a flexible range of financing instruments offered by the GCF to accelerate climate action and enable greater access and impact, including exploring different ways to apply non-grant instruments (equity, guarantees, loans) where appropriate;
- Incorporating appropriate levels of co-financing whenever possible to maximize the impact of GCF proceeds;
- Potential for private sector investment in climate activities, including engaging local private sector actors, micro, small- and medium size enterprises;
- Consistency with the GCF's investment criteria and risk appetite, noting that the GCF seeks to take educated risks that other funds or institutions are not able or willing to take in order to demonstrate the viability of innovative approaches and deliver scale;
- Identifying where project preparation resources may be required to develop the prioritised projects or programmes.

Source: Country Program Guidance - A guide on developing Country Programs for the Green Climate Fund

Many of these criteria were already used in the preliminary prioritization, hence we propose to focus on few key criteria from the above, namely:

- Potential for paradigm shift (innovation, replication, scale and financial sustainability;
- Impact potential;
- Potential for private sector;
- Needs for preparation resources.

Thus, the same methodology as before is applied, considering the weighting of the criteria as follows:

The four screening criteria used here support national prioritisation; they do not replace assessment against the six GCF investment criteria. Their relationship to those criteria should be documented before the pipeline is finalised.

Table 13: Weight of each criterion for the prioritization methodology of climate options for GCF pipeline selection

Evaluation Criteria	Weight
Potential for paradigm shift	30%
Impact potential	35%
Potential for private sector	20%
Needs for preparation resources	15%
Total	**100%**

5.2- GCF PROJECTS' PIPELINE

5.2.1- GCF MITIGATION PROJECT PIPELINE

To identify priority options for the GCF pipeline, the shortlisted measures were scored according to the above selection criteria, as presented in the following chart.

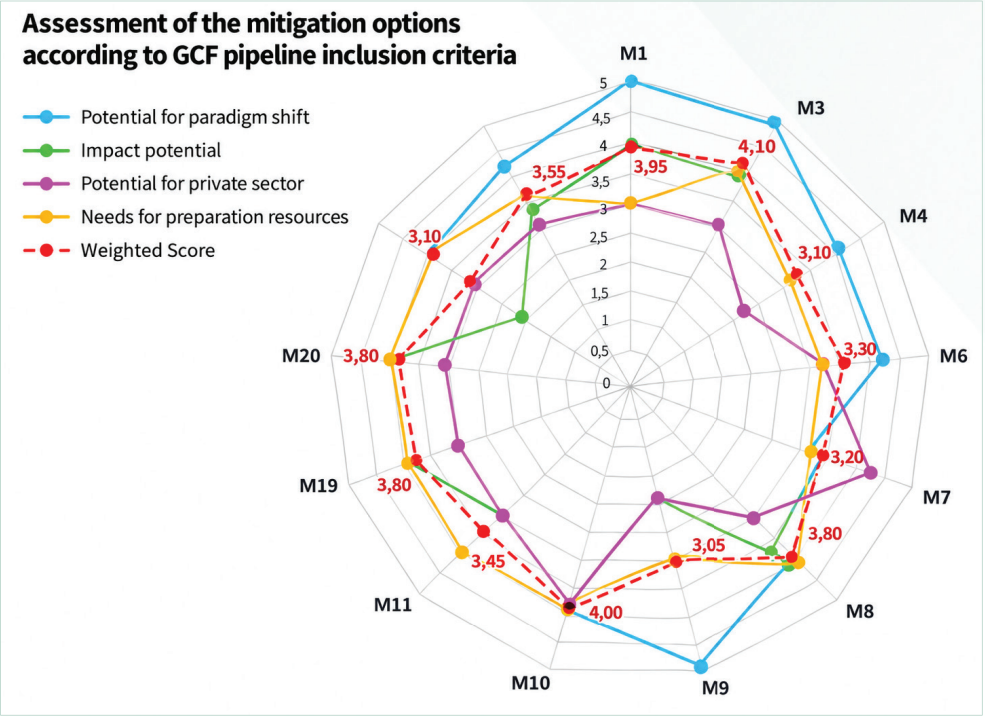


Figure 7: Scoring of the mitigation options according to the assessment criteria for GCF pipeline

The red dashed line represents the total weighted score of the measures according to the selected criteria. The following chart presents the total weighted scores of the mitigation options, normalised to a maximum of 100 (equivalent to a score of 5):

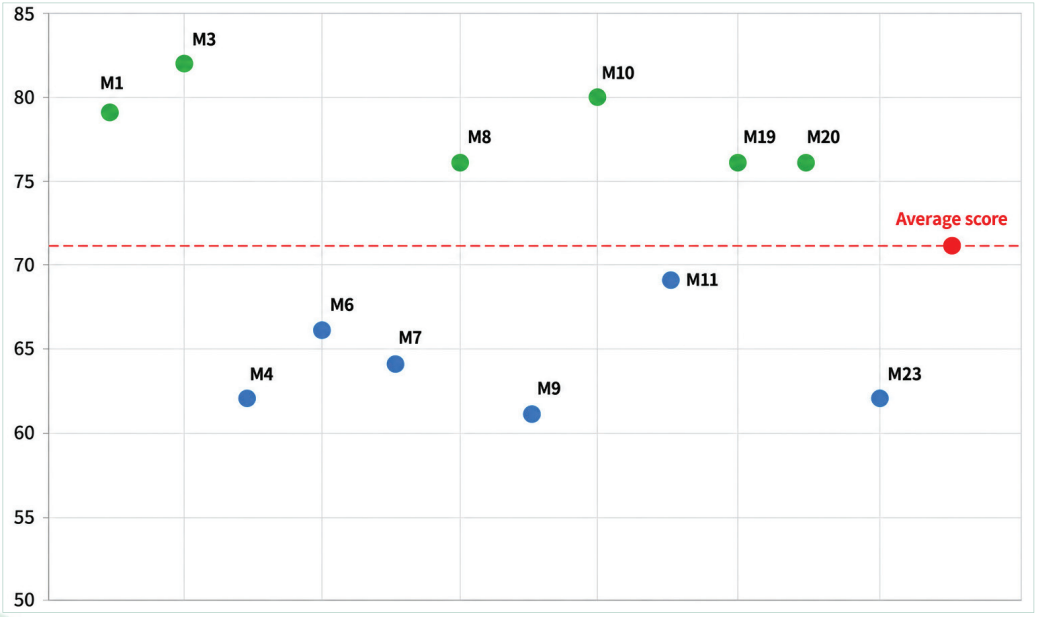


Figure 8: Weighted Score of the mitigation options according to GCF pipeline inclusion criteria (maximum score = 100)

The implementation of this screening methodology made it possible to identify **6 priority mitigation options** for the GCF pipeline, whose total weighted scores are over the average score (71 over 100). These mitigation options are presented in the following table:

Table 14: Selected mitigation options for GCF pipeline

#	Mitigation options
M1	Reducing GHG emissions from flaring at oil and gas in 22 sites + Implementation of an MRV system
M3	Agriculture Sector (Tree planting Program: 10 M trees)
M8	Grid modernization, including upgrades to transmission infrastructure and distribution networks
M10	Increase the share of renewables in electricity production to 22% by 2035 (including PV self-consumption)
M19	Rehabilitation and retrofit of 4 among the largest uncontrolled landfills (Tripoli, Benghazi, Misrata and Sabha) and installation of biogas extraction networks and Flaring utilities
M20	Implementing 4 new sanitary controlled landfills (Tripoli, Benghazi, Misrata and Sabha) with CH4 capture network and power generation utilities

5.2.2- GCF Adaptation Project Pipeline

Applying the methodology presented above to the list of projects shortlisted in the pre-selection process allows the following scoring, as shown by the following chart:

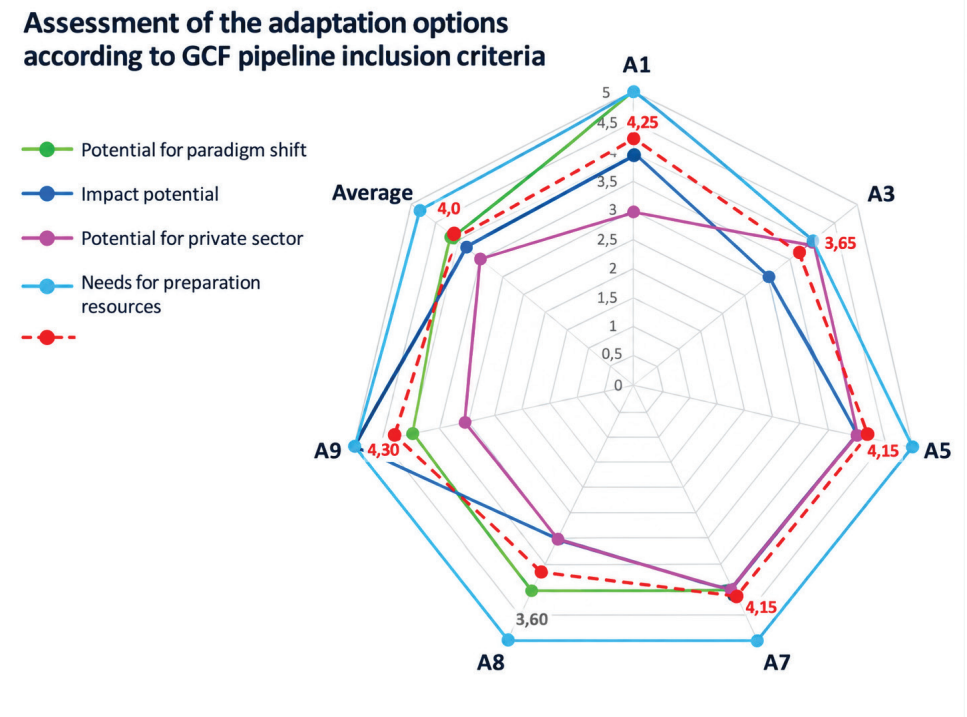


Figure 9: Scoring of the adaptation options according to the assessment criteria for GCF pipeline

The red dashed line represents the total weighted score of the measures according to the selected criteria. The following chart presents the total weighted scores of the adaptation options, normalised to a maximum of 100 (equivalent to a score of 5):



Figure 10: Weighted Score of the adaptation options according to GCF pipeline inclusion criteria (maximum score = 100)

Hence, if we consider the projects with scores above the average, four adaptation options can be selected for the GCF project pipeline:

Table 15: Selected adaptation options for GCF pipeline

#	Adaptation options	Specific Targets
A1	Ecosystem-Based Groundwater Recharge and Protection Initiative	• More than 15% recharge volume; • 25,000 ha restored; • Unsustainable extraction reduced to <30%
A5	DERR-C: Dryland Ecosystem Restoration Corridors	• 80,000 ha. restored; • 12 corridors operational
A7	ReBECLE: Resilient Blue Economy for Coastal Communities	• 5,000 ha marine areas restored; • 200,000 people reached
A9	CIDSS: Climate Risk Intelligence and Decision-Support System	• Fully operational portal; • Early warning linked to health/agri sectors

5.3- GCF PROJECT PIPELINE INFORMATION AS REQUIRED BY GCF COUNTRY PROGRAM GUIDANCE

The following table presents, for each project / programme prioritised; the key data, as required by the GCF Country Program Guidance.

Table 16: GCF project pipeline information as required by GCF country programme guidance

Project name	Type of proposal	Type of Support D'APPUI À LA	Reference base	Total cost MUSD	GCF financing MUSD	Cofinancing	Accredited Entity	Fudiciary Norme	ESS	Date of submission				
										2027	2028	2029	2030	2031
Ecosystem-Based Groundwater Recharge and Protection Initiative	Full Proposal	Feasability Study and ESI study	NDC / NAP	210	120	90	International / regional	On-lending and Blending	Category A					
DERR-C: Dryland Ecosystem and restoration of Corridors	Full Proposal	Feasability Study and ESI study	NDC / NAP	230	100	130	International / regional	On-lending and Blending	Category A					
ReBECLE: Resilient Blue Economy for Coastal Communities	Full Proposal	Feasability Study and ESI study	NDC / NAP	70	60	10	International / regional	On-lending and Blending	Category C					
CIDSS: Climate Risk Intelligence and Decision-Support System	Full Proposal	Feasability Study	NDC / NAP	55	50	5	International / regional	Grant and on-lending	Category C					
Reducing GHG emissions from flaring at oil and gas in 22 sites + Implementation of an MRV system (first phase)	Full Proposal	Feasability Study and ESI study	NDC and NOC strategy	1000	60	940	International	On-lending and/or Blending	Category A					
Tree planting Program of 10 M trees)	Full Proposal	Feasability Study	NDC - Ministry of Agriculture	230	100	130	International / regional	Grant Award & Allocation Mechanisms	Category C					
Grid modernization, including upgrades to transmission infrastructure and distribution networks (partial phase)	Full Proposal	Feasability Study	NDC - Ministry of electricity and GECOL	500	60	440	International	On-lending and Blending	Category A					
Renewables production (PV self-consumption)	Full Proposal	Feasability Study and strategic ESI study	Renewable Energy Strategy by 2035 - NDC	100	30	70	International	Grant Award & Allocation Mechanisms	Category C					
Rehabilitation and retrofit of 4 among the largest uncontrolled landfills (Tripoli, Benghazi, Misrata and Sebha) and installation of biogas extraction networks and Flaring utilities	Full Proposal	Feasability Study and strategic ESI study	NDC	120	70	50	International / regional	On-lending and Blending	Category A					
Implementing 4 new sanitary controlled landfills (Tripoli, Benghazi, Misrata and Sebha) with CH4 capture network and power generation utilities	Full Proposal	Feasability Study and strategic ESI study	NDC	130	50	80	International / regional	On-lending and Blending	Category A					
TOTAL				**2645**	**700**	**1945**								

6- Policy, strategy, planning and institutional needs

6.1- Key barriers

Based on gap analysis, the sustainable development of climate investment in Libya will need to overcome some key barriers related to investment environment, that can be summarised as following:

Table 17: Key barriers related for climate investments

Area	Key barriers
Governance and Institutional and Human capacities	• Weak inter-ministerial coordination, despite existing climate governance structures; • Fragmented interventions and overlapping institutional mandates; • Limited coordination between national and local levels; • Insufficient institutional authority and financial resources; • Limited technical and operational capacities to implement climate policies; • Absence of specific regulation related to CC governance in Libya; • Major capacity gaps in Enhanced Transparency Framework (ETF) and climate policy monitoring and evaluation (M&E), GHG inventories, NDC implementation tracking, Climate finance monitoring and tracking.
Access to climate Finance	• Lack of capacities in financial sector regarding climate change and absence of interest in financing climate-related investments; • Low private sector and domestic financial engagement; • Lack of incentives and tailored green financial instruments; • Weak capacity to assess climate-related financial risks; • No national climate taxonomy; • Limited access to international climate finance (including the GCF).
Knowledge Ecosystem, Communication, and Inclusion	• Weak climate knowledge ecosystem and limited research–policy linkages; • Insufficient involvement of research institutions in climate policy design and implementation; • Fragmented, outdated, and poorly accessible climate data; • Limited evidence-based decision-making due to data and knowledge gaps; • Limited integration of gender considerations into climate policies and programmes; • Weak climate communication and public awareness; • Insufficient capacity building for public institutions, municipalities, private sector, civil society, and education actors.

Some other specific barriers to mitigation and adaptation can be pointed:

- For mitigation, the Libyan efforts are constrained by the absence of detailed and operational investment plans to support NDC implementation. There is also a lack of regional low-carbon development strategies, which limits the territorial anchoring of mitigation actions. Institutional arrangements for developing and maintaining GHG inventories across key IPCC sectors (energy, agriculture, industrial processes, and waste) remain weak or lowly-operational. In addition, technical capacities related to modelling mitigation scenarios, preparing inventories, and meeting transparency requirements are insufficient;

- For adaptation, despite the recent NAP development, adaptation policy frameworks are not adequately aligned with climate risks. Existing regulations in areas such as environmental protection, water resource management, coastal zone management, and land use planning do not sufficiently integrate climate change considerations. There is no operational national observatory dedicated to monitoring vulnerable coastal zones. Research institutions are not sufficiently engaged in supporting adaptation efforts, and comprehensive regional adaptation strategies are lacking;
- Moreover, significant gaps exist in climate risk assessment and information systems. There is no comprehensive climate risk mapping across sectors, limiting the ability to prioritize interventions. Libya also lacks a functional multi-hazard early warning system covering risks such as floods and wildfires. Technology needs for adaptation are not clearly identified, and there is limited capacity to assess loss and damage or to quantify climate risks in economic terms.

6.2- Support needs

Based on the above gap analysis, the support needs to Libyan stakeholders, over the next 5 years, can be structured around three main components:

- Cross-cutting actions;
- Specific mitigation related actions;
- Specific adaptation related actions.h

6.2.1- Cross-cutting actions

The cross-cutting actions identified to support Libyan actors for climate investment development are structured in five components, as follows

Table 18: Cross-cutting actions identified to support Libyan climate investments

Component	Measures
1. Governance and Institutional capacities	• **Measure 1.1:** Develop and publish a Climate Change (CC) Law in Libya that would clarify mandates, establish the legal, institutional, and financial framework to guide mitigation, adaptation, and climate governance; • **Measure 1.2:** Strengthen climate change coordination by sestablishing a national mechanism that guide the work of the National Climate Change Committee (NCCC) and its Executive Office (EO-NCCC). This mechanism aims at ensuring coherent implementation of mitigation and adaptation measures across ministries and municipalities; • **Measure 1.3:** Establish and operationalize climate units within sectoral ministries (Economy and planning, Finance, Infrastructure and works, social affairs, local affairs, etc.) to integrate climate priorities into sectoral planning and budgeting; • **Measure 1.4:** Develop and implement high level capacity building program for NCCC / EO-NCCC as well as sectoral climate units in key Ministries and develop a three-year action plan articulating a clear vision for the NCCC and EO work; • **Measure 1.5:** Enhance municipal-level capacities to prepare and implement Local Climate Action Plans, including mitigation and adaptation.

Component	Measures
2. Support the implementation and operationalization of the ETF	• **Measure 2.1:** Develop and implement a capacity building program on Enhanced Transparency Framework for key stakeholders, particularly the NCCC/EO-NCCC and the climate change units in the ministries; • **Measure 2.2:** Develop national MRV/MEL digital platform integrating mitigation, adaptation and finance flow indicators and set up national protocols for data sharing; • **Measure 2.3:** Assistance to the Ministry of Environment and NCCC to prepare the first and second biennial transparency reports (BTRs); • **Measure 2.4:** Assistance to the Ministry of Environment and NCCC to prepare the first and second national communication.
3. Knowledge Ecosystem, communication, Gender & Social Inclusion	• **Measure 3.1:** Establish a National Climate Knowledge Hub integrating MRV/MEL data and research outputs; • **Measure 3.2:** Develop a National Climate Information and Communication Platform linked to the Climate Knowledge Hub to disseminate climate data, reports and dashboards; • **Measure 3.3:** Develop research and training programs with universities research centres on climate change oriented to Libyan context and promote regional/south-south cooperation and knowledge exchange with Arab and African institutions; • **Measure 3.4:** Develop tools and guidelines to mainstream gender-responsive climate action in NDC implementation and specific program for youth climate innovation and climate education initiatives; • **Measure 3.5:** Develop and implement a National Climate Communication Strategy supporting NDC implementation, transparency reporting and public awareness; • **Measure 3.6:** Develop and implement technical assistance program to municipalities and civil society on climate awareness and communication.
4. Upgrading the financial sector to support the development of sustainable finance in Libya	• **Measure 4.1:** Develop and publish a national sustainable finance roadmap, for financial sector including climate change taxonomy, governance, risk management, data, disclosure, aligned with existing financial sector modernization agenda; • **Measure 4.2:** Develop a strategy and action plan for carbon market related to Paris Agreement Article 6, in Libya; • **Measure 4.3:** Develop and implement technical assistance and capacity-building program for Ministry of finance, Central Bank, market regulators and financial institutions on climate risk management and sustainable finance (including Islamic finance); • **Measure 4.4:** Develop and implement a capacity-building program for climate finance practitioners in banks / insurers / markets / investment funds (risk, products, MRV); • **Measure 4.5:** Support the accreditation of at least one Direct Access Entity (DAE) in order to facilitate the development of projects to be submitted to GCF.
5. Directing financial resources towards climate projects	• **Measure 5.1:** Enhance the capacities of Libyan Environment Protection Fund (LEPF) on climate finance and develop a 3-year action plan for the fund; • **Measure 5.2:** Establish refinancing window in local financial institutions for taxonomy-aligned lending (renewables, efficiency, water resilience, MSMEs) with concessional conditions; • **Measure 5.3:** Develop international blended financing facilities (credit lines, equity, grant, guarantee/first-loss) for financial institutions to support the implementation of mitigation and adaptation projects; • **Measure 5.4:** Establish investment rules for climate-aligned private funds (private and public) including governance, valuation, custody, and ESG disclosures, with fiscal advantages for this type of funds; • **Measure 5.5:** Initiate the process for a climate-sensitive public budgeting approach by setting up a climate tagging system and test it on pilot sector. Set up procedures to identify and follow up climate finance flows.

6.2.2- Specific mitigation and adaptation related actions

Table 19: Identified specific actions identified related to mitigation and adaptation investments

Component	Measures
6. *Specific transparency system related to mitigation*	• **Measure 6.1:** Set up and operationalize formal sectoral groups for data collection and development of annual GHG inventories respecting the IPCC methodologies; • **Measure 6.2:** Develop and implement a training program for key stakeholders on the assessment and monitoring of GHG mitigation within the framework of the NDC. This will target particularly the NCCC, the EO-NCCC, the ministry of environment and the mitigation sectoral groups. It will include top down and bottom-up methodologies, the decomposition methods, etc, in respect with decision, 18/CMA.1, 5/CMA.3, 6/CMA.3, etc.; • **Measure 6.3:** Create an energy observatory with the responsibility to develop and implement information system allowing to produce detailed energy balance and energy and GHG indicators. This is needed to prepare more easily GHG inventories preparation in the energy sector; • **Measure 6.4:** Develop and implement bottom-up information systems in key sectors that allow to assess and follow up the impact of mitigation measures, as required by the MPGs.
7. *Enhance capacities and develop GHG mitigation strategies and action plans*	• **Measure 7.1:** Develop and implement a capacity building program of energy sector group and related institutions on long term GHG forecast including the use of the energy demand and GHG emission modelling tools and GHG Marginal Abatement Cost, etc.; • **Measure 7.2:** Develop and implement a capacity building program of waste, AFOLU and Industry process sectoral groups and related institutions on modelling methodologies and tools on long term GHG emission; • **Measure 7.3:** Develop a low carbon strategy for energy sector including EE, RE, flared gas recovery in oil and gas fields by 2050 in optic of net zero emission by 2050; • **Measure 7.4:** Develop a net zero carbon strategy for Libya by 2050 including all emission sectors; • **Measure 7.5:** Develop midterm action plan and investment plan for mitigation component of the NDC; • **Measure 7.6:** Develop a pilot Net Zero emission strategy for a large municipality.
8. Institutional and human capacity building of adaptation governance system	• **Measure 8.1:** Set up a national mechanism for establishing research priorities in term of climate adaptation in partnership with universities and research centres; • **Measure 8.2:** Establish an observatory for monitoring the coastline and equip it with the necessary technical and logistical resources; • **Measure 8.3:** Set up a national mechanism to follow up the implementation on the Libyan NAP; • **Measure 8.4:** Analyse and update the regulation related to environmental protection, water resources management, coast management and agricultural and land use, to take into account climate risks and strengthen climate action to address them; • **Measure 8.5:** Develop and implement a coordination mechanism for adaptation, involving key stakeholders from each sector, aligned with National Adaptation Intelligence and Coordination Platform (NAICP) and the Climate Risk Intelligence and Decision-Support System (CIDSS) to support data management in alignment with ETF; • **Measure 8.6:** Develop a pilot climate change adaptation strategy and action plan for a large municipality to be identified, taking into account the Libyan social protection strategy.
9. Knowledge Ecosystem and communication for adaptation	• **Measure 9.1:** Develop spatialised climate modelling for Libya providing long-term projections of temperature and precipitation, based on IPCC scenarios; • **Measure 9.2:** Develop a climate risk and vulnerability mapping based on a GIS tool to support the NAP and NDC implementation; • **Measure 9.3:** Develop and implement a national capacity building for Loss and Damage assessment; • **Measure 9.4:** Carry out a study to evaluate the vulnerability and cost of inaction in key sectors (coast, water resources, infrastructure, agriculture and ecosystem); • **Measure 9.5:** Implement multi-hazard Early Warning Systems (EWS) (floods, forest fires, etc.); • **Measure 9.6:** Develop and implement climate change adaptation R&D program, based on national priority and key vulnerability of the country; • **Measure 9.7:** Assess needs related to technology transfer for implementing climate change adaptation priorities.

6.3- GCF Readiness programme proposal

To bridge the gaps hindering the implementation of its climate program and to create a sustainable enabling environment for its climate action, Libya will need GCF support to increase the readiness of the key public and private stakeholders. The total required budget for the readiness program on the period 2027-2031 is estimated at approximately 7 million USD, and planned as follows:

Table 20: GCF Readiness programme proposed for the period 2027-2031

READINESS REQUEST	DESCRIPTION	ESTIMATED COST (USD)	GCF FINANCING (USD)	COFINANCING (USD)	DELIVERY PARTNER	SUPPORTING INSTITUTIONS	ESTIMATED SUBMISSION				
							2027	2028	2029	2030	2031
1. Governance and Institutional capacities	Establish an effective climate change governance that allows sustainable integration of climate requirements into sectoral policies and territorial priorities	500 000	450 000	50 000	Ministry of Environment	NCCC - Ministry of local Government					
2. Support the implementation and operationalization of the ETF	Build a robust national climate data and transparency system aligned with the Paris Agreement Enhanced Transparency Framework	750 000	675 000	75 000	Ministry of Environment	NCCC					
3. Knowledge Ecosystem, communication, Gender & Social Inclusion	Build an inclusive climate knowledge ecosystem supporting research, innovation, gender equality and citizen engagement	775 000	700 000	75 000	Ministry of Environment	NCCC - Ministries of Higher Education and Research - Local Government					
4. Upgrading the financial sector to support the development of sustainable finance	Enhance the institutional and human capacities of the financial sector with the aim to support climate change actions in Libya	675 000	600 000	75 000	Ministry of Finance	Ministry of Environment - Central Bank					
5. Directing financial resources towards climate projects	Develop financial resources to finance climate change adaptation and mitigation projects	550 000	500 000	50 000	Ministry of Finance	Ministry of Environment - Central Bank - Ministry of Planning					
6. Specific transparency system related to mitigation	Enhance the transparency of data reliability, and decision-making support capacity fort the Libyan mitigation action	450 000	400 000	50 000	Ministry of Environment	NCCC - Ministry of Electricity - Ministry of oil & Gas					
7. Enhance capacities and develop GHG mitigation strategies and action plans	Enhance the capacity of Libyan key stakeholders in developing mitigation strategies and action plans that are consistent with sectoral priorities	1 000 000	900 000	100 000	Ministry of Environment	NCCC - Ministries of Electricity - oil & Gas - Planning - Local Government					
8. Institutional and human capacity building of adaptation governance system	Strengthening regulatory and institutional framework as well as climate action at local level	1 025 000	925 000	100 000	Ministry of Environment	NCCC- Ministry of Agriculture - Ministry of Local Government - Ministry of marine resources					
9. Knowledge Ecosystem and communication	Build a robust national climate data and identify priority needs to facilitate implementation of CC adaptation projects and initiatives	1 275 000	1 100 000	175 000	Ministry of Environment	NCCC- Libyan National Meteorological Centre - Libyan Civil Defence Authority - Ministry of Agriculture					
TOTAL		**7 000 000**	**6 250 000**	**750 000**							

7- Multi-stakeholder engagement process

The development of Libya's GCF Country Program is conceived as a country-driven, inclusive and iterative process aimed at translating national climate and development priorities into a coherent and investable portfolio of programmes and projects. Under the leadership of Libya's National Designated Authority to the Green Climate Fund, the process provides a structured framework for stakeholder participation throughout the full programming cycle, from the identification and prioritisation of climate needs to project pipeline development, monitoring of implementation progress and periodic updating of the Country Program. This approach is intended to ensure consistency with the GCF principle of country ownership while strengthening alignment with Libya's NDC and NAP, national development priorities and relevant sectoral strategies.

The stakeholder engagement process should combine high-level strategic dialogue with sectoral technical consultations, institutional interviews, thematic working sessions and subnational engagement.

high-level strategic dialogue: At the strategic level, particular emphasis should be placed on supporting the National Committee on Climate Change and its Executive Office as the central mechanisms for cross-government climate coordination. Their strengthened involvement is essential for ensuring coherence across ministries, resolving overlapping mandates, facilitating inter-sectoral prioritisation and linking the GCF Country Program with Libya's broader climate policy architecture. Targeted institutional support should therefore reinforce the NCCC and EO-NCCC in relation to coordination procedures, technical review of investment priorities, inter-ministerial information exchange, monitoring of climate actions and strategic oversight of the national climate finance pipeline.

Sectors engagement: At the sectoral level, the process should systematically engage climate change focal points and relevant technical departments within ministries and public institutions responsible for water, agriculture and food security, energy and electricity, oil and gas, transport, industry, environment, health, urban development, local government, planning and finance. Strengthening these sectoral focal points is a key condition for improving the quality and sustainability of Libya's GCF programming process. Their role should extend beyond participation in consultations to include the identification of climate risks and investment needs, contribution of sector data, preparation and screening of project concepts, coordination with implementing institutions, and monitoring of sector-level results. Capacity development should consequently focus on climate rationale, project cycle management, economic and financial analysis, GCF investment criteria, environmental and social safeguards, gender responsiveness and results-based monitoring.

Libyan Direct Access Entities support: The engagement process should also contribute to strengthening Libya's national climate finance architecture and expanding direct access to GCF resources. A strategic priority should be to identify, assess and support one or more potential Libyan Direct Access Entities (DAEs). Three institutions are potentially candidates for support towards GCF accreditation:

- Renewable Energy Authority of Libya (REAOL);
- Libyan Environmental Protection Fund (LEPF);
- Libyan Centre for Studies and Research in Environmental Science & Technology (LCEST).

This requires structured institutional screening, accreditation gap assessments and tailored readiness roadmaps addressing fiduciary standards, governance, environmental and social safeguards, gender requirements, project management systems and institutional track records. The objective is to progressively establish nationally anchored entities capable of developing and managing GCF-financed operations and sustaining a domestic climate investment pipeline. This effort should be closely linked to the NDA's project prioritisation and no-objection procedures to ensure transparency, national endorsement and consistency with Country Program priorities.

Local financial sector engagement: A stronger contribution from the domestic financial sector is equally critical. Commercial banks, specialised financial institutions, investment funds, insurance companies and relevant financial authorities should be engaged in dedicated climate finance dialogues to identify barriers to climate lending and investment. The process should support financial institutions in integrating climate-related risks and opportunities into decision-making, developing green financial products and participating in blended finance structures. Potential instruments may include concessional credit lines, guarantees, first-

loss mechanisms, co-investment facilities, project preparation support and other risk-sharing arrangements capable of mobilising domestic and international private capital. Strengthening the financial sector's participation is essential for moving from a predominantly project- and grant-based model toward a scalable climate investment ecosystem.

Scientific research engagement: Scientific research institutions, universities, technical centres and knowledge providers should form another integral pillar of the engagement framework. Their participation is required to strengthen the evidence base underlying GCF investments, including climate projections, vulnerability and risk assessments, territorial and sectoral mapping, economic valuation of climate impacts, technology needs and measurement of loss and damage. The Country Program process should therefore promote structured interfaces between scientific institutions, policymakers, municipalities, project developers and financiers. A national mechanism for climate knowledge sharing and information exchange would help consolidate fragmented datasets, improve access to climate information and ensure that project prioritisation is informed by the best available evidence.

Vertical dialogue: Subnational engagement should be progressively institutionalised through the active involvement of municipalities and local authorities. Given the spatial diversity of Libya's climate risks—including water scarcity, extreme heat, flooding, coastal erosion, ecosystem degradation and urban infrastructure vulnerability—local actors are essential for identifying context-specific investment needs and ensuring effective implementation. Regional consultations and municipal climate investment assessments should be used to identify priority interventions, strengthen local project ownership and aggregate smaller initiatives into larger programmatic approaches capable of reaching the scale expected by the GCF. Particular attention should be given to municipalities with high climate vulnerability and limited institutional and financial capacity.

International cooperation: The Country Program process should further serve as a platform for structured engagement with international development partners, including multilateral development banks, bilateral cooperation agencies, UN organisations, international financial institutions and climate funds. Strengthening Libya's attractiveness to international partners requires a transparent and nationally endorsed pipeline, clearer articulation of financing gaps, credible implementation arrangements and early identification of co-financing opportunities. Periodic climate investment dialogues or roundtables should therefore be organised to present priority programmes, match investment needs with partner mandates, mobilise project preparation resources and structure blended financing packages. Such coordination would reduce fragmentation among external interventions and improve the strategic alignment of international support with Libya's national climate priorities.

Monitoring, Review and Adaptive Updating of the GCF Country Program: For monitoring and periodic updating, the NDA should establish a structured Country Program review mechanism supported by the NCCC, EO-NCCC, sectoral focal points and relevant implementing partners. The review should assess progress in pipeline development, project preparation, GCF submissions and approvals, mobilisation of co-financing, implementation performance and contribution to national climate objectives. A concise results framework and portfolio dashboard should track the status of priority investments, institutional bottlenecks, emerging financing opportunities and changes in climate risk. The Country Program should be updated periodically—and when major policy, scientific or financing developments justify revision—through renewed stakeholder consultations and transparent reprioritisation of the pipeline.

Through this institutionalised multi-stakeholder process, Libya's GCF Country Program can evolve from a static planning document into a dynamic national climate investment framework. Its effectiveness will depend on reinforcing the NCCC and EO-NCCC, empowering sectoral climate focal points, developing national Direct Access capacity, mobilising the financial sector, integrating scientific knowledge, involving municipalities and creating a credible platform for international donor and investor engagement. Together, these elements can strengthen country ownership, improve investment readiness and position Libya to mobilise GCF resources and complementary climate finance at greater scale.

The following matrix summarise operational stakeholder engagement required to implement and monitor the Libyan GCF Country Program. It links institutional roles with concrete engagement mechanisms, expected outputs and priority capacity-building needs.

Table 21: Matrix of operational stakeholder engagement required to implement and monitor the Libyan GCF Country Program

Stakeholder group	Role in the GCF Country Program	Engagement mechanism	Indicative frequency	Expected outputs	Priority capacity-building / support needs
National Designated Authority (NDA)	Lead national GCF programming; ensure country ownership; coordinate pipeline prioritisation; manage interface with GCF; oversee no-objection process	Strategic steering meetings; bilateral consultations; pipeline review sessions; annual programming dialogue	Continuous; quarterly pipeline reviews; annual strategic review	Updated Country Program; prioritised pipeline; transparent project screening; no-objection decisions; GCF engagement plan	GCF procedures; portfolio management; project screening; climate finance tracking; monitoring and reporting; coordination systems
National Committee on Climate Change (NCCC)	Provide high-level strategic oversight; ensure inter-ministerial coherence; align Country Program with NDC, NAP and development priorities	High-level climate investment sessions; inter-ministerial reviews; validation workshops	At least semi-annually and at major programming milestones	Strategic endorsement of priorities; resolution of cross-sector bottlenecks; improved policy coherence	Strengthened mandate; governance procedures; climate investment prioritisation; inter-ministerial coordination; results oversight
Executive Office of the NCCC (EO-NCCC)	Provide technical coordination and operational follow-up; support NCCC decisions; consolidate sector inputs; monitor climate programming	Technical coordination meetings; portfolio reviews; thematic working groups; digital information exchange	Monthly or quarterly depending on pipeline activity	Consolidated technical inputs; portfolio dashboard; follow-up of NCCC decisions; cross-sector coordination notes	Permanent technical capacity; data management; climate finance expertise; project pipeline management; M&E systems; coordination protocols
Climate change sectoral focal points	Identify sector climate risks and investment needs; originate project concepts; provide sector data; monitor results	Sector working groups; focal-point network; technical clinics; project concept workshops	Quarterly and according to project cycle	Sector investment priorities; concept notes; sector data; progress reports; identified implementation constraints	Climate rationale; GCF investment criteria; project formulation; economic analysis; safeguards; gender; MRV/M&E
Line ministries and public agencies	Ensure sector ownership; integrate climate investment into public policies and budgets; provide implementation leadership	Bilateral consultations; sector investment dialogues; technical review committees	Semi-annual plus project-specific engagement	Policy-aligned investment proposals; implementation arrangements; sector co-financing commitments	Climate mainstreaming; investment planning; project preparation; procurement; financial management
Potential Libyan Direct Access Entities (DAEs)	Develop direct national access to GCF resources; originate and manage programmes; strengthen national implementation ownership	Institutional screening; accreditation gap assessments; tailored readiness programmes; peer learning	Intensive multi-year process with quarterly follow-up	DAE candidate shortlist; accreditation roadmap; strengthened institutional systems; accreditation applications	Fiduciary standards; ESS; gender; governance; AML/CFT; project management; results management; track record documentation
Commercial banks and specialised financial institutions	Finance climate investments; develop green lending products; participate in blended finance; mobilise private capital	Climate finance roundtables; banking working groups; transaction workshops; pipeline matchmaking	Quarterly or semi-annually	Green credit products; co-financing structures; investable project pipeline; increased domestic climate lending	Climate risk assessment; green taxonomy approaches; project appraisal; climate-related financial risk; blended finance
Central and financial regulatory authorities	Create enabling conditions for green finance; promote climate risk integration; strengthen market standards	Policy dialogues; regulatory working groups; technical assistance	Semi-annually	Climate finance roadmap; enabling regulatory measures; improved financial-sector participation	Climate-related financial risk; disclosure frameworks; green classification systems; supervisory approaches

Stakeholder group	Role in the GCF Country Program	Engagement mechanism	Indicative frequency	Expected outputs	Priority capacity-building / support needs
Investment funds, insurance actors and private investors	Provide equity, guarantees, insurance and risk mitigation; mobilise institutional capital	Investor forums; deal rooms; project-specific structuring sessions	Semi-annually and transaction-based	Risk-sharing mechanisms; co-investment opportunities; climate insurance solutions	Climate investment appraisal; risk pricing; innovative finance; project structuring
Universities and scientific research institutions	Generate climate evidence; support risk assessment; provide projections, vulnerability analysis and economic valuation	Science-policy platform; research-policy dialogues; technical peer review; data-sharing protocols	Quarterly thematic exchanges; annual science-policy forum	Improved climate evidence; vulnerability maps; sector studies; research inputs to investment design	Climate modelling; applied risk assessment; economic valuation; data infrastructure; international research partnerships
Technical centres and knowledge providers	Translate scientific evidence into operational tools; support technology assessment and project preparation	Technical working groups; expert panels; knowledge-sharing events	According to thematic needs	Technology assessments; technical standards; decision-support tools; lessons learned	Technology needs assessment; climate-proofing methodologies; knowledge management
Municipalities and local authorities	Identify territorial vulnerabilities and investment needs; support implementation; ensure local ownership	Regional consultations; municipal investment clinics; vulnerability workshops; city-to-city peer exchange	At least annual regional consultations plus project-specific engagement	Municipal climate investment priorities; local project concepts; aggregated programmes; stronger territorial ownership	Local climate planning; project preparation; procurement; financial management; vulnerability assessment; M&E
Civil society organisations and community-based organisations	Represent vulnerable groups; contribute local knowledge; support social accountability and inclusive implementation	Public consultations; focus groups; participatory assessments; grievance and feedback mechanisms	At key programming and project milestones	More inclusive project design; identification of vulnerable groups; improved social legitimacy	GCF awareness; participatory monitoring; safeguards; gender and social inclusion
Women's and youth organisations	Ensure gender-responsive and intergenerational perspectives; identify differentiated vulnerabilities and opportunities	Dedicated focus groups; representation in thematic consultations; targeted innovation dialogues	At programming reviews and project design stages	Gender-responsive priorities; youth-led solutions; stronger inclusion	Climate leadership; project development; entrepreneurship; participation mechanisms
Private sector and business associations	Identify commercially viable climate opportunities; invest and co-finance; support technology deployment	Private-sector climate investment forum; sector roundtables; PPP dialogues	Semi-annually	Private investment pipeline; PPP concepts; co-financing commitments; market intelligence	Bankability; climate finance instruments; GCF Private Sector Facility opportunities; ESG and climate risk
International donors and bilateral partners	Provide grants, technical assistance, project preparation and co-financing; complement GCF resources	Development partner coordination group; climate investment roundtables; bilateral pipeline reviews	Semi-annually; annual high-level forum	Coordinated support; co-financing commitments; reduced duplication; project preparation resources	Improved national coordination interface; transparent pipeline information; financing-gap analysis
GCF Accredited Entities potentially active in Libya	Develop and submit GCF funding proposals; support project preparation and implementation	AE–NDA pipeline dialogues; concept development clinics; portfolio review meetings	Quarterly or according to pipeline maturity	Concept notes; PPF requests; funding proposals; implementation partnerships	Stronger national presence; local partnerships; alignment with NDA priorities; pipeline transparency

READINESS LIBYA II PROJECT

Enhancing institutional, human and technical capacity of libya system for climate finance

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