



ADAPTATION FUND

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Adaptation Fund Board
Project and Programme Review Committee
Thirty-eighth Meeting
Bonn, Germany

PROPOSAL FOR LARGE INNOVATION PROJECT FOR LIBYA



ADAPTATION FUND

**ADAPTATION FUND BOARD SECRETARIAT
TECHNICAL REVIEW OF PROJECT PROPOSAL FOR
"INNOVATION ECOSYSTEMS FOR CLIMATE ADAPTATION IN LIBYA"**

Project Title Innovation Ecosystems for Climate Adaptation in Libya

Project ID AF00000551

Category Innovation large project

Type Single country project

Stage Concept

Country Libya

Implementing Entity UNDP

Financing Requested USD 5,000,000.00

Reviewer Rywon Mayang

Co-reviewer(s)

IE Contact Person

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Secretariat's Overall Comment

The initial technical review raises several issues, such as a lack of clarity on the innovation rationale, gaps in stakeholder consultations and gender considerations, insufficient clarification on duplication and complementarity with ongoing initiatives, alignment with the AF Results Framework, sustainability, and ESP compliance, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review.

A Project Formulation Grant (PFG) of US\$150,000 is requested.

Country Eligibility

Is/are the beneficiary country/countries a developing country/countries Party/Parties to the Kyoto Protocol?

Response: Yes

Secretariat: Libya is a party to both treaties. It acceded to the Kyoto Protocol in 2006 and ratified the Paris Agreement in 2021.

Is the participating country / are all participating countries developing countries particularly vulnerable to the adverse effects of climate change?

Response: Yes

Secretariat: Libya has warmed by 1.85°C over the past fifty years, faster than the global average, with declining rainfall in the north, sea level rise above the global rate along its Mediterranean coast, dangerous heat and humidity projected by mid-century, and over 95% of its territory under desert conditions, concentrating population and water stress in the coastal zone.

Project Eligibility

Has the designated government authority for the Adaptation Fund / Have the governments' designated authorities for the Adaptation Fund endorsed the project?

Response: No

Secretariat: Yes, however additional information is required.

The endorsement letter is signed by the registered Designated Authority. However, it is dated 8 August 2025, more than a year before submission, and names the Environment Protection Fund as the sole executing entity, while the proposal lists three executing entities including the UNDP country office as lead.

CAR 1: Please provide an updated letter of endorsement consistent with the executing arrangements of the current proposal.

Does the project/programme support concrete adaptation actions to assist the country or countries in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience? In case of regional project/programme, is there added value using the regional approach, compared to implementing similar activities in each country individually?

Response: Not Cleared

Secretariat: The project finances concrete adaptation action through a portfolio of 70 piloting micro-grants and 15 acceleration grants addressing water scarcity, coastal flooding and erosion, urban heat, rangeland degradation and drought-affected agriculture, with 30,000 direct beneficiaries expected, delivered through three university-anchored hubs and a Climate Innovation Facility under the Environment Protection Fund. At the level of the activities, however, several elements of the design are inconsistent or unclear.

The design presents one national open call under Activity 3.1, while the scaling strategy describes an innovation funnel beginning with two rounds of calls. (pages 15-16 and 36)

CR 1: Please clarify the number and timing of the funding calls over the four-year period and reconcile the two descriptions.

The Climate Innovation Facility Operations Manual is described as drafted under the PFG, finalised at inception, and separately as developed under Component 2, while it does not appear among the Component 2 deliverables. (pages 14-15)

CR 2: Please set out a single development path for the Manual, indicating under which activity and budget its finalisation falls, and ensure that the same work is not financed under both the PFG and the project.

Component 1 allocates USD 450,000 to a nationwide assessment based on satellite data, national statistics and a review of sectoral innovation readiness. (page 13)

CR 3: Please clarify the methodology and spatial resolution of the assessment and how it will build on the diagnostic work of the National Adaptation Plan process rather than duplicating it.

The innovation call is to be guided by problem statements formulated under Component 1: six regional consultations co-define the problems, which the Hub Advisory Panels and the Climate Innovation Facility then translate into the call, through which 70 grants are awarded in a single round (pages 13, 15). It is unclear how specific these statements will be and how many will be formulated; local knowledge enters their formulation only through the six regional consultations, a narrow basis for capturing community-level demand across the country; and the target of 70 grants is fixed in advance of the call, leaving open how it would be reconciled with

the quality and distribution of the applications received.

CR 4: Please clarify at what level of specificity the problem statements will be formulated, and how the communities facing the vulnerabilities they describe will participate in their definition and validation.

CR 5: Please indicate the anticipated number of problem statements and how the portfolio of 70 grants will be distributed across them and across sectors and regions. Please also clarify how the target of 70 will be reconciled with the quality of the applications received, given that the target is fixed in advance of the call.

The proposal expects at least 300 applications and plans to finance 70 innovations, a selection rate of over 20 per cent. Its own account of the ecosystem describes a nascent and unevenly distributed landscape in which very few incubators have targeted climate adaptation and two climate-relevant startups are identified by name (pages 8-9). The basis on which several hundred credible adaptation innovation proposals are expected to come forward is not shown.

CR 6: Please explain how the targets of 300 applications and 70 financed innovations were estimated, for example from application volumes of the existing entrepreneurship programmes or comparable operations in similar contexts.

Part I presents the components and activities in extended narrative form, including full activity descriptions, the grant operations architecture and the innovation challenge methodology (pages 11-17). This level of detail belongs to section II.A, where the project components are to be described.

CAR 2: Please move the detailed component and activity descriptions to section II.A, and retain in Part I the components and financing table with a concise outline of each component.

Does the project/programme help spread innovative adaptation practices, tools and technologies that have demonstrated success in one country to another country, countries or regions; and/or Does the project/programme pilot at larger scale innovative adaptation practices, tools or technologies generated that have demonstrated viability at a small scale?

Response: Not Cleared

Secretariat: The proposal describes the project as innovative in that it builds a national system that generates and scales locally developed adaptation solutions, through three university-anchored hubs, a Climate Innovation Facility under the Environment Protection Fund, a dedicated screening standard, and a portfolio of piloting and acceleration grants. However, the term innovation is used extensively across the document, and what the project considers innovative beyond this architecture is not clearly conveyed, as a grant facility with open calls, policy engagement and knowledge exchange are common activities in other projects. Some of the solutions financed may well be innovative in the Libyan context. However, the proposal does not describe how their newness would be assessed, the illustrative examples cited are established adaptation measures, and the call is open to a wide range of applicants whose capacity to produce innovative solutions is not shown. On the institutional side, the university centres that would host the hubs are described as largely inactive and unfunded, and the basis for selecting the 200 participants of the capacity-building cycle is not described.

CR 7: Please clarify how the newness of a solution in the Libyan context will be assessed at screening, including the information on which that judgement will rely and who will make it. Please also clarify where the line will be drawn between adapting an external solution to Libyan conditions, which the definition accepts as innovation, and transferring it as it is, which the definition excludes.

CR 8: The term innovation is applied across the document to assessments, capacities, institutions and activities alike. Please strengthen the innovation rationale of the proposal by clearly identifying the elements that are genuinely innovative, and use the term across the document in a manner consistent with that rationale.

CR 9: Please describe the current operational status of the thirteen university-based innovation centres and nine municipal business incubators on which the design rests, including their distribution, staffing, technical expertise, past activities and the reasons for their underperformance, and how the project design responds to those causes.

The project objective refers to revitalizing municipal business incubators, while the components establish hubs at public universities only.

CR 10: Please clarify how the incubators relate to the project.

The proposal describes Libya's innovation ecosystem as fragmented, concentrated in urban centres, and rarely targeting climate adaptation, and the programmes it lists include the Deraya Entrepreneurship Initiative led by UNDP and the UNDP Accelerator Lab (pages 8 and 43).

CR 11: Please explain why establishing new hubs and a new facility was chosen over reorienting these existing programmes toward climate adaptation.

CR 12: Please clarify how the 200 participants of the hub capacity-building cycle will be selected.

Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?

Response: Cleared

Secretariat: The proposal describes economic, social and environmental benefits and provides a beneficiary methodology, estimating 30,000 direct beneficiaries from an assumed reach per piloted and accelerated innovation, with disaggregation targets of 50% women and 30% youth and documented reach to ethnic minority communities. (pages 26-27) At the fully developed proposal stage, please substantiate the per-innovation reach assumptions on the basis of the selected portfolio.

Does the project engage, empower and/or benefit the most vulnerable communities and social groups?

Response: Not Cleared

Secretariat: Each sub project must respond to a documented climate vulnerability faced by specific populations, identified as oasis farming communities, coastal communities, urban populations exposed to extreme heat, women and girls, displaced persons and ethnic minority communities, and must bring those populations into the design and testing of the solution (page 10). Inclusion is among the scoring criteria of the selection committee, and grant recipients are to report quarterly on participation and benefits for women, youth and displaced persons (page 14). These provisions operate grant by grant, and there is no mechanism to ensure that the seventy pilots, taken together, cover the vulnerable groups and regions identified.

CR 13: Please indicate whether the selection will include a mechanism to balance the seventy pilots as a whole across the vulnerable groups and regions identified, for example through thematic or regional windows within the call, minimum shares, or the weighting of the inclusion criterion.

Does the project advance gender equality and the empowerment of women and girls?

Response: Not Cleared

Secretariat: The proposal sets participation targets for women and includes an Initial Gender Plan among the annexes. However, an initial gender assessment of the situation of women in Libya has not been provided, and the assessment is deferred to the project formulation stage.

CAR 3: Please include an initial gender assessment based on the project context in Libya to determine the different needs, capabilities, roles and knowledge resources of women and men, including the barriers women face as innovators and entrepreneurs, and clarify how its results have been incorporated into the project design.

Is the project/programme cost-effective? In the case of regional project/ programmes, does the regional approach support cost effectiveness? Does the project engage, empower and/or benefit the most vulnerable communities and social groups?

Response: Cleared

Secretariat: The proposal presents cost-effectiveness through the use of existing institutions without new construction, per-pilot and per-beneficiary cost reasoning, and the spreading of value across multiple solutions, sectors and regions.(pages 27-30)

Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?

Response: Not Cleared

Secretariat: The proposal sets out its contribution to the National Adaptation Plan process, the first NDC, sub-national development plans and the SDGs (pages 30-31).

CR 14: Please describe its consistency with other relevant national strategies, such as the National Water Security Strategy endorsed in April 2026.

Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?

Response: Not Cleared

Secretariat: The proposal identifies Law No. 15 (2003) on the protection of the environment, ministerial guidelines on pollution and waste, the Digital Transformation Strategy (2023) for the digital components, and the mandates of the Environment Protection Fund, with all pilots to undergo the UNDP social and environmental screening procedure. The instruments identified concern environmental assessment and digital

standards, while the sectors in which the innovations would operate are subject to their own regulatory requirements.

CR 15: Please identify the sectoral laws and technical standards applicable to the intervention domains of the call, such as water abstraction and irrigation, agriculture, and small-scale construction, together with the responsible authorities and how the compliance of the pilots will be ensured.

Is there duplication of project / programme with other funding sources?

Response: Not Cleared

Secretariat: The proposal describes the initiatives operating in Libya, including the UNDP water security and environment projects, GIZ CASEP and SECCAR, the RENEWAL project financed by the Adaptation Fund, BIOFIN, the UNDP Accelerator Lab, the Deraya initiative, the Libya Startup Programme and the national incubators, and differentiates the project from each (pages 33-34). An overview allowing the duplication or complementarity of each initiative to be assessed is not provided. The parallel UNDP Libya LLA project, referred to elsewhere as a coordination platform and as an uptake pathway for the accelerated innovations, is not included in the review.

CR 16: Please present the initiatives in an overview table, including their thematic focus, implementing partners and donors, geographic coverage and duration, and the duplication or complementarity of each with the components of this project.

CR 17: Please include the parallel UNDP Libya LLA project in the duplication review, and delineate its scope against this project, indicating how their geographies, beneficiaries and financing windows will be kept distinct.

Does the project / programme have a learning and knowledge management component to capture and feedback lessons?

Response: Not Cleared

Secretariat: Section I describes an integrated learning framework, including hub learning logs, a national knowledge coordination node hosted at a lead university, a dedicated knowledge management function and quarterly learning briefs, of which only the results dashboard and the compendium appear among the Component 4 activities.

CR 18: Please indicate the activities under which the learning framework will be delivered and resourced.

Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?

Response: Not Cleared

Secretariat: An initial consultative process took place in 2024 and 2025 with institutional stakeholders: a national workshop in May 2024, bilateral consultations with the Ministry of Environment and the Environment Protection Fund that validated the anchoring of the Climate Innovation Facility, and a high-level session with the focal points of the different funds (pages 35-36). However, there is no evidence that prospective beneficiaries

and innovators, or the universities expected to host the hubs, have been consulted, and the annexed consultation document reproduces this description without participant lists, records, or a plan for further consultations.

CAR 4: Please conduct and document consultations with prospective beneficiary groups, innovators and the candidate host universities, including dates, locations, participants disaggregated by sex and stakeholder group, and how the outcomes informed the design.

Is the requested financing justified on the basis of full cost of adaptation reasoning?

Response: Not Cleared

Secretariat: The proposal justifies the requested financing through the urgency of the adaptation gap, what the funding enables under each component, and the cost of inaction (pages 37-38). A delineation between the baseline, what exists and would continue without the project, including the university centres, the Environment Protection Fund and the existing entrepreneurship programmes, and what the requested financing adds, is not provided.

CR 19: Please set out the business-as-usual scenario, delineating what exists and would continue without the project from what the requested financing would add, and indicating what would not occur without it.

Is the project / program aligned with AF's results framework?

Response: Not Cleared

Secretariat: The concept note includes an alignment section that refers to the Fund's updated Strategic Results Framework (2025) and maps the project to Fund Outcomes 8, 7 and 3 with indicative targets and grant amounts. However, the tables do not follow the SRF alignment table template of December 2025: the project objectives and outcomes are mapped in place of the project outcomes and outputs, and project-level indicators are not included. The indicator numbering does not correspond to the updated Strategic Results Framework, and the two levels of the alignment are not consistent with each other — the section refers to Outcome 2, and Fund Outputs 1.1 and 2.1 are used at the output level, while the corresponding Fund Outcomes 1 and 2 do not appear in the outcome-level table. Core Indicator 1, Number of beneficiaries, is also not included.

CAR 5: Please revise the alignment tables following the SRF alignment table template, using the outcome and output indicators of the updated Strategic Results Framework, ensuring that the Fund Outcomes and Fund Outputs correspond across the two levels, and including Core Indicator 1, Number of beneficiaries. Use the following template: <https://www.adaptation-fund.org/document/alignment-with-adaptation-fund-results-framework-template-and-guidance-dec-2025/>

Has the sustainability of the project/programme outcomes been taken into account when designing the project?

Response: Not Cleared

Secretariat: The sustainability of the Facility rests on its transfer to the Environment Protection Fund by Year 4 with a set of financing pathways to be developed during implementation, and the hubs are to remain

operational through host-institution support, while the proposal describes the university innovation centres as lacking operational programmes, equipment and institutional funding (page 10).

CR 20: Please describe the resources through which the host universities would sustain the hubs after Year 4, and the arrangements that would apply should the Environment Protection Fund's follow-on financing pathways not materialise.

CR 21: Please describe how the continuation of the financed innovations after grant support ends has been considered in the project design, including for the piloted innovations that do not proceed to acceleration.

Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?

Response: Not Cleared

Secretariat: The concept note provides an overview of environmental and social risks and preliminarily classifies the project as Category B, acknowledging that the Component 3 grant sites and activities will be determined through the open call rather than at design stage, and commits to an Environmental and Social Management Framework with sub-project screening criteria, an exclusion list and sub-project-level categorisation at the fully developed proposal stage. However, the Checklist of Environmental and Social Principles does not clearly indicate which principles require further assessment, and the identification of risks is combined with descriptions of project approaches and mitigation measures. The principles of Compliance with the Law, Human Rights and Core Labour Rights appear to be screened out, although these principles are universally applicable.

CAR 6: Please revise the Checklist of Environmental and Social Principles to clearly indicate, for each principle, whether further assessment is required, and to focus on the identification of potential risks, with project approaches and mitigation measures detailed in the ESMP at the fully developed proposal stage. Please also note that the principles of Compliance with the Law, Human Rights and Core Labour Rights always apply and cannot be screened out.

Resource Availability

Is the requested project funding within the parameters for large grants set by the Board?

Response: Not Cleared

Secretariat: The requested financing of US\$5,000,000 is within the cap, and the Project Formulation Grant of US\$150,000 corresponds to the amount applicable to projects of this size, itemised across twelve preparation activities with outputs, consultant inputs and budget notes, and an Implementing Entity fee at 8.5 per cent.

CR 22: Please confirm the feasibility of the three-month preparation period (1 November 2026 to 1 February 2027) against the twelve deliverables foreseen, or adjust the period accordingly.

CR 23: Please reconcile the hub selection and the Operations Manual between the PFG and the full project, which currently finance the same deliverables under Activity 2.1 and Component 2.

CAR 7: Please complete the submission date and provide the PFG application form signed by the Implementing Entity Coordinator.

Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project budget before the fee? Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)? For regional projects/programmes, are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 10 per cent of the project/programme for implementing entity (IE) fees and at or below 10 per cent of the project/programme cost for the execution costs?

Response: Not Cleared

Secretariat: The Implementing Entity fee is 8.5% of the total project cost before the fee, and the execution cost is 8.2%, within the 9.5% cap.

As UNDP is the Implementing Entity while its country office is the lead Executing Entity, part of the execution cost as well as the fee would be received by UNDP.

CR 24: Please indicate the entities to which the execution cost would be allocated.

Eligibility of IE

Is the project submitted through an Implementing Entity accredited by the Board?

Response: Not Cleared

Secretariat: Yes. UNDP is an accredited Multilateral Implementing Entity. The accreditation is valid until 10 October 2029.

CAR 8: Please complete the Implementing Entity certification in Part IV of the proposal. (page 48)



SINGLE COUNTRY/ REGIONAL INNOVATION PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: **Innovation Ecosystems for Climate Adaptation in Libya**

Country/ Countries: **State of Libya**

Thematic Focal Area: **Multi**

Type of Implementing Entity: **Multilateral Implementing Entity**

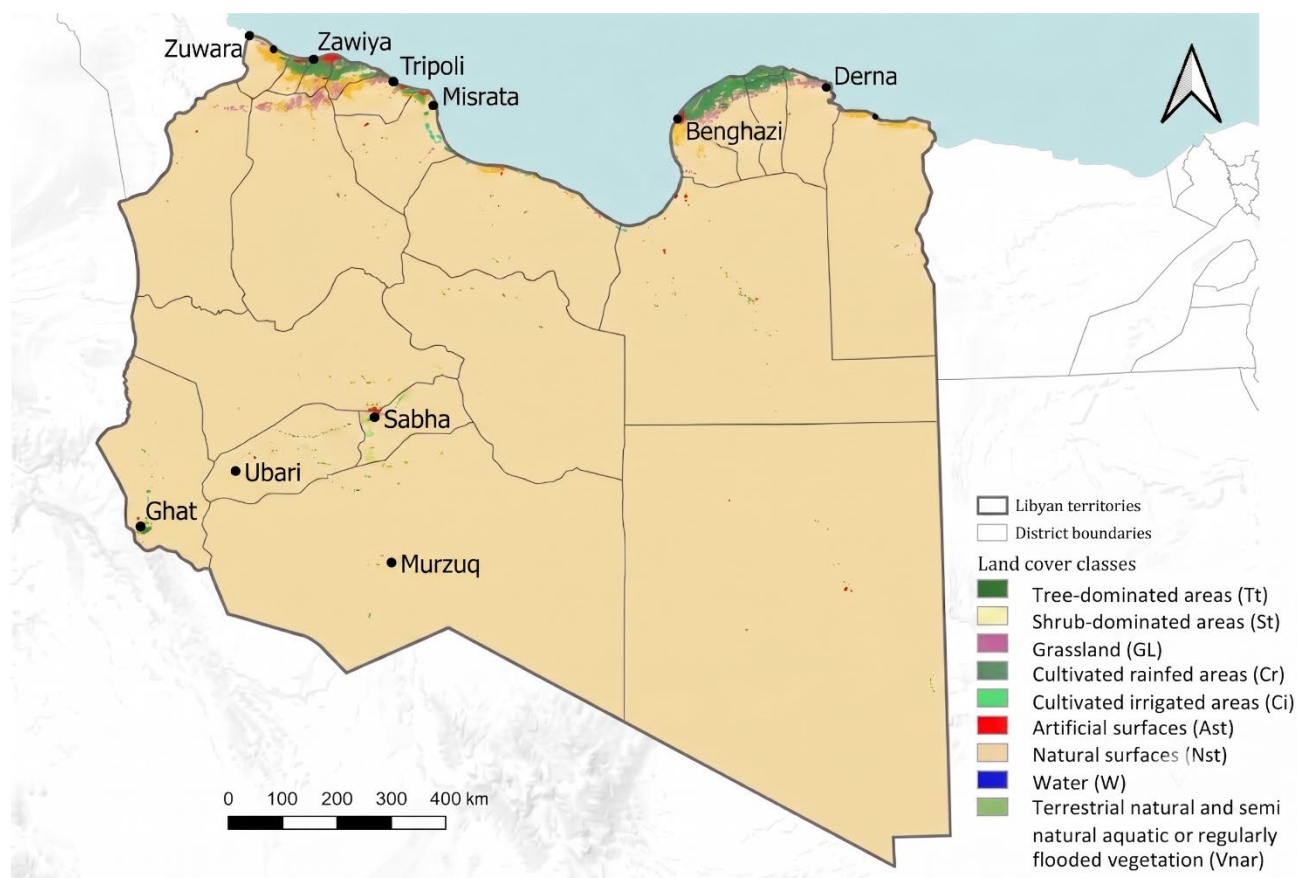
Implementing Entity: **United Nations Development Programme**

Executing Entities: **United Nations Development Programme Libya country office** (*lead executing entity*)

Environment Protection Fund (*executing entity for Climate Innovation Facility*)

Selected public universities (*executing entities for the Adaptation Innovation Hubs, with final selection during full proposal preparation*)

Amount of Financing Requested: **5,000,000** (in U.S Dollars Equivalent)



1

Project / Programme Background and Context:

Situated in the southern Mediterranean, Libya is a large country of some 1.76 million km². The majority of this territory, some 96%, is characterized by desert conditions. Only a small percentage of the territory, including the Jifara Plain near Tripoli and the Marj Plain near Benghazi, receive rainfall sufficient to allow for arable land and only slightly more is suitable for livestock. That stated, Libya continues to operate several large agricultural projects fed by fossil water.

As of 2024, Libya's population numbered 7,381 million² with 81% living in cities, most of whom are located along the coast. The majority of the country's income, some 87%, derive from hydrocarbon sales. As a result, GDP levels tend to vary sharply depending on production levels and the global commodity price. Libya's GDP has fluctuated significantly with hydrocarbon production and prices - from approximately USD 42 billion in 2021 to around USD 50 billion in 2023 (World Bank, World Development Indicators, 2024). Fluctuations in hydrocarbon income, the impact of COVID-19 and the re-occurring conflict have increased the poverty ratio of the population, with some 1.3 million currently considered in poverty.

Politically, although efforts to prepare for national elections are ongoing, Libya remains in a period of transition. Despite the challenges, the Government of National Unity created a National Climate Change Committee constituted in 2021.

Climate trends and projections

Over the past 50 years, air surface temperatures have risen 1.85°C across Libya, a rate faster than the global average³. The warming trend is particularly intense along the mediterranean coastal area which is identified as "a climate hot spot" warming at twice the global rate⁴. Over the next forty years, under moderate scenarios (SSP3-7.0), average Libya surface

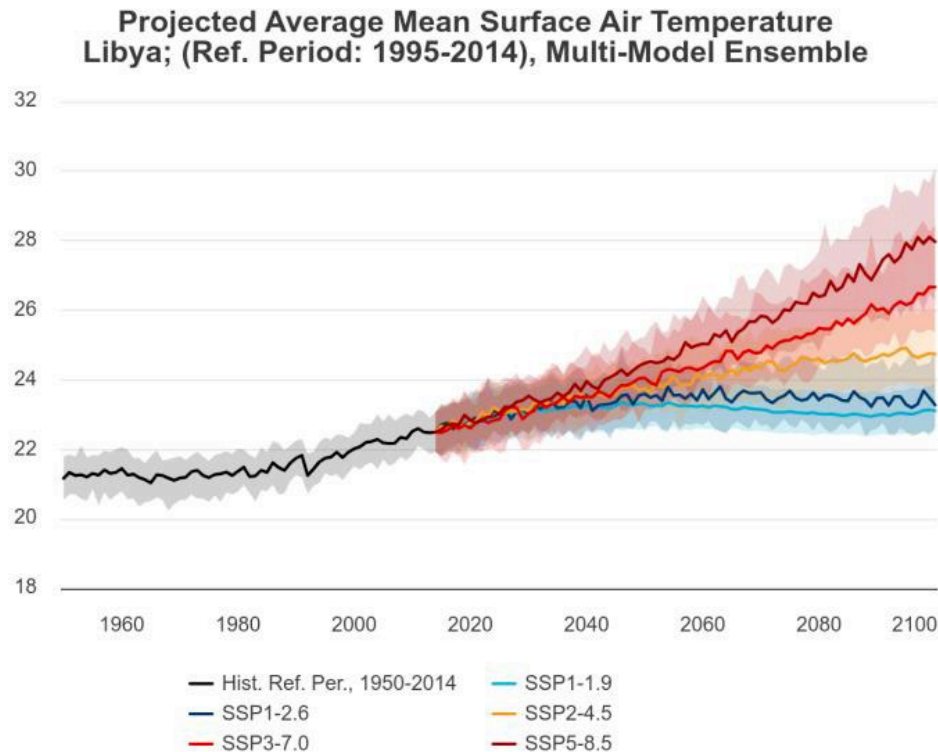
¹ Sources: Administrative boundaries from HDX (Humanitarian Data Exchange). 2023. Libya Data Grid. Libya – Subnational Administrative Boundaries. [Accessed on 23 April 2023]. <https://data.humdata.org/dataset/cod-ab-lby>. License: CC BY-IGO.

² Bureau of Statistics and Census Libya

³ Between 1971 and 2020, Libya's air surface temperature increased 1.85°C (1.9°C - 1.7°C for the average minimum and maximum air surface temperatures, ERA5 dataset), while the global temperature rose by 0.9°C.

⁴ [IPCC AR6 Ch. 9 \(Africa\)](#). Also see [IPCC AR6 cross-chapter 4 \(Mediterranean region\)](#). Similar results are reported in Callaghan et al. (2021). Machine-learning-based evidence and attribution mapping of 100,000 climate impact studies. Nat. Clim. Chang. 11, 966–972, DOI:

temperatures are projected to increase an additional 1.7°C from 22.20°C between 1995-2014 to 23.95°C between 2040-2059⁵. After 2050, warming is projected to continue in all scenarios other than SSP1 (the sustainability pathway), where it stabilises..



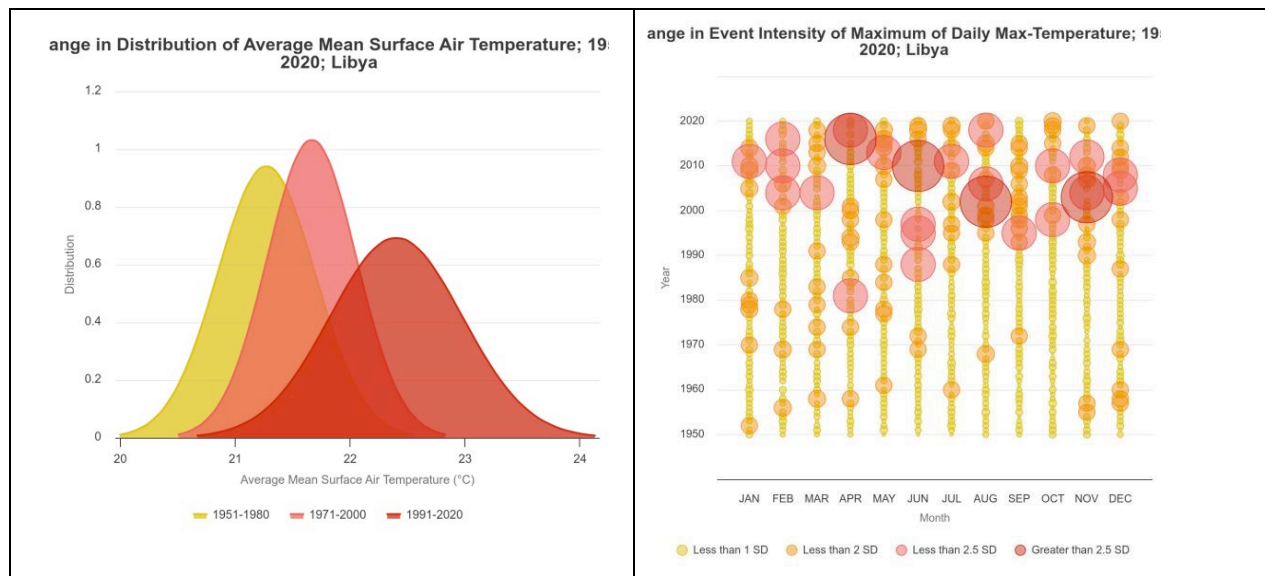
By mid-century (2040-2059), summers will become dangerously hot with average warming of 2.38°C during the hottest month in August (CMIP6 ensemble, SSP3-7.0; the average warming during the coldest month of December will be 1.49°C). As a result, the number of extreme heat days during the summer (>40°C) will double from 5.66 to 11.46 with the average maximum temperature reaching 46.62°C. There will similarly be a fivefold increase in tropical nights (>26°C) from 2.88 days to 14.39 days making sleep difficult without cooling.

Heat will become more dangerous to human health due to increasing humidity. The Heat Index (HI) threshold, which combines the measurement of temperature and humidity, indicates that 32°C is the limit for safety. Each degree above 32°C increases the risk to human health, particularly for vulnerable persons such as the elderly. This increase in humidity is a change for Libya as its climate has typically been arid. In the future, Libya will move from 0.27 days per year with a heat index of 35°C or higher to 5.54 days per year by 2040-2059 after which the trend will increase by 9.13 additional days per decade. There is a high degree of variability by locality with the greatest risk of heat in the northwestern regions. Today, Zuwara has the highest amount of days, 13.68, with a HI >= 35°C while the northeast has the lowest with places like Derna having 0.54 days with HI >= 35°C. Increased heat leads to higher energy demand for cooling while increasing technical losses in electricity during transmission.

Libya's desert conditions have historically produced high diurnal variability in air temperature - with a wide spread between daytime highs and nighttime lows. Climate change is shifting both ends of this range upward: minimum temperatures nationwide are projected to rise from 15.64°C historically to 17.44°C by 2040-2059 (a rise of 1.80°C), and maximum temperatures from 28.75°C to 30.47°C (a rise of 1.72°C). Because nighttime minimums are rising slightly faster than daytime maximums, the diurnal range narrows marginally, but the absolute upward shift at both ends means significantly more sustained heat exposure across the full 24-hour cycle, with the strongest warming pattern observed in the southern regions.

Distribution of average mean surface air temperature for three 30-year historical periods, 1951- 1980, 1971-2000, and 1991-2000 for Libya	Event intensity of maximum of daily max temperatures, between 1951 and 2020, Libya.
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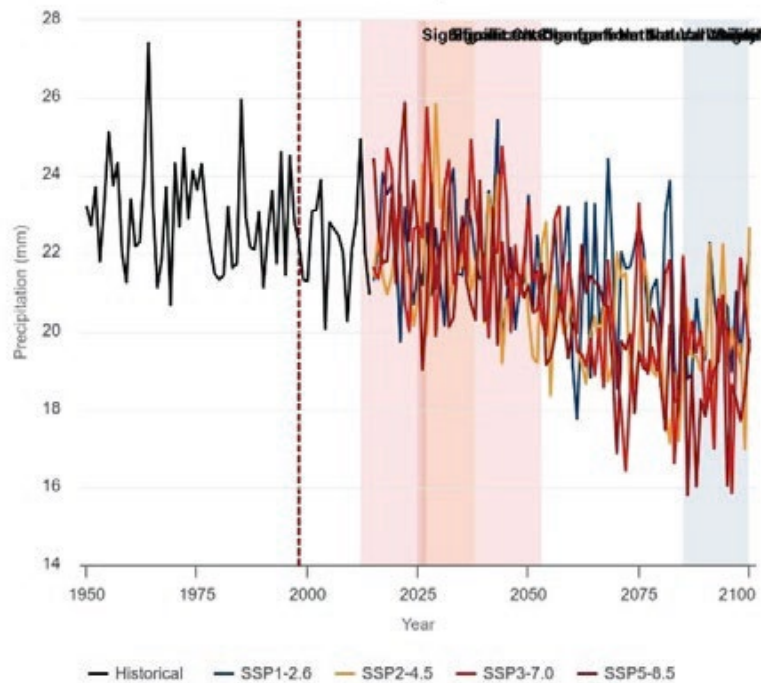
⁵ Minimum temperature nationwide increases from 15.64°C during the historical reference period to 16.59°C (15.71°C, 17.42°C) for the 2020-2039 period, and 17.44°C (16.58°C, 18.49°C) for 2040-2059. Maximum temperature increases from 28.75°C to 29.65°C (28.66°C, 30.64°C) for the 2020-2039 period, and 30.47°C (29.50°C, 31.66°C) for 2040-2059



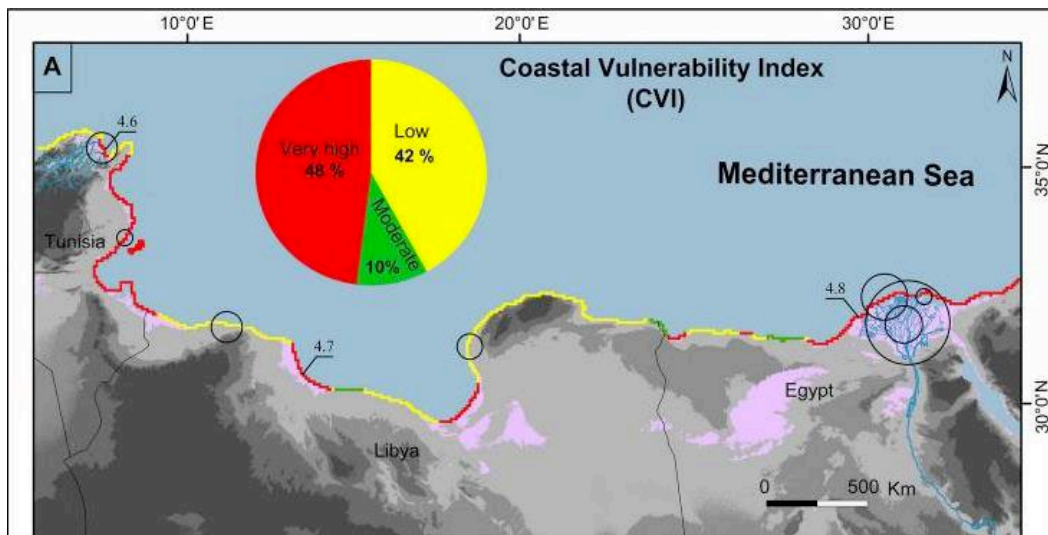
Observed rainfall changes. Nationwide average precipitation has decreased by 1.6 mm per decade over 1971–2020, with northern Libya showing the most pronounced drying and the south showing slight increases or no change (ERA5 dataset, 1971–2020; IPCC AR6 WGI Chapter 8; IPCC AR6 Cross-Chapter Paper 4 on the Mediterranean region). Observed rainfall extremes have grown more variable, with rare but intense convective events causing catastrophic damage - most severely the September 2023 Storm Daniel event in Derna, which delivered up to 400 mm of rainfall in 24 hours and killed over 4,300 people, with rapid-attribution analysis finding the event was made up to 50 times more likely by climate change (World Weather Attribution, 2023).

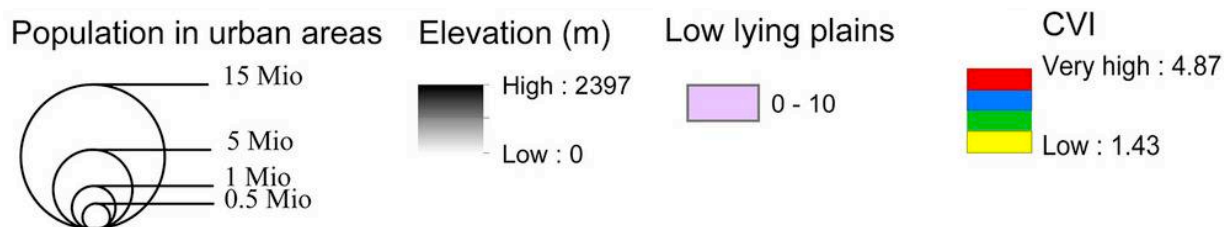
Projected rainfall changes. By mid-century (2040–2059), average precipitation is projected to continue decreasing across northern Libya under moderate-to-high emissions scenarios (SSP2-4.5 and SSP3-7.0), with the Mediterranean climate zone reducing in area - meaning that the coastal band where rainfall is currently sufficient to sustain rainfed agriculture will shrink and become more marginal (IPCC AR6 WGI Interactive Atlas, Mediterranean region). Projected changes in rainfall extremes show a shift toward more intense but less frequent precipitation events, driven by a warmer, more energetic atmosphere holding more moisture - increasing flood and flash-flood risk in wadis and coastal urban areas even as annual totals decline (IPCC AR6 WGI Chapter 11 on weather and climate extremes). Sand and dust storms are projected to increase in both frequency and intensity as surface warming, reduced soil moisture and vegetation loss reinforce each other (Middleton, 2019; WMO Sand and Dust Storm Warning Advisory and Assessment System).

Projected Departure from Natural Variability of Precipitation with Trends; Libya



Sea levels along Libya's Mediterranean coast have already risen by approximately 3.0–3.5 mm per year over recent decades, exceeding the global average rate, and are projected to rise by a further 0.23m by 2050 and 0.68m by 2100 (IPCC AR6 WGI Chapter 9; CMEMS Mediterranean Sea Physics Reanalysis) increasing the threat to coastal areas and infiltration of sea water into ground water aquifers. Coastal vulnerability is determined by physical features, such as elevation and the coastal slope, as well as the density of populations in threatened areas. Much of the sea level rise is due to the warming of the Mediterranean whose sea surface temperature averages 19.2°C and is expected to increase by 1.3°C by mid-century (2041-2060) and 2.8°C by the end of the century. The higher temperatures contribute to the increased intensity and frequency of storms which generally occur in summer and early autumn. The areas most vulnerable to sea level rise will be the oil crescent along the central Mediterranean coast (see Figure 1) - the arc of coastal infrastructure between Ras Lanuf, Es Sider, Brega and Zueitina where Libya's principal export terminals and refineries are concentrated - and low-lying coastal cities such as Benghazi. A much larger area - the full 1,770 km of Libya's low-lying Mediterranean coast, extending westward from the oil crescent to include Misrata, Tripoli, Zawiya and Zuwara, and eastward through Benghazi and Derna (see Figure 1) - will be affected by stronger storm surges which could cause infrastructural damage, including to Libya's coastal oil export terminals, refineries and the network of pipelines connecting inland fields to the coast.





Software: Esri. ArcGIS 10.2 (<https://www.esri.com/software/arcgis>)

While Libya is primarily arid, its ecological zones offer strategic entry points for advancing local climate action planning. These areas not only support biodiversity but also contribute to community resilience and microclimate regulation. The following key zones provide foundations for climate-informed local planning:

Climate impacts

The climate trends and projections described above translate into a set of cascading impacts already visible in Libya and expected to intensify through mid-century. **Heat and humidity stress** - the projected doubling of extreme heat days above 40°C, the fivefold increase in tropical nights, and rising Heat Index values - will directly affect human health (particularly among the elderly, children and outdoor workers), agricultural productivity, and the reliability of Libya's electricity grid, which depends heavily on gas-fired generation and experiences increased technical losses at high temperatures. **Rainfall variability and intensification of extreme events** - the shrinking of the Mediterranean climate zone, the projected shift toward less frequent but more intense convective rainfall, and the increased frequency of sand and dust storms - combine to produce compound risks: flash flooding in wadis and coastal urban areas (as illustrated by the September 2023 Storm Daniel disaster in Derna), reduced rainfed agricultural viability along the northern coastal strip, and worsening air quality and respiratory-health burdens from dust storms. **Sea level rise and Mediterranean warming** - with observed rise of 3.0–3.5 mm/year, projected rise of 0.23 m by 2050 and 0.68 m by 2100, and sea surface warming of 1.3°C by mid-century - increase saltwater intrusion into coastal aquifers, threaten low-lying urban and industrial infrastructure including the oil crescent, and amplify storm surge damage. **Compound and cascading impacts** - the interaction between heat, drought, reduced soil moisture and vegetation loss - drive worsening desertification and land degradation in Libya's arid and semi-arid regions, particularly in the south, while placing sustained pressure on Libya's already-stressed fossil groundwater aquifers, its coastal and marine ecosystems, and its principal freshwater delivery infrastructure (the Great Man-Made River). The sections below describe these impacts in more detail across ecological, water, human-geography and socio-economic dimensions.

Ecological and climate resilience features

- **Highland ecosystems:** The Jabal al Akhdar in Cyrenaica and Jebel Nafusa in Tripolitania host rare Mediterranean-type woodlands and shrublands, vital for regulating local climate and water cycles. Endemic species such as *Centaurea cyrenaica* and *Hyoseris cyrenaica* face increasing threats from land degradation and shifting climatic conditions. These highlands serve as climate buffers - regulating runoff, moderating local temperatures, and sustaining biodiversity that supports pastoral and agroforestry livelihoods - and are strong candidates for nature-based solutions including reforestation with native drought-tolerant species, terrace rehabilitation and contour-based soil and water conservation to reduce erosion, protection and expansion of Mediterranean woodland cover, and community-based rangeland management to reverse overgrazing pressure. Prioritisation is warranted because these ecosystems are irreplaceable at scale (Libya has very limited remaining Mediterranean woodland), because their degradation directly amplifies downstream flood and drought risk in surrounding regions, and because their restoration delivers adaptation co-benefits (soil moisture retention, groundwater recharge, temperature buffering) that dryland ecological engineering cannot substitute for.
- **Desert oases and transitional zones:** In regions like Fezzan, oases such as Ubari and Murzuq sustain fragile livelihoods through groundwater-based agriculture and pastoral systems. These zones are under stress from aquifer depletion and climate-driven droughts. Integrating oasis systems into local adaptation plans will help preserve ecological function and heritage while enhancing food and water security.
- **Marine and coastal ecosystems:** Libya's 2,000 km coastline - encompassing sites like the Gulf of Sirte and Farwa Lagoon - offers critical climate services such as storm buffering and carbon sequestration. These ecosystems underpin local fisheries and economies but face threats from pollution, erosion, and sea-level rise. Coastal zone management should be incorporated into municipal adaptation strategies.

Despite Libya's ecological assets, its current protected area network remains underfunded and fragmented. Institutional constraints and instability hamper enforcement. To address this, local adaptation plans should align with the Kunming-

Montreal Biodiversity Framework, the Paris Agreement (Article 7), and Sendai Framework Target C by promoting nature-based solutions and community-led conservation where feasible.

Water resources and environmental constraints

Libya faces significant natural constraints on water availability, compounded by climate change and human pressures. These limitations should be directly addressed in subnational adaptation planning.

Libya lacks perennial surface water, relying heavily on fossil aquifers such as the Nubian Sandstone Aquifer System and the Northwestern Sahara Aquifer System. Unsustainable extraction and weak governance threaten long-term water security. The Great Man-Made River (GMMR)⁶ provides around 80% of Libya's freshwater but is vulnerable to technical failures and conflict-related disruptions.

Climate planning should account for:

- Worsening desertification in arid regions (R2–R3), driven by the interaction between rising temperatures (increasing potential evapotranspiration), declining and more variable rainfall, and progressive vegetation loss - a compound impact already flagged in the Climate impacts framing paragraph and quantified through the IPCC AR6 aridity index projections for the Mediterranean and North African region.
- Groundwater depletion and salinization - a compound stressor with both human and climatic drivers. Historic over-extraction from Libya's fossil aquifers (which have limited natural recharge) is the primary depletion driver, but the interaction with climate change is now well-documented: declining precipitation reduces the modest recharge that occurs in shallow coastal aquifers, rising sea levels accelerate saltwater intrusion into coastal groundwater, and increased evaporation reduces the effective yield of shallow water sources. The result is a system stressed on both fronts, with agriculture and rural resilience directly affected. Quantitative attribution of climate versus abstraction contributions will be developed as part of the Full Proposal vulnerability assessment; projected trajectories of groundwater state under combined climate and abstraction pathways will be examined through the same assessment.
- Coastal erosion and saltwater intrusion that threaten urban water supplies and agriculture.
- Deforestation and overgrazing in upland areas leading to increased erosion - a compound impact with both human and climatic drivers. Historic drivers of deforestation in Libya include agricultural expansion, fuelwood extraction and settlement pressure, particularly around the Jabal al Akhdar and Jebel Nafusa highlands. Overgrazing pressure has intensified as pastoral livelihoods have been squeezed by land loss, land tenure fragmentation, and reduced rangeland productivity. Climate change interacts with these human drivers in two ways: reduced rainfall and increased evapotranspiration lower rangeland carrying capacity, which forces higher stocking density on remaining productive land; and rising temperatures and drought events accelerate the loss of already-stressed woodland cover, which in turn amplifies erosion, runoff and downstream flood risk during intense rainfall events. Quantified attribution of the human and climate contributions to observed vegetation loss will be developed as part of the Full Proposal vulnerability assessment.
- Marine stressors like acidification and sea surface warming affecting fisheries and infrastructure.

Human geography and urban vulnerabilities

Libya's climate vulnerabilities are amplified by concentrated urban development along the coast and under-resourced rural regions. Approximately 86% of Libya's 7.4 million people live in urban areas, primarily in Tripoli, Benghazi, and Misrata⁷. These three cities alone host over 40% of the population, placing immense pressure on urban infrastructure⁸.

Local adaptation planning must address:

- Flash flood risks due to inadequate urban drainage in cities like Derna, Tripoli, and Benghazi.
- Urban heat stress intensified by the heat island effect.
- Intermittent water supply from GMMR, undermining municipal service delivery.
- Vulnerability of informal settlements, particularly for displaced and low-income groups.

Rural regions like Fezzan - the vast south-western region covering approximately one-third of Libya's national territory and encompassing the Ubari, Murzuq, Ghat and Sabha areas (see Figure 1) - remain marginalized, with limited access to services and adaptive infrastructure. Ensuring equitable adaptation funding and service delivery to these areas is critical.

⁶ A network of approximately 2,800 km of pipelines and pumping stations completed between 1984 and 2011 that transfers water from the Nubian Sandstone Aquifer System in the southern desert to coastal urban centres - provides around 80% of Libya's freshwater but is vulnerable to technical failures and conflict-related disruptions.

⁷ Bureau of Statistics and Census of Libya, 2024; World Bank Urban Development Indicators

⁸ UN-Habitat Libya Urban Profile, 2024; UNDP Libya Urban Recovery Analysis, 2024

Transboundary and regional climate interactions

Libya's geography places it at the nexus of Mediterranean, Saharan, and Sahelian climatic systems, with over 4,300 km of shared borders⁹. Transboundary resource management must be embedded into local and national climate action.

Key cross-border climate factors:

- Shared aquifers - the Nubian Sandstone Aquifer System (NSAS), shared with Egypt, Sudan and Chad, and the Northwestern Sahara Aquifer System (NWSAS), shared with Algeria and Tunisia - are vital for Libya's water supply (see Figure 1). Joint monitoring and governance mechanisms with the co-riparian states, currently limited, need to be operationalised.
- Climate-induced migration from sub-Saharan Africa passes through southern Libya, entering primarily through Fezzan (see Figure 1) via routes originating in Niger, Chad and Sudan, and impacts local service delivery and stability in transit municipalities.
- Informal cross-border trade with Chad, Niger, Sudan, Algeria and Egypt - crucial for southern livelihoods, is increasingly disrupted by extreme climate events (sand and dust storms, extreme heat, and flash flooding along trans-Saharan routes).
- Shared desert ecosystems - including the Sahara–Sahel transition zone at Libya's southern border, the shared oasis systems of Ghat–Djanet (Libya–Algeria) and Kufra–Uweinat (Libya–Egypt–Sudan), and Mediterranean coastal wetlands linking Libya and Tunisia - are under pressure from overgrazing and prolonged drought, requiring regional conservation cooperation.

Socio-economic profile and climate sensitivities

Libya's economy remains heavily reliant on hydrocarbons, accounting for over 90% of public revenues¹⁰. This economic structure increases exposure to both market and climate shocks. Economic diversification and climate-smart infrastructure investment are essential components of resilience planning.

Development constraints include:

- Volatile public finance linked to oil exports, limiting sustained investment in adaptation infrastructure.
- Stark regional disparities in investment: per capita public spending on infrastructure and services in Fezzan is estimated at roughly one-third of the level in coastal regions, with basic service coverage (electricity reliability, water reticulation, health facility density) similarly lagging.
- Heavy food import dependence - Libya imports approximately 75–80% of its food, including the vast majority of its cereals and staple grains - rendering the country vulnerable to trade and climate shocks affecting global and regional supply chains..
- A fragile electricity grid: A fragile electricity grid: over 95% of Libya's electricity is generated by natural gas-fired thermal power plants, and grid performance deteriorates sharply during heatwaves - cooling demand spikes precisely when high ambient temperatures reduce the thermal efficiency of gas turbines and combined-cycle plants, when transmission losses rise (line resistance increases with temperature), and when transformer capacity derates - resulting in frequent power cuts during peak summer periods.
- A stagnating private sector: private-sector employment accounts for less than 15% of formal jobs, with the state directly employing over 70% of the workforce - with limited capacity to drive green innovation..

Policy and Institutional Landscape

Libya's climate governance system remains in early development. The country is in the process of submitting its Nationally Determined Contribution (NDC) and taking steps towards finalization formulation of a National Adaptation Plan (NAP). However, adaptation policies are not yet embedded in national planning systems or linked to science, innovation, or entrepreneurship support mechanisms.

Project outputs - especially the innovations tested and validated under Components 2 and 3 - will be formally documented and submitted for integration into Libya's updated **National Adaptation Plan (NAP)** and **Nationally Determined Contribution (NDC)**. This includes climate-smart practices, locally developed technologies, and governance models

⁹ Observatory of the Sahara and the Sahel; IUCN Mediterranean Cooperation Centre; UNCCD North African Regional Report

¹⁰ IMF Libya Article IV Consultation, 2024; World Bank Libya Economic Monitor, 2024

generated through the project. The Ministry of Environment and the Libya NDA will lead this policy uptake process in coordination with sectoral ministries.

There is currently no dedicated national agency tasked with coordinating innovation for climate resilience. While the Ministry of Environment and relevant agencies are working toward NAP formulation, their operational capacity remains constrained. The innovation ecosystem, meanwhile, is shaped by a constellation of actors whose mandates align with climate innovation but lack coordination and policy direction:

- The Environment Protection Fund is a statutory national fund established under the Ministry of Environment, with the legal mandate to receive, hold and disburse public and external financing for environmental protection and climate action. The Fund is governed by a Board chaired by the Minister of Environment, includes representatives of relevant line ministries and technical institutions, and operates a small permanent secretariat that manages project appraisal, disbursement and monitoring. The Fund is legally structured to host sub-vehicles or windows dedicated to specific thematic areas (climate adaptation, biodiversity, pollution control, etc.), making the integration of a new Climate Innovation Facility as a sub-vehicle straightforward within the existing legal and governance architecture. With project support, the Fund will host the Climate Innovation Facility as a dedicated adaptation innovation window - designed to support the identification, incubation, and scale-up of adaptation technologies, nature-based solutions, and community-driven innovations - with governance, eligibility criteria, appraisal protocols and the four-test screening formalised under Component 2 (Activity 2.3).
- The Libya National Designated Authority (NDA) for the Adaptation Fund, represented by the Ministry of Environment, will provide formal oversight and national coordination for the project. The NDA will ensure the project aligns with national priorities under the NAP and NDC processes and will endorse key outputs including innovation priorities, selection criteria, and knowledge products. The NDA will also participate in the National Alignment Workshop and all policy integration activities.
- The Ministry of Higher Education and Scientific Research has supported the establishment of at least eight university-based Entrepreneurship and Innovation Centers. While these centers aim to cultivate student entrepreneurship and innovation, most are under-resourced and lack thematic focus - including on environmental sustainability or adaptation. Some, such as those at Tripoli, Sebha and Misurata Universities, have attempted programmatic activity, but face obstacles including low digital presence, limited staffing, and weak connections to private sector and government.
- Other relevant institutions, such as the Ministry of Economy and the General Information Authority, play enabling roles, including promoting digital transformation and economic diversification, but currently lack programming that bridges climate and innovation.

From a regulatory standpoint, Libya's ecosystem is hampered by outdated commercial laws, unclear intellectual property protections, and a lack of tailored policies to support green enterprises or adaptation technologies. There are no national innovation funds, climate procurement incentives, or financing facilities to support the scaling of climate solutions by Libyan startups.

Current State of the Innovation Ecosystem

Despite structural and security constraints, Libya's innovation ecosystem has expanded in recent years, largely fueled by donor investment and youth-led entrepreneurial interest. A rapid assessment in mid-2025 documented over 13 active co-working spaces, numerous incubators (including STREAM, Tatweer TEC, BINA Libya, and others), and a vibrant, if unevenly distributed, entrepreneurial culture.

Notable initiatives include:

- **The Deraya Entrepreneurship Initiative**, led by UNDP, Flat6Labs, Tatweer, and AfDB, which offers business support services, competitions, and early-stage technical assistance to youth.
- **The Libya Startup Programme**, funded by the EU and implemented by SPARK and Super Novae, which provides training, digital platforms, and modest seed capital for emerging ventures, with a focus on women and youth.
- **The UNDP Accelerator Lab**, which has piloted grassroots innovation activities related to behavioral insights, youth entrepreneurship, and environmental challenges such as groundwater flooding and circular economy applications.

While these programs have made important contributions, most operate in isolation and are concentrated in urban centers - particularly Tripoli and Benghazi. Co-working spaces and training hubs exist in the South (e.g., in Sebha and Zintan), but struggle with poor infrastructure, including intermittent electricity, weak internet connectivity, and limited access to skilled facilitators. Very few of the incubators or acceleration programs have targeted climate adaptation directly, although startups such as AgriHealth (hydroponics) and Silphium Nursery (sustainable plant cultivation) show promising proof-of-concept.

University innovation centers, though physically established, often lack operational programs, up-to-date equipment, or institutional funding. Many have no digital presence, and engagement with students remains sporadic. However, their presence within academic institutions makes them well-positioned for capacity-building, applied research, and sustained innovation infrastructure - if appropriately resourced and linked to national priorities.

Challenges and Barriers

A number of systemic barriers continue to inhibit the emergence of a robust adaptation innovation ecosystem in Libya:

- **Institutional fragmentation:** No central authority coordinates adaptation innovation. Ministries operate in silos, and startup support remains disconnected from climate policymaking.
- **Capacity gaps:** Incubators, business centers, and university innovation hubs lack trained personnel, operational budgets, and clear programming aligned with adaptation outcomes.
- **Weak access to finance:** Most entrepreneurs rely on donor grants or self-financing. There is a lack of risk-tolerant capital, angel investors, or mechanisms to de-risk climate technologies.
- **Digital and infrastructure deficits:** Especially in rural and southern regions, unreliable electricity, limited connectivity, and fuel shortages undermine innovation readiness.
- **Legal and regulatory bottlenecks:** Business registration is slow, intellectual property is poorly protected, and tax or procurement systems do not incentivize climate-aligned entrepreneurship.
- **Gender and inclusion constraints:** Women and persons with disabilities face cultural, legal, and infrastructure-related barriers to participation in innovation programs. Daycare services, accessible facilities, and outreach mechanisms are largely absent.
- **Donor dependence and short-termism:** Most programs are externally funded and time-bound, with limited institutional ownership or integration into long-term national strategies.

Opportunities and Entry Points

Despite these challenges, Libya's innovation landscape presents a unique and timely opportunity for transformational programming focused on adaptation:

- **A government-endorsed platform exists:** The Environment Protection Fund can be strengthened and positioned as the national anchor for climate innovation.
- **University centers can be revitalized:** With targeted support, innovation hubs at public universities can drive locally rooted adaptation solutions.
- **Youth demand is strong:** Young Libyans are seeking roles in digital services, environmental entrepreneurship, and green technology sectors.
- **Donor interest is increasing:** International support, including from the Adaptation Fund, GCF, and bilateral donors, offers a timely moment to catalyze climate innovation.
- **Regional linkages can be strengthened:** Libya's shared climate risks with MENA countries offer opportunities for cross-border innovation exchange and scaling.
- **Digital transformation momentum:** The national Digital Transformation Strategy provides a platform to align adaptation with smart technologies and early warning systems.

Problem statement

Libya lacks a nationally coordinated mechanism to support innovation for climate change adaptation. While entrepreneurship support platforms exist, they are fragmented, underutilized, and disconnected from the climate agenda. Promising innovations remain isolated and lack pathways for validation, scale-up, or policy integration. **The desired future** is one where Libya's innovation institutions -- including municipal incubators and university-based centres -- serve as active centres in a national network for adaptation solutions. Innovators are supported to develop, test and scale context-specific responses to climate threats, and successful models are integrated into national planning frameworks and shared across the region.

The gap lies in the absence of structured support systems, targeted financing, and institutional partnerships that would allow Libya's innovation ecosystem to contribute meaningfully to national adaptation priorities.

The proposed project closes this gap by establishing the Climate Innovation Facility under the Environment Protection Fund. The Facility serves as Libya's national coordination and support mechanism for climate adaptation innovation, building institutional capacity, supporting community-led solutions, and establishing Libya as a contributor to regional adaptation innovation networks.

Project / Programme Objectives:

What innovation means in this project

The project applies the Adaptation Fund's definition of innovation as set out in the Fund's Medium-Term Strategy 2023–2027 and Innovation Pillar Strategy: *the creating, testing, deployment or diffusion of new, adapted or improved adaptation solutions, developed contextually and with the inclusion of the communities most vulnerable to climate change*. Innovation in this project is therefore not technology transfer from elsewhere, not the digitisation of existing services, and not standard institutional capacity-building. It is the **identification, development, contextual testing, and acceleration of adaptation solutions that did not previously exist in Libya** - solutions generated by Libyan innovators (researchers, students, community members, entrepreneurs, women- and youth-led groups, ethnic minority communities) in direct response to Libya-specific climate hazards and vulnerability profiles, validated through structured piloting in real-world contexts, and supported through structured pathways toward scale.

The project applies four specific tests to ensure each financed innovation meets this bar: **(i) Newness in the Libyan context** - the solution does not currently exist or is not currently applied in Libya for the climate adaptation purpose proposed, or constitutes a substantive contextual adaptation of an external solution that requires testing for Libyan operating conditions; **(ii) Local origin or contextual development** - the solution is developed in Libya by Libyan innovators, or is co-developed with Libyan innovators where external technical inputs are integrated; **(iii) Inclusion of communities most vulnerable to climate change** - the innovation responds to a documented climate vulnerability faced by specific Libyan populations (smallholder farmers in oasis communities, coastal communities exposed to flooding and erosion, urban populations facing extreme heat, women and girls bearing disproportionate climate burdens, ethnic minority communities in Fezzan and Nafusah Mountains, persons with disabilities, internally displaced populations) and brings those populations into the design and testing of the solution; **(iv) Pathways for adaptation impact at scale** - the innovation is supported through structured progression from concept to pilot to acceleration to integration into national adaptation programming, with explicit scaling pathways through the Environment Protection Fund, the National LLA architecture, government adaptation programming, and South-South knowledge exchange.

Each of the project's components is calibrated to deliver against this definition. **Component 1** establishes the diagnostic, governance and standards architecture for innovation specifically - innovation gap mapping, criteria for distinguishing AF-eligible adaptation innovation from generic entrepreneurship support, and the institutional frame for innovation governance - without which the open call processes under Component 3 cannot reliably select adaptation innovation as opposed to general technology entrepreneurship. **Component 2** invests in the institutional infrastructure required to generate, validate, accelerate and disseminate adaptation innovation - university-anchored innovation hubs that produce contextually grounded innovation rather than generic incubation, the Climate Innovation Facility under the Environment Protection Fund as the national steward of adaptation innovation, and the linkage architecture between innovation supply and demand entry points (including, importantly, the parallel UNDP Libya LLA project under preparation, which provides municipal-level demand entry points for adaptation innovations generated through this project). **Component 3** finances actual innovation - the identification, piloting, contextual testing, and acceleration of new adaptation solutions through open calls, micro-grants, acceleration grants, and integration support.

The distinction the project draws between innovation for climate adaptation and conventional support to entrepreneurship and institutional development is enforced operationally through the four-test screening above, applied at every grant decision point under Component 3, with documented application of the tests recorded for transparency and Adaptation Fund reporting purposes.

Anchored in the Adaptation Fund definition of innovation set out above, the project's overall objective is to build a nationally owned, inclusive, and sustainable innovation ecosystem that enables Libyan institutions, entrepreneurs, and communities to generate, test, and scale climate adaptation solutions. This will be achieved by operationalizing university-linked innovation hubs, revitalizing municipal business incubators, and establishing structured pipelines for identifying, supporting, and accelerating locally led adaptation innovations. The project aims to transform Libya's fragmented entrepreneurship landscape into a cohesive platform for adaptation by embedding climate resilience within the mandates of existing institutions (such as public universities and the Environment Protection Fund), strengthening their technical and programmatic capacities, and linking local innovation efforts to national adaptation planning and regional knowledge exchange. In doing so, the project enables participation by youth, women, and marginalised groups in climate response; supports the application of new technologies and business models to adaptation; and positions Libya as a contributor to regional adaptation innovation networks.

Specific objectives of the Project are:

1. **To identify and accelerate high-potential adaptation innovations** developed by Libyan startups, research institutions, and civil society, focusing on key climate vulnerabilities such as drought, water scarcity, land degradation, and extreme weather impacts.
2. **To strengthen the institutional capacities of national and subnational actors** - including the Climate Innovation Facility within Environment Protection Fund, selected universities, and incubator networks - to serve as long-term anchors of adaptation-oriented innovation and entrepreneurship.
3. **To establish inclusive, climate-focused innovation hubs** within key public universities and business centers across Libya, enabling structured support for ideation, piloting, mentoring, and early-stage commercialization of adaptation technologies and practices.
4. **To enhance regional collaboration and learning** by positioning Libya as a contributor to MENA-wide innovation-for-adaptation networks, including the exchange of climate-resilient technologies, approaches, and community-driven solutions.

Project Rationale

Libya is facing urgent adaptation challenges driven by increasing climate variability, rising temperatures, and accelerating environmental degradation. These pressures are especially acute in sectors such as agriculture, water, and land management - and are compounded by weak governance systems, poor infrastructure, and significant development disparities across regions.

At the same time, Libya's innovation ecosystem is at a critical juncture. A growing number of incubators, entrepreneurship centers, co-working spaces, and donor-led programs have emerged, particularly in urban areas. These initiatives demonstrate the potential of Libya's youth, academic, and civil society actors to engage in problem-solving and technology development. However, innovation support remains fragmented, donor-dependent, and largely disconnected from the country's climate policy and adaptation priorities.

None of the existing national entrepreneurship programs are designed to systematically support climate adaptation innovation. While promising startups exist, such as those piloting hydroponic systems, circular water solutions, or indigenous drought-resilient crops, there is no institutional mechanism to validate, support, or scale these solutions. Furthermore, existing university-based innovation centers and municipal business hubs operate below potential due to lack of thematic focus, capacity, and programmatic financing.

This project is built on the recognition that Libya cannot afford to treat innovation and adaptation as separate domains. With rising climate risks and a high proportion of its population under 30, Libya's resilience depends on enabling its own innovators to lead adaptation responses. The proposed intervention seizes this opportunity by integrating climate priorities into the national innovation infrastructure - creating a dedicated pathway for climate adaptation technologies, practices, and models to emerge from within Libyan institutions and communities.

Strategic approach

The project adopts a **systems-based and ecosystem-building approach** to adaptation innovation, focused on activating and aligning existing institutions, platforms, and capacities. Rather than building from scratch, the project leverages Libya's latent institutional assets (including - incubators and university-based innovation centers) and reorients them around climate resilience.

The strategic approach rests on four interlinked pillars:

1. **Problem-driven mapping and demand articulation:** Through participatory consultations, geospatial analysis, and expert input, the project will identify adaptation priorities and vulnerability hotspots that require innovative responses. This ensures that supported solutions are grounded in real climate needs and not limited to generic entrepreneurship themes.
2. **Institutional anchoring and hub activation:** The project will invest in the operationalization of adaptation-focused innovation hubs within selected universities and municipal incubators. These hubs will provide structured support, including ideation labs, technical mentorship, pilot funding, and networking opportunities, for innovators tackling climate challenges.
3. **National innovation call and acceleration pathway:** A competitive, inclusive call for adaptation innovations will be launched, with emphasis on youth, women, and underrepresented regions. Selected solutions will enter an acceleration track, benefitting from tailored technical assistance, business development support, and access to regional scaling opportunities.
4. **Regional integration and policy feedback loops:** Libya will be positioned as a contributor to regional innovation dialogues and South-South exchange platforms, enabling Libyan solutions to be shared across the MENA region. Simultaneously, project outputs and learnings will be systematically fed into national climate policy processes, ensuring sustainability and long-term institutional uptake.

In doing so, the project transitions Libya's fragmented innovation landscape into a **cohesive national platform** for climate adaptation - enabling bottom-up solutions to shape national resilience pathways and strengthening Libya's engagement in global adaptation innovation efforts.

Project / Programme Components and Financing:

The four components are sequenced and mutually reinforcing. **Component 1** (Years 1–2, front-loaded) establishes the diagnostic and prioritisation foundation. **Component 2** (Years 1–3) builds the institutional infrastructure - the three Adaptation Innovation Hubs and the Climate Innovation Facility - drawing on Component 1's priorities. **Component 3** (Years 2–4) finances the innovation pipeline through the architecture established under Component 2, against the priorities defined under Component 1. **Component 4** (throughout, intensifying in Years 3–4) disseminates results and drives policy uptake and scaling, feeding learning back into Components 2 and 3. Component 1 substantially concludes before the first open call under Component 3; Components 2 and 3 then run in overlapping cycles, with Component 4 active throughout and culminating in national and regional uptake.

Component 1. – Mapping climate adaptation needs and innovation gaps

Libya currently lacks a systematic understanding of where innovation is most urgently needed to address climate change vulnerabilities. Most existing entrepreneurship support programs are not climate-informed, and national climate planning frameworks (e.g., NDC, NAP) do not yet include mechanisms for identifying or soliciting locally driven innovation. This component establishes the analytical foundation for the project by identifying priority climate adaptation challenges, technology gaps, and vulnerable populations. To remain lean and avoid duplication, it draws primarily on existing diagnostic sources - the GIZ-CASEP NAP technical work, UNDP's Water Security and BIOFIN assessments, and national statistics - rather than commissioning broad new assessments, and streamlines stakeholder engagement to a focused set of targeted, region-representative consultations rather than exhaustive country-wide coverage. It ensures that innovation efforts are grounded in real demand and aligned with national and regional climate resilience needs.

Activities:

Activity 1.1 – National climate vulnerability and innovation gap assessment - Conduct an integrated assessment combining climate risk mapping (using satellite data and national statistics) with a review of sectoral innovation readiness in key areas such as agriculture, water, ecosystem restoration, and disaster risk management. The assessment will identify technological gaps and regions with high potential for community-led innovation.

Matching vulnerability to innovation capacity. The assessment distinguishes *where climate vulnerability is highest* from *where innovation capacity is concentrated*, recognising that in Libya these often diverge - acute vulnerability is concentrated in rural and southern areas (Fezzan, oasis communities, exposed coastal settlements), while innovation capacity clusters in urban centres. The project does not require innovators to be located in the most vulnerable areas;

rather, the four-test screening (Section II.A) requires that each financed innovation *responds to and includes* a documented climate vulnerability faced by specific vulnerable populations, regardless of where the innovator is based. This allows urban-based research and entrepreneurial capacity to be directed toward solutions that serve high-vulnerability rural and coastal communities, while the southern hub and targeted outreach (in Tamazight, Tamashek and Tedaga) ensure vulnerable-area innovators are not excluded. Prioritisation therefore optimises for *adaptation impact on vulnerable populations*, not for innovator-location convenience.

Activity 1.2 – Stakeholder consultations and regional dialogues - Organize at least 6 targeted, region representative consultation sessions across Libya's three regions (West, East, South), engaging communities, researchers, women's groups, youth networks, climate experts, and local authorities. These dialogues will surface locally defined adaptation challenges and traditional knowledge relevant to innovation.

Activity 1.3 – Alignment workshop with national climate institutions - Facilitate a national multi-stakeholder workshop with key actors (Ministry of Environment, Ministry of Higher Education, Ministry of Finance, Ministry of Planning) to validate findings and align innovation priorities with the National Adaptation Plan and Libya's NDC.

Targets:

- 1 national vulnerability and innovation gap report produced
- 6 regional consultations completed with >300 participants
- At least 50% female participation across all consultation events
- 1 national alignment workshop held with ~30 institutional stakeholders

Component 2 – Establishment and operationalization of adaptation innovation hubs

Libya has more than 13 university-based innovation centres and 9 municipal business incubators, but most are underutilised, inactive, or not oriented toward climate adaptation. This component activates 3 of the most strategically located centres and transforms them into fully operational Adaptation Innovation Hubs anchored within selected public universities. At the same time, the component establishes the Climate Innovation Facility under the Environment Protection Fund as the long-term national steward of adaptation innovation in Libya.

Activities:

Activity 2.1 – Selection and readiness assessment of innovation hubs - Conduct a national screening and transparent multi-criteria selection process to identify 3 eligible public universities to host Adaptation Innovation Hubs. Selection criteria include geographic balance (one hub in each of western, eastern and southern Libya), infrastructure readiness, institutional commitment, and capacity to engage women, youth, persons with disabilities and ethnic minority community innovators. Memoranda of Understanding with the selected universities will be signed during the project's inception phase.

Activity 2.2 – Hub establishment, light retrofit, and equipment procurement - Finance light refurbishment of selected hub spaces using existing university infrastructure, with focused investment in essential operational equipment (climate data tools, prototyping equipment, connectivity, and solar backup systems where electricity reliability is a constraint, particularly in southern Libya). The component does not finance major construction; refurbishment activities remain within UNDP country-office delegated authority thresholds. Equipment procurement applies UNDP global Long-Term Agreements where available. The Hubs and the Climate Innovation Facility are distinct but linked: the Hubs are university-anchored innovation infrastructure that deliver training, mentorship and first-line technical screening of innovations, while the Climate Innovation Facility (Activity 2.3) is the national steward and financing vehicle under the Environment Protection Fund through which Component 3 grants are appraised and disbursed. Both are government-anchored - the Hubs hosted within public universities under the Ministry of Higher Education, the Facility within the Environment Protection Fund under the Ministry of Environment - with structured private-sector engagement layered in through Hub Advisory Panels, mentorship and market linkages, rather than constituted as private-sector entities.

Activity 2.3 – Operationalisation of the Climate Innovation Facility under the Environment Protection Fund - Establish the Climate Innovation Facility as a sub-vehicle of the Environment Protection Fund with formal governance structure, eligibility criteria for adaptation innovation, the four-test screening protocol, appraisal and grant management procedures, M&E systems, and integration with Libya's emerging climate finance MRV architecture. The Climate Innovation Facility is designed to be the long-term institutional steward of adaptation innovation in Libya beyond the project cycle. Responsibility for mobilising follow-on finance and ensuring the Facility's financial sustainability rests with the Environment Protection Fund, into which full operational, administrative and financial ownership of the Facility transfers by the end of Year 4. To ensure the Facility does not lapse after project close, the project actively develops and seeks to secure a diversified set of post-project financing pathways for it - assessment of predictable domestic public financing through the Ministry of Environment and the Fund; mobilisation of external climate and stabilisation finance (including GCF Readiness

and Project Preparation Facility windows); private-sector co-financing built on a pipeline of investment-ready innovations; and feasibility assessment of green or climate-themed bonds as medium-term instruments. These pathways are set out in full in the Financial Sustainability subsection of Part II.

Activity 2.4 – Development of climate innovation support programmes - Design and deliver a 12-month structured capacity-building cycle at each hub covering AF-eligible adaptation innovation criteria, climate adaptation themes prioritised under Component 1, contextual testing methodology, business model development, gender-responsive innovation design, and ethical engagement with vulnerable communities. Co-delivered with UNDP technical partners and South-South innovation networks. Includes accommodations for women innovators, youth, persons with disabilities, and ethnic minority innovators (delivery in Tamazight, Tamashek, and Tedaga where relevant in addition to Arabic and English). The capacity-building cycle is explicitly designed as an on-ramp to the Component 3 open call: it includes structured **pre-application innovation sprints** through which trained innovators develop, test and refine adaptation innovation concepts, so that participants emerge better positioned to submit competitive, AF-eligible proposals to the Component 3 call. Component 2 training cohorts and Component 3 applicant pools are therefore deliberately linked, while the open call remains open to all eligible applicants nationally to preserve competition and reach.

Activity 2.5 – Establishment of Hub Advisory Panels and inclusive access architecture - Each hub hosts a Regional Advisory Panel comprising academics, private sector mentors, local authorities, civil society and innovator representatives, with formal gender and youth representation requirements. Hubs remain open to informal innovators, students, community innovators, women's and youth groups, and ethnic minority community representatives without requiring formal business registration as a precondition for engagement.

Targets:

- 3 Adaptation Innovation Hubs operationalised at selected public universities (one in each of western, eastern and southern Libya)
- 1 Climate Innovation Facility operationalised under the Environment Protection Fund
- 12-month structured capacity-building cycle delivered at each of the 3 hubs
- 200 individuals trained across the 3 hubs (50% women; 30% youth aged 15–35; with documented inclusion of persons with disabilities and ethnic minority community representatives)
- 3 Hub Advisory Panels formed and active, with formal gender and youth quotas
- 1 National Adaptation Innovation Standard developed, validated and adopted

Component 3. – Launch and acceleration of climate adaptation innovation portfolio

This component is the operational core of the project, financing actual Libyan-led adaptation innovation through a structured pipeline of micro-grants and acceleration grants. Component 3 absorbs USD 2,500,000 - 59 per cent of total project activity costs - ensuring that the project's centre of gravity is concrete innovation investment rather than enabling architecture. The four-test screening criteria for AF-eligible adaptation innovation (Section II.A) are applied at every selection decision point.

Grant operations architecture. Given the scale of Component 3 (70 piloting micro-grants and 15 acceleration grants) and Libya's FCV context with a high proportion of first-time and informal innovators, the grant window operates under a defined operational framework, summarised here and detailed at full proposal stage and in a Climate Innovation Facility Operations Manual finalised at inception. The framework covers: **(i) eligibility and exclusion criteria** - applicant eligibility (startups, research teams, university labs, NGOs, CBOs, women-, youth- and ethnic minority-led and informal innovators, no business-registration precondition) and an exclusion list aligned with the ESMF; **(ii) application and screening procedures** - the national open call, hub-based first-line technical screening, and the four-test AF-eligibility screening; **(iii) selection committee** - an independent national selection committee (adaptation experts, hub directors, civil society, women's and youth representatives, and an AF-aligned safeguards reviewer) with formal gender and youth quotas, scoring against adaptation impact, inclusion and feasibility criteria; **(iv) fiduciary and safeguards due diligence** - proportionate, grant-tier-appropriate due diligence at evaluation stage (simplified screening plus enhanced mentorship for micro-grants; full due diligence for acceleration grants) and sub-project ESMP screening; **(v) disbursement arrangements** - milestone-based tranche disbursement with independently verified completion before final tranche; **(vi) grantee procurement rules** - simplified, proportionate procurement requirements embedded in grant agreements. **Roles and responsibilities:** UNDP (MIE) holds fiduciary, oversight and disbursement accountability; the Environment Protection Fund / Climate Innovation Facility appraises, contracts and manages grants (progressively from Year 3); the university Hubs deliver first-line screening, mentorship and technical support; the independent selection committee ranks and selects; mentors support grantee delivery; and grantees implement against milestone-based agreements. These elements are detailed at full proposal stage and operationalised through the Climate Innovation Facility Operations Manual.

Activities:

Activity 3.1 – National adaptation innovation open call - Launch a national open call for adaptation innovation proposals, with applications screened by hub-based technical panels and ranked by an independent national selection committee against the four-test screening criteria. Target: at least 300 applications received and screened. The open call is national and open to all eligible applicants; at the same time, innovators trained through Component 2's capacity-building cycle and pre-application sprints form a deliberately cultivated, better-prepared segment of the applicant pool, strengthening the quality and adaptation-relevance of submissions.

Activity 3.2 – Piloting micro-grants - Award 70 piloting micro-grants (average USD 18,000, range USD 10,000–25,000 depending on innovation type, scale and contextual testing requirements) to selected innovators. Total micro-grant envelope: USD 1,260,000. Grants finance contextual testing of new adaptation solutions in real-world Libyan operating conditions, including water scarcity adaptation in oasis communities, flood and erosion management in coastal settlements, urban heat resilience, ecosystem-based adaptation in rangelands, drought-resilient agriculture, and adaptation solutions designed by women-, youth- and ethnic minority-led innovators.

Activity 3.3 – Acceleration grants - From the 70 piloted innovations, select 15 top performers for acceleration support based on demonstrated adaptation impact, scaling potential, and operational readiness. Each receives an acceleration grant (average USD 80,000, range USD 60,000–125,000) plus dedicated technical assistance package from hub mentors and the Climate Innovation Facility, including investor- and finance-readiness support, demand-side linkages to potential adopters (municipalities, utilities, cooperatives, agribusiness and service providers), and facilitation of Memoranda of Understanding or letters of interest with actors positioned to adopt, procure or co-finance proven innovations. Total acceleration envelope: USD 1,200,000. Grants prepare proven innovations for integration into national adaptation programming, the parallel UNDP Libya LLA project (community-level adaptation entry points across 20 priority municipalities), Environment Protection Fund continued financing, and South-South scaling pathways. The acceleration grants are financed entirely from this project's Adaptation Fund envelope - the USD 1,200,000 acceleration tier within Component 3's USD 2,500,000 - and do not depend on any separate government allocation. The Climate Innovation Facility is, however, designed to receive and programme additional adaptation-innovation finance over time - including future domestic public allocations the Government may set aside under the Facility, and external climate finance - so that acceleration and scaling support can continue and grow beyond the resources of this project (see Financial Sustainability, Part II).

Activity 3.4 – Portfolio M&E and adaptation outcome tracking - Operationalise a portfolio-level M&E system tracking adaptation outcomes for each financed innovation, with milestone-based disbursement, independently verified completion before final tranche, and reporting against AF Innovation indicators (8.1.1, 8.1.2, 8.2.1) and AF Core Indicators (1.2.1, 4, 5, 6.2 where applicable to the innovation type).

Innovation challenge methodology applied throughout Component 3. The competitive funding calls under Component 3 apply UNDP's structured innovation challenge methodology, adapted to the AF Innovation Pillar and to Libya's FCV operating context. The methodology proceeds through six sequenced stages: **(i) Problem framing** - adaptation challenge statements are formulated under Component 1 through participatory consultations and translated into the innovation call by Hub Advisory Panels and the Climate Innovation Facility; **(ii) Open invitation** - a national open call invites applications from startups, research teams, university labs, NGOs, community-based organisations, women-, youth- and ethnic minority-led innovators, and informal innovators (no formal business registration required as a precondition); applications are received in Arabic and English, with translation support available in Tamazight, Tamashek and Tedaga; **(iii) Eligibility and four-test screening** - applications are screened by hub-based technical panels against the four-test criteria for AF-eligible adaptation innovation set out in Section II.A (newness in the Libyan context; local origin or contextual development; inclusion of communities most vulnerable to climate change; pathways for adaptation impact at scale); **(iv) Independent technical evaluation** - eligible applications are scored by an independent national selection committee comprising adaptation experts, hub directors, civil society representatives, women's and youth representatives, and an Adaptation Fund-aligned safeguards reviewer, with formal gender and youth quotas on the selection committee itself; **(v) Piloting micro-grants and contextual testing** - selected innovators receive piloting micro-grants under milestone-based disbursement, with technical mentorship from hub-based mentors and contextual testing in real-world Libyan operating conditions; **(vi) Acceleration tier selection and acceleration support** - top performers from the piloting tier are selected for acceleration grants based on demonstrated adaptation impact, scaling potential, and operational readiness, receiving larger grants and dedicated technical assistance from the Climate Innovation Facility. The methodology is documented in a Climate Innovation Facility Operations Manual developed under Component 2 and adopted by the Environment Protection Fund as the long-term institutional steward, ensuring that the challenge methodology is institutionalised beyond the project cycle. Procurement of services, equipment and works in support of the call mechanism applies UNDP procurement procedures, including UNDP global Long-Term Agreements where available; the call mechanism itself is operated through UNDP grant management procedures, not procurement, given that financed activities are innovation grants rather than procurable services.

Targets:

- 1 national adaptation innovation open call launched, with at least 300 applications received and screened
- 70 innovations selected and financed at piloting stage (average USD 18,000)
- 15 top-performing innovations receive acceleration support (average USD 80,000)
- At least 30,000 direct beneficiaries reached through pilot and accelerated innovations (50% women, 30% youth, with documented reach to ethnic minority communities in Fezzan and Nafusah Mountains)
- 1 portfolio M&E system operationalised with milestone-based disbursement and independent verification

Component 4. – Regional collaboration, knowledge exchange and policy uptake

This component ensures the dissemination, integration and scaling of adaptation innovation outcomes generated by the project - both within Libya's national climate policy frameworks and across the MENA region. Component 4 absorbs USD 450,000, calibrated for outcome impact rather than production scale, with the MENA dialogue convened in hybrid format and the project results dashboard hosted within UNDP Libya's existing infrastructure.

Activities:

Activity 4.1 – Establishment of regional MENA adaptation innovation dialogue - Convene a Libya-led MENA adaptation innovation dialogue in hybrid (in-person and virtual) format, engaging Tunisia, Egypt, Jordan, Lebanon, Morocco and Armenia (and others as relevant), focused on replicable adaptation innovations, shared adaptation priorities, and South-South scaling pathways. The dialogue is structured as a single hybrid convening with at least 100 participants from government, academia, civil society and the private sector, complemented by six South-South knowledge exchange engagements with comparable adaptation innovation initiatives in the MENA region and beyond.

Activity 4.2 – Development of National Adaptation Innovation Compendium - Produce a National Adaptation Innovation Compendium documenting all 70 piloted and 15 accelerated innovations financed under Component 3, with each entry covering the climate vulnerability addressed, the innovation methodology applied, the contextual testing outcomes, scaling pathways, and lessons learned. The Compendium is published in Arabic and English and disseminated through the National Designated Authority and the Climate Innovation Facility.

Activity 4.3 – Policy engagement and institutional uptake - Produce at least 4 policy briefs and conduct structured engagement with the National Climate Change Committee, the Sectoral Adaptation Climate Change Committees, and relevant ministries (Environment, Local Government, Higher Education and Scientific Research, Agriculture, Water Resources), identifying integration pathways for proven innovations into national adaptation programming, sectoral plans, and Libya's emerging National Adaptation Plan as it develops through the GIZ-CASEP process.

Activity 4.4 – Project results dashboard and learning infrastructure - Develop and publish a project results dashboard hosted on UNDP Libya infrastructure with public access, in Arabic and English, providing real-time visibility on innovation portfolio performance, beneficiary reach, gender and inclusion outcomes, and scaling pathways. The dashboard is designed for handover to the Environment Protection Fund as part of the Climate Innovation Facility's institutional architecture.

Targets:

- 1 Libya-led MENA adaptation innovation dialogue convened in hybrid format with at least 100 participants
- 6 South-South knowledge exchange engagements completed with adaptation innovation initiatives in the MENA region and beyond
- 1 National Adaptation Innovation Compendium produced and disseminated, documenting all 70 piloted and 15 accelerated innovations
- At least 4 policy briefs produced and formally submitted to the National Climate Change Committee, the Sectoral Adaptation Climate Change Committees, and relevant ministries
- 1 project results dashboard published and hosted on UNDP Libya infrastructure with public access

Feedback loops. The architecture is iterative, not linear. Lessons from Component 3 pilots - what works in Libyan operating conditions, which adaptation approaches prove viable, where innovators struggle - feed back into the Hubs' training curricula and the Climate Innovation Facility's eligibility criteria and appraisal methodology, refining each successive innovation cycle. Component 4's knowledge management (the Compendium, learning briefs, MENA exchange) similarly feeds evidence back into the Hubs and the CIF, so that the institutional infrastructure established under Component 2 is

continuously strengthened by the portfolio it manages. By project end, this loop leaves the CIF and Hubs not only operational but improved by several cycles of real-world adaptation-innovation learning.

Alignment with the Adaptation Fund Strategic Results Framework

This section presents a concept-stage summary of the project's alignment with the Adaptation Fund Strategic Results Framework (revised by Decision B.45/3, October 2025), structured per the Adaptation Fund Results Framework Alignment template (December 2025 version). It is provided in Part I to demonstrate outcome- and indicator-level alignment at concept stage; the full project results framework, with baselines, milestones and finalised targets, will be developed in the dedicated results-framework section (Part III.A) at full proposal stage. The upper section maps the project's objectives to Fund Outcomes; the lower section maps the project's expected outcomes to Fund Outputs. As an Innovation project, the alignment is anchored in Fund Outcome 8 (Innovation), supplemented by Outcomes 2 (institutional capacity), 3 (awareness, ownership and knowledge), and 7 (policies and strategies). Indicative targets at concept stage will be validated and refined during full proposal development. Beneficiary methodology is set out in Section II.B.

Project Objectives → Fund Outcomes

Project Objective(s)	Fund Outcome(s)	Fund Outcome Indicator	Indicative Target (CN Stage)	Grant Amount (US\$)
Identify and accelerate Libyan-led adaptation innovations through a structured pipeline of micro-grants and acceleration grants applying the four-test AF-eligibility screening	Outcome 8: Innovation for effective, long-term adaptation to climate change accelerated, encouraged, and enabled to scale up	Indicator 8.1: Innovations successfully reaching scale up that demonstrate local innovation participation and/or local innovation benefit	15 innovations advanced through acceleration and supported toward scale-up	2,500,000
Establish the institutional infrastructure for adaptation innovation in Libya - three Adaptation Innovation Hubs and the Climate Innovation Facility under the Environment Protection Fund	Outcome 8: Innovation for effective, long-term adaptation to climate change accelerated, encouraged, and enabled to scale up	Indicator 8.2: Institutions created and/or enabled that lead on innovation for adaptation to climate change	4 institutions enabled (3 Hubs + 1 Climate Innovation Facility); plus the Environment Protection Fund strengthened as long-term institutional steward	829,000
Establish the diagnostic, governance and standards architecture for adaptation innovation in Libya, with a National Adaptation Innovation Standard adopted by the National Designated Authority	Outcome 7: Improved policies and regulations that promote and enforce resilience measures	Indicator 7: Policies, strategies and/or plans adopted, implemented, and/or enforced that integrate climate risk and resilience considerations	1 National Adaptation Innovation Standard developed, validated and adopted	450,000
Disseminate adaptation innovation outcomes and integrate them into Libya's national climate policy frameworks and	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk	Indicator 3.1: People with strengthened awareness of climate change risks and how to better address them, disaggregated by	30,000 direct beneficiaries (50% women, 30% youth) plus 125,000 indirect beneficiaries - calculated per Section II.B	450,000

Project Objective(s)	Fund Outcome(s)	Fund Outcome Indicator	Indicative Target (CN Stage)	Grant Amount (US\$)
MENA regional networks	reduction processes	gender	beneficiary methodology	
Total Project Activity Cost				4,229,000

Project Outcomes → Fund Outputs

Project Outcome	Fund Output(s)	Fund Output Indicator	Indicative Target (CN Stage)	Grant Amount (US\$)
Project Outcome 1: A nationally validated evidence base for adaptation innovation in Libya is established, with priority climate adaptation challenges and innovation gaps identified	Output 1.1: Risk and vulnerability assessments conducted and updated	Indicator 1.1.1: Risk and vulnerability assessments conducted or updated	1 National Adaptation Innovation needs and gap assessment	450,000
	Output 7.1: Improved integration of climate-resilience strategies into country development plans	Core Indicator 7.1.1: Policies, strategies, and/or plans developed or adjusted to integrate climate risk considerations	1 National Adaptation Innovation Standard	(allocated within Project Outcome 1)
Project Outcome 2: A functioning network of three university-anchored Adaptation Innovation Hubs and the Climate Innovation Facility under the Environment Protection Fund is operational	Output 2.1: Strengthened capacity of institutions to understand and better address climate risks	Indicator 2.1.1: Institutions supported to strengthen capacity to understand and address climate risks and resilience	4 institutions strengthened (3 Hubs + Climate Innovation Facility); plus the Environment Protection Fund	829,000
	Output 8.2: Innovations identified and piloted which build the adaptation innovation evidence-base and institutional capacity	Indicator 8.2.1: Innovation-focused knowledge products disseminated and/or learning events facilitated that support and enable innovation capacity at a local, national, and/or regional level	200 individuals trained (50% women, 30% youth) through hub capacity-building cycles	(allocated within Project Outcome 2)
Project Outcome 3: A diversified pipeline of Libyan-led adaptation innovations is identified, contextually tested, and accelerated toward scale	Output 8.1: Innovations identified and piloted that collectively enhance local innovation capacity and contribute to the development of local, national and regional adaptation innovation ecosystems	Indicator 8.1.1: Innovations identified that demonstrate local innovation participation and/or local innovation benefit	At least 300 applications received and screened through national open call	2,500,000
		Indicator 8.1.2: Innovations piloted that demonstrate local innovation participation and/or	70 innovations financed at piloting stage; 15 advanced through acceleration	(allocated within Project Outcome 3)

Project Outcome	Fund Output(s)	Fund Output Indicator	Indicative Target (CN Stage)	Grant Amount (US\$)
		local innovation benefit		
Project Outcome 4: Adaptation innovation outcomes are integrated into Libya's national climate policy frameworks and shared across the MENA region	Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	Indicator 3.2.1: Climate resilience knowledge products and/or tools developed and shared with stakeholders	92 knowledge products (1 National Adaptation Innovation Compendium + 4 policy briefs + 70 piloted innovation case records + 15 acceleration case records + 1 dashboard + 1 MENA dialogue)	450,000
	Output 8.2: Innovations identified and piloted which build the adaptation innovation evidence-base and institutional capacity	Indicator 8.2.1: Innovation-focused knowledge products disseminated and/or learning events facilitated	7 learning events (1 MENA dialogue + 6 South-South knowledge exchange engagements)	(allocated within Project Outcome 4)
Total Project Activity Cost				4,229,000

Core Indicators applicable to this project, per the Fund's results tracker requirements: **Core Indicator 7.1.1** (policies/plans - National Adaptation Innovation Standard); other AF Core Indicators (Core Indicator 1.2.1 early warning; Core Indicator 4 physical assets; Core Indicator 5 ecosystems; Core Indicator 6.2 households with protected income) apply at the level of individual financed innovations where relevant to the innovation type, and are tracked through the portfolio-level M&E system under Component 3. All targets are disaggregated by gender, age (youth), and inclusion of vulnerable groups (persons with disabilities, internally displaced persons, ethnic minority communities - Amazigh, Tuareg, Tebu - where present in innovation sites) where applicable, in line with the AF Gender Policy and the project's Gender Action Plan to be developed at full proposal stage.

Project/Programme Components	Expected Outcomes	Expected Outputs	Amount (US\$)
<u>Component 1.</u> Mapping climate adaptation needs and innovation gaps	A nationally validated evidence base is established, enabling the identification of priority climate adaptation challenges and technological gaps to guide innovation efforts and align them with Libya's climate policies and community needs.	- A nationally validated adaptation-innovation needs and gap assessment, applying the four-test screening criteria and informed by 6 targeted regional consultations (≥300 stakeholders, 50% women, 30% youth); - A stakeholder-endorsed set of climate adaptation innovation priorities adopted by the National Designated Authority;	450,000
<u>Component 2.</u>	A functioning network of university-anchored adaptation innovation	A network of 3 university-anchored Adaptation Innovation Hubs (one each in western, eastern and southern Libya) and	829,000

Establishment and operationalization of adaptation innovation hubs	hubs and the Climate Innovation Facility under the Environment Protection Fund is operational, providing the institutional infrastructure required to identify, validate, accelerate and disseminate Libyan-led adaptation innovation.	the Climate Innovation Facility under the Environment Protection Fund, operational with governance, eligibility criteria and the four-test screening institutionalised; - At least 200 adaptation innovators trained through the Hubs (50% women, 30% youth, including persons with disabilities and ethnic minority representatives); - A National Adaptation Innovation Standard developed, validated and adopted;	
<u>Component 3.</u> Launch and acceleration of climate adaptation innovation portfolio	A diversified pipeline of Libyan-led concrete adaptation innovations is identified, contextually tested, and accelerated toward scale, with measurable adaptation impact for vulnerable populations.	- A competitively selected portfolio of 70 Libyan-led adaptation innovations contextually tested through piloting micro-grants, screened against the four-test criteria from at least 300 applications; 15 proven innovations advanced through acceleration support toward scale; - A portfolio-level M&E system tracking adaptation outcomes across the financed innovations, reaching at least 30,000 direct beneficiaries (50% women, 30% youth);	2,500,000
<u>Component 4.</u> Regional knowledge exchange and policy uptake	Adaptation innovation outcomes generated by the project are integrated into Libya's national climate policy frameworks and shared across the MENA region, contributing to scaling pathways within Libya and to regional adaptation innovation networks.	- A National Adaptation Innovation Compendium, 4 policy briefs and a public results dashboard produced and disseminated; - Proven innovations channelled into national policy uptake and regional scaling through 1 MENA dialogue and 6 South-South exchanges;	450,000
5. Project/programme activities cost			4,229,000
6. Project/Programme Execution cost			380,000
7. Total project/programme cost			4,609,000
8. Implementing entity fee GMS 8.5%			391,000
Amount of Financing Requested			5,000,000

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	01 September 2026
Mid-term Review (if planned)	01 September 2028
Project/Programme Closing	01 September 2030
Terminal Evaluation	10 December 2030

PART II: PROJECT / PROGRAMME JUSTIFICATION

- A.** Describe the project / programme components, particularly focusing on the concrete adaptation activities, how these activities would contribute to climate resilience. For regional projects describe also how they would build added value through the regional approach, compared to implementing similar activities in each country individually. For the case of a programme, show how the combination of individual projects would contribute to the overall increase in resilience.

The proposed four-year project shifts Libya's adaptation architecture from fragmented, externally driven responses toward a nationally rooted system of innovation, driven by local knowledge, university capacities, and community priorities. Anchored in Libya's first NDC (drafted 2025) and Environmental Law No. 15 (2003), and designed to feed into Libya's National Adaptation Plan as it develops through the GIZ-CASEP process, the project generates locally grounded adaptation solutions, builds national innovation infrastructure, and establishes Libya as a contributor to MENA adaptation innovation networks. Each component addresses a systemic barrier in Libya's current adaptation ecosystem; together they form a coherent architecture for delivering measurable resilience outcomes in a fragile context.

Component 1: Mapping adaptation priorities and innovation gaps

This foundational component creates the strategic and evidence-based entry point for all subsequent investments. It ensures that innovation efforts directly reflect Libya's most urgent climate risks and institutional bottlenecks.

- **Nationwide climate vulnerability and innovation scoping:** A comprehensive diagnostic will be conducted to identify Libya's adaptation priorities across key vulnerable sectors (e.g., water, agriculture, urban resilience) and geographies (e.g., Fezzan, coastal cities, peri-urban zones). This will include remote sensing data, historical climate trends, and socio-economic indicators to define vulnerability hotspots.
- **Stakeholder-driven definition of innovation gaps:** Consultations with academia, CSOs, municipalities, private sector, and national agencies will be used to co-define problem statements that reflect Libya's real climate challenges and innovation needs (e.g., saline intrusion in eastern coastlines, rainwater harvesting in southern farms, passive cooling in informal settlements).
- **Development of a National Adaptation Innovation Agenda:** The outputs of this component will be synthesized into a national-level document outlining priority adaptation areas for innovation, institutional barriers to address, and systemic enablers required for scaling. This will guide project investment and establish a replicable methodology for future innovation programming.

Component 2: Establishment and operationalization of adaptation innovation hubs

This component addresses Libya's institutional vacuum in adaptation innovation by building sustained, decentralized innovation infrastructure embedded in universities and municipal partners.

- **Establishment of 3 Adaptation Innovation Hubs:** Hubs hosted within selected public universities - one in each of western, eastern and southern Libya - providing coworking space, prototyping equipment, and meeting rooms. Final selection of host universities will be conducted during full proposal preparation through a transparent multi-criteria process, with Memoranda of Understanding signed during the project's inception phase.
- **Establishment of the Climate Innovation Facility under the Environment Protection Fund:** The Facility serves as Libya's long-term institutional steward of adaptation innovation, with formal governance, eligibility criteria for adaptation

innovation, the four-test screening protocol, and grant management procedures developed under Component 2 and institutionalised within the Environment Protection Fund.

- **Design and delivery of innovation training programs:** Curricula co-developed and delivered on AF-eligible adaptation innovation criteria, climate adaptation themes, contextual testing methodology, business model development, and gender-responsive innovation design. At least 200 students, entrepreneurs, and civil society actors (50% women, 30% youth) trained across the 3 hubs over four years.
- **Hosting of innovation mentors and Hub Advisory Panels:** Each hub hosts a Regional Advisory Panel comprising academics, private sector mentors, local authorities, civil society and innovator representatives, with formal gender and youth representation requirements. Hubs also host national and regional mentors providing technical guidance to innovators throughout the incubation

Component 3: Launch and acceleration of climate adaptation innovation portfolio

This component translates the strategic priorities into tangible, field-tested solutions. It builds a structured pipeline of adaptation innovations and supports them from ideation to scale.

- **Launch of national open call for adaptation innovation proposals:** A national open call attracts at least 300 applications, from which 70 innovations are selected for piloting support. Applications are received in Arabic and English with translation support in Tamazight, Tamashek and Tedaga where relevant. Outreach explicitly targets start-ups, research labs, youth innovators, women- and ethnic minority-led innovators, and grassroots initiatives.
- **Provision of piloting and acceleration support:** 70 innovations receive piloting micro-grants (average USD 18,000, range USD 10,000–25,000) for contextual testing in real-world Libyan operating conditions. 15 top-performing innovations receive acceleration grants (average USD 80,000, range USD 60,000–125,000), including funding, mentorship, technical assistance from the Climate Innovation Facility, and pathways to scaling through the parallel UNDP Libya LLA project, the Environment Protection Fund, and South-South channels.
- **Structured innovation cycles applying the four-test screening:** Each cycle applies the four-test screening criteria for AF-eligible adaptation innovation (newness in the Libyan context; local origin or contextual development; inclusion of communities most vulnerable to climate change; pathways for adaptation impact at scale) at every selection decision point, with hub-based technical screening, an independent national selection committee, and milestone-based disbursement.
- **Integration of local and traditional knowledge:** The challenge methodology actively encourages and accommodates innovations drawing from local and traditional knowledge - desert farming techniques, communal water management systems, traditional dryland building methods, indigenous ecological practices - ensuring solutions are context-grounded.

Component 4: Regional collaboration, knowledge exchange and policy uptake

This component ensures the sustainability, visibility, and scaling of innovations generated under the project - both within Libya's policy frameworks and across MENA.

- **National Adaptation Innovation Compendium:** All 70 piloted and 15 accelerated innovations are documented in a publicly accessible national compendium published in Arabic and English, covering climate vulnerabilities addressed, innovation methodologies applied, contextual testing outcomes, scaling pathways, and lessons learned.
- **Libya-led MENA adaptation innovation dialogue:** A single hybrid (in-person and virtual) MENA dialogue convened in Year 3 with at least 100 participants from government, academia, civil society and the private sector across MENA countries, focused on replicable adaptation innovations and South-South scaling pathways.
- **Policy engagement with national institutions:** Structured engagement with the National Climate Change Committee, the Sectoral Adaptation Climate Change Committees, and relevant ministries through at least 4 policy briefs identifying integration pathways for proven innovations into national adaptation programming, sectoral plans, and Libya's emerging National Adaptation Plan as it develops through the GIZ-CASEP process.
- **South-South knowledge exchange:** 6 South-South knowledge exchange engagements with comparable adaptation innovation initiatives in the MENA region and beyond, building Libya's connections into a regional ecosystem of adaptation innovation.

- B.** Describe how the project /programme would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies, and mechanisms.

The proposed project is fundamentally designed to catalyze a national ecosystem for innovation in climate adaptation - one that is inclusive, context-responsive, and regionally relevant. In a fragile environment like Libya, innovation cannot rely

solely on imported technologies or top-down planning. Instead, this project introduces structural, technological, institutional, and process-level innovations that aim to empower local actors, unlock entrepreneurial potential, and generate solutions tailored to Libya's unique climate risks and governance realities.

1. Structural Innovation: A lasting adaptation innovation architecture rooted in local institutions

Libya currently lacks a sustained platform for climate-focused innovation. This project introduces a **new institutional structure** - a network of **Adaptation Innovation Hubs** embedded in leading universities and municipal systems. These hubs will function as **anchor institutions** for adaptation innovation, linking grassroots problem-solving with research, policy engagement, and entrepreneurship. Unlike temporary pilot projects, this hub model is designed to **remain operational beyond the project lifecycle**, supported by host institutions through formal MoUs and sustainability strategies. By decentralizing innovation infrastructure, the project creates **territorial equity** - ensuring participation from historically marginalized regions such as Fezzan and the southern agricultural belt.

2. Technological Innovation: Developing and deploying locally adapted solutions

The project will support **70 early-stage adaptation innovations** at piloting stage through competitive innovation calls, of which 15 top performers advance to acceleration.. These may include:

- **Water-saving technologies** (e.g., solar-powered drip irrigation, saltwater desalination kits for coastal zones);
- **Digital climate services** (e.g., SMS-based weather forecasts for farmers, mobile apps for urban heat alerts);
- **Nature-based solutions** (e.g., low-cost reforestation techniques using native species, floodplain restoration methods);
- **Built-environment resilience** (e.g., passive cooling materials for informal settlements, climate-smart school retrofitting models).

Support will include **grants, technical assistance, prototyping and testing**. This pipeline enables Libya to **generate, adapt, and localize technology** that directly responds to its arid/semi-arid climate, urban fragility, and water scarcity.

3. Process Innovation: Democratizing access to climate finance and acceleration

In fragile states, access to innovation finance is highly centralized and often inaccessible to early-stage or grassroots actors. This project creates **a new bottom-up mechanism** for financing adaptation innovation. Through **transparent national calls**, the project enables local CSOs, youth innovators, women-led businesses, and municipal agencies to compete for and access seed funding. Selection will be **community-informed, gender-balanced, and criteria-based**, with a strong focus on underserved regions and conflict-affected populations. These processes introduce a **new paradigm of demand-driven innovation**, rooted in local ownership.

Additionally, **tailored acceleration programs** will support 15 high-potential innovations to move from idea to market or scale-up. Support includes investment readiness coaching, regional exposure, mentorship, and support to secure follow-on capital.

4. Institutional Innovation: Linking adaptation innovation with national policy

For the first time in Libya, the project will **systematically link bottom-up innovations with national policy processes** such as the updated Nationally Determined Contributions (NDC) and the forthcoming National Adaptation Plan (NAP). A compendium of adaptation innovations will be produced, and successful models will be scaled through dialogue with ministries, donors, and development banks. This ensures that innovation is not siloed but **institutionalized within national development pathways**.

5. Regional Innovation Value: Peer learning across fragile MENA states

Through strategic partnerships with regional institutions (e.g., Enterprise Incubator Foundation in Armenia, North African university alliances), the project will create **a MENA regional peer network** on adaptation innovation. This includes knowledge exchanges, joint training modules, and South-South collaboration missions. These efforts ensure that **Libya's innovations are contextualized for replication**, and that lessons from fragile states inform global innovation frameworks.

In summary, the project promotes innovation not only through technologies, but by creating new systems, financing modalities, and governance structures that enable adaptation to emerge from within Libyan communities. It offers a replicable model for fostering inclusive, resilient, and sustainable innovation ecosystems in conflict-affected and climate-vulnerable countries.

- C.** Describe how the project/programme aims to roll out successful innovative adaptation practices, tools, and technologies and/or describe how the project aims to scale up viable innovative adaptation practices, tools, and technologies.

The proposed project embeds scaling and roll-out mechanisms at every stage of its design, ensuring that promising adaptation innovations transition from isolated pilots to institutionalized and system-wide solutions. In Libya's fragile context, characterized by limited public investment in innovation, highly localized climate impacts, and weak horizontal coordination, scaling up requires more than replication. It demands an enabling ecosystem, policy integration, long-term financing pathways, and multi-actor coalitions. This project provides precisely such a structure, facilitating three mutually reinforcing pathways for scaling: (1) from idea to prototype, (2) from prototype to local systems, and (3) from local to national and regional levels.

1. From Idea to Prototype: Building an innovation funnel anchored in real-world needs

The project's design includes a national innovation funnel, beginning with two rounds of calls for proposals, soliciting solutions from research teams, youth innovators, startups, women-led enterprises, and CSOs. Each innovation is selected based on its relevance to Libya's specific adaptation challenges-such as water scarcity, coastal erosion, extreme heat, and agricultural fragility.

- **Up to 70 early-stage solutions** will receive targeted pre-seed grants of USD 10,000–25,000, along with technical mentoring and access to testing facilities within the innovation hubs.
- **Solutions will be field-tested** within high-risk geographies identified under Component 1 (e.g., southern oasis regions, flood-prone coastal towns, and urban heat islands in Tripoli).

This process transforms ideas into contextually viable, **data-informed prototypes** with early evidence of impact - setting the stage for broader application.

2. From Prototype to Systems: Accelerating, institutionalizing and localizing

The project will then support 15 promising innovations through structured acceleration programs, offering advanced technical assistance, access to investor networks, and cross-border peer learning. Innovations will be matched with end-users (municipalities, utilities, cooperatives) and adapted to fit their operational realities. This ensures that solutions are not just technically sound, but system-compatible.

Key enablers for scale at this stage include:

- **Municipal integration:** Adaptation hubs will help match innovations to municipal service mandates (e.g., energy-efficient public infrastructure, digital water management).
- **University support:** Partnering universities will offer R&D support and convene national dialogues on policy integration and replication.
- **Adaptation finance linkages:** The project will broker connections between innovators and regional climate finance platforms to help secure follow-on funding.

Through these mechanisms, the project aims to **embed innovations into real-world institutions**, catalyzing structural shifts in how adaptation is delivered at the local level.

3. From Local to National and Regional: Scaling through policy, knowledge and replication

The final stage of the project's scale strategy focuses on national and regional roll-out:

- **A National Compendium of Adaptation Innovations** will be produced, capturing tested models, implementation results, and lessons learned. This will feed directly into Libya's updated NDC and NAP processes.
- **Policy dialogues** will be facilitated with the Ministry of Local Government, Ministry of Environment, and national climate bodies to advocate for integrating successful innovations into planning frameworks and public financing strategies.
- **Replication through peer learning:** The project includes six South-South exchanges with MENA-region municipalities and academic partners to showcase successful Libyan models and import relevant good practices. These exchanges will expand regional adaptation knowledge pools and create demand-driven replication pathways.

By institutionalizing innovation selection, testing, and scaling, the project ensures that adaptation solutions do **not remain siloed or donor-dependent** but are embedded in Libya's national climate governance and development priorities.

The project adopts a full-cycle innovation-to-scaling pathway: beginning with demand-driven ideation, followed by structured support for prototyping, then embedding solutions within local systems, and finally leveraging national and regional platforms for replication. This ensures that innovative adaptation tools and practices not only emerge - but grow, sustain and spread, delivering long-term impact across fragile and climate-vulnerable regions of Libya and beyond.

- D.** Describe how the project / programme would provide economic, social, and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme would avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

The proposed project is purposefully designed to maximize inclusive and sustainable adaptation benefits, particularly for vulnerable communities and at-risk groups such as youth, women, conflict-affected populations, and marginalized rural households. The innovation-based approach ensures that economic, social, and environmental dividends are not only delivered, but are locally owned, replicable, and sustained beyond the project's duration. In parallel, the project will fully comply with the Adaptation Fund's Environmental and Social Policy (ESP) and Gender Policy through robust safeguards, inclusive design, and participatory monitoring systems.

Beneficiary methodology and disaggregation. The project's expected beneficiary population is calculated using a transparent, replicable methodology applied consistently across all results indicators. **Direct beneficiaries** are defined as individuals who receive measurable adaptation benefits attributable to the project - through Component 3 grant-financed adaptation innovations (the 70 piloted and 15 accelerated innovations), Component 2 hub-based capacity-building activities, or Component 1 participatory consultation processes. The expected direct beneficiary population is **30,000 people**, of whom at least **15,000 women (50 per cent)** and **9,000 youth aged 15–35 (30 per cent)**, derived from an average direct reach of approximately 350 people per piloted innovation and 1,000 people per accelerated innovation, plus 600 stakeholders directly engaged through Component 1 consultations and 200 individuals trained through Component 2 hubs (with overlap between categories netted out conservatively). **Indirect beneficiaries** are defined as individuals who benefit from the project's broader systemic outputs - the National Adaptation Innovation Standard, the Climate Innovation Facility under the Environment Protection Fund, the policy briefs and the National Adaptation Innovation Compendium - and from the scaling of innovations beyond their pilot footprints. The expected indirect beneficiary population is **125,000 people**, derived from the assumption that 50 per cent of the 70 piloted and 15 accelerated innovations reach scale post-project, each benefiting an average of 3,000 individuals through services, technologies or systems uptake. All beneficiary figures are conservative, will be refined during full proposal preparation through innovation-typology-specific reach analysis, and will be disaggregated by gender, age (youth), and inclusion of vulnerable groups (persons with disabilities, internally displaced persons, ethnic minority communities - Amazigh, Tuareg, Tebu - where present in innovation sites) in the project results framework. Beneficiary tracking is anchored in the project's M&E system with quarterly reporting against AF Innovation Indicators and annual independent verification.

Economic benefits

- **Job creation and local livelihoods:** Through the establishment of 3 Adaptation Innovation Hubs and the Climate Innovation Facility, and the financing of 70 piloted and 15 accelerated innovations, the project is expected to generate direct green-economy employment - including in digital irrigation systems, sustainable construction, climate-resilient agriculture, and solar cooling technologies - with job-creation reach quantified per innovation through the portfolio M&E system at full proposal stage.
- **Youth entrepreneurship:** The project places a deliberate focus on **youth-led startups and university spin-offs**, offering tailored capacity-building, seed funding, and mentorship. At least **30% of pre-seed and acceleration grants** will target young innovators under the age of 35, many of whom face chronic underemployment.
- **Market linkages:** Accelerated solutions will be linked with municipal governments, development partners, and regional investors - helping innovators **transition from subsidized pilots to commercially viable service delivery**. This establishes a longer-term climate-smart entrepreneurship pipeline in Libya's nascent private sector.

Social benefits

- **Targeted inclusion of women and vulnerable populations:** The project's design and selection criteria for grant recipients will prioritize **women-led organizations, rural communities, and internally displaced populations (IDPs)**. At least **30% of supported innovations** will be developed or led by women and **20% of all training and innovation hub beneficiaries** will come from conflict-affected or displaced backgrounds.

To strengthen accountability, the project will apply a gender- and vulnerability-disaggregated monitoring system. Each innovation hub and grant recipient will be required to report quarterly on outreach, participation, and benefit delivery to women, youth (under 35), and internally displaced persons. The national results dashboard will include KPIs such as:

(i) percentage of innovations led by women or youth, (ii) percentage of beneficiaries from IDP or conflict-affected areas, and (iii) number of jobs created for women and youth through accelerated innovations.

- **Community empowerment through co-design:** Vulnerability assessments, priority-setting exercises, and innovation calls will be implemented using **participatory methods**, ensuring that community members are not passive beneficiaries but co-creators of solutions. This reinforces social cohesion and trust in post-conflict areas.
- **Education and awareness:** Through partnerships with Libyan universities and municipal bodies, the project will **embed climate awareness in academic curricula** and strengthen public understanding of adaptation through media, storytelling, and outreach campaigns targeting women and youth.

Environmental benefits

- **Direct contribution to climate resilience:** The project supports technologies and practices that reduce exposure to heat stress, improve water-use efficiency, restore degraded land, and build resilience in food systems - especially in vulnerable areas like southern Libya and coastal zones.
- **Nature-based innovation pipeline:** The innovation portfolio will promote **ecosystem-based adaptation (EbA)** where applicable, such as afforestation, green infrastructure, and water harvesting technologies, ensuring long-term benefits for biodiversity, soil health, and climate regulation.
- **Minimizing ecological footprints:** All supported prototypes and scaled innovations will undergo basic environmental screening to ensure alignment with green design principles. Solar cooling, decentralized water systems, and low-emission building materials will be prioritized.

Risk mitigation and safeguards compliance

The project will fully apply the **UNDP Social and Environmental Screening Procedure (SESP)** at the proposal and implementation stages, ensuring early identification of any potential risks and the design of **fit-for-purpose mitigation plans**. Specifically:

- **Environmental risks** will be minimized through strict selection criteria for innovation grants and ongoing technical review. No Category A activities will be supported, and all pilot interventions will be screened to avoid sensitive ecosystems.
- **Social risks** such as elite capture, exclusion of vulnerable groups, or conflict sensitivity will be addressed through inclusive governance structures (e.g., multi-stakeholder selection panels, gender quotas, local validation sessions).
- A **Grievance Redress Mechanism (GRM)** will be established at the innovation hub level, providing community members and innovators a confidential and accessible channel to raise concerns.
- The project will be guided by a dedicated **Gender Action Plan** to ensure that both men and women participate equally in decision-making, benefit equitably from services, and that gender-specific barriers are proactively addressed.

E. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme and explain how the regional approach would support cost-effectiveness.

The proposed project is intentionally designed to maximize cost-effectiveness by leveraging existing institutions, channeling resources toward high-impact activities, and using a multi-tiered innovation model that generates scalable adaptation outcomes with minimal infrastructure investment. With a total budget of USD 5 million, the project delivers disproportionately high value by establishing a national mechanism capable of continuously producing, testing, and maturing multiple context-appropriate adaptation solutions - rather than financing a single, capital-intensive intervention. By strengthening Libya's adaptation innovation architecture across diagnostics, early-stage piloting, university and municipal partnerships, and pathways to scale, the project enables sustained, system-wide benefits that extend far beyond the initial investment.

Cost per innovation pilot

The project provides **USD 2.5 million in direct grant financing** through Component 3 - **USD 1,260,000** across **70 piloting micro-grants** (average USD 18,000) and **USD 1,200,000** across **15 acceleration grants** (average USD 80,000). This results in:

- **An average USD 18,000 per piloted innovation** in direct financial support, covering contextual testing, prototyping and early deployment;
- Access to university-based hubs, mentors, technical experts, and testing spaces **at no additional infrastructure cost**.

Compared with typical adaptation projects in water, agriculture, coastal protection or urban resilience - where a single pilot-scale intervention ranges between **USD 250,000–1 million** - the innovation-facility model supports **70 piloted and 15 accelerated innovations within the cost envelope of one to two traditional pilot interventions**, dramatically increasing Libya's pipeline of viable adaptation options.

Cost per beneficiary

The project aims to directly benefit **30,000 people**, including women, youth and vulnerable groups who engage with hubs, trainings or pilots.

- **USD 5M / 30,000 direct beneficiaries = approximately USD 167 per direct beneficiary over 4 years**, or approximately **USD 32 per beneficiary** when the 125,000 indirect beneficiaries are included (155,000 total) - competitive ratios for an adaptation innovation programme operating in a fragile and conflict-affected context, particularly given the systemic and replicable nature of the innovation pipeline being financed.

This is significantly lower than comparable adaptation investments in fragile and middle-income states, where per-beneficiary costs often range between **USD 150-500** depending on sector. The reduction is achieved by:

- using existing institutions rather than building new ones;
- prioritizing digital, nature-based and low-cost technologies;
- focusing on **solution-generation**, which spreads value across multiple pilots and users.

Leveraging existing institutional assets (universities and EPF) reduces overhead

The project uses the physical infrastructure, personnel, community linkages and administrative systems already available at:

- 3 selected public universities (final selection during full proposal preparation through a transparent multi-criteria process based on geographic balance, infrastructure readiness, and institutional commitment)
- Environment Protection Fund (EPF), as host of the Climate Innovation Facility

Because these institutions already have buildings, labs, staff, electricity, connectivity and municipal networks:

- no capital expenditure is needed for new facilities;
- operating costs are minimal and embedded in existing systems;
- project funds flow primarily to services, grants and innovation testing, rather than construction or administration.

This alone results in an estimated **30-40% cost reduction**, compared to building standalone climate innovation centres.

Innovation multiplier effect and long-term cost-effectiveness

The most significant cost-effectiveness driver is the **multiplier effect**:

- The project finances 70 piloted innovations, accelerates 15 and positions the most successful to leverage future funding.
- Each tested innovation can be scaled through government programmes, municipal budgets, university partnerships, private investors, GCF/AF project pipelines, or bilateral donors.

Even if only **5–6 innovations** achieve meaningful scale, they could mobilize **10–20 times the initial investment** - resulting in USD **50-100 million** in follow-on financing over the next decade.

Thus, the USD 5 million investment functions as a **national research-and-development engine** for climate adaptation, providing replicated and transferable solutions across Libya's cities, oases, coastal regions and agricultural communities.

This innovation-facility model delivers resilience benefits far more efficiently than traditional, single-intervention adaptation projects, as demonstrated by the comparison below:

- pilots one solution,
- builds one infrastructure, or
- works in one region.

In contrast, this facility-based model simultaneously produces:

- multiple solutions,

- across multiple regions,
- in multiple sectors,
- driven by local innovators and institutions.

This diversification substantially increases:

- resilience benefits per dollar invested;
- probability that successful solutions will emerge;
- Libya's long-term adaptive capacity;
- ownership and sustainability.

Strong cost-benefit logic across components

- **Lean infrastructure, high reach:** Rather than building new facilities from scratch, the project embeds **Adaptation Innovation Hubs within existing universities** and local incubators, thereby reducing capital expenditure while securing long-term institutional anchoring.
- **Smart resource allocation to startups:** Instead of distributing small grants with low oversight, the project deploys a **tiered selection and acceleration pipeline** - starting with open calls, technical screening, and staged support. Of the **70 early-stage solutions** supported, **the top 15 will be fast-tracked into acceleration**, ensuring that only the most promising innovations receive larger investments (average USD 80,000, range USD 60,000–125,000). This ensures efficient capital deployment based on performance and scaling potential.
- **Built-in training multiplier:** Training curricula, mentorship schemes, and diagnostics developed by the project will be **reused across the four-year period** by local institutions and replicated by non-project actors. For example, training-of-trainers approaches allow the hubs to **cascade knowledge** at minimal incremental cost.
- **Institutional alignment avoids duplication:** By aligning with Libya's draft National Strategy for Economic Diversification, the Higher Council for Innovation, and national universities, the project avoids parallel structures and reduces overheads, while **embedding innovations into existing national systems**. This strengthens the likelihood of post-project sustainability and cost savings for future adaptation initiatives.

High returns through innovation-driven adaptation

- **Scalability of supported solutions:** These can be adapted to multiple regions and sectors, creating long-term resilience dividends beyond the project geography.

Regional cost-sharing and value addition

Although the project is implemented nationally, it includes a **structured regional engagement strategy** that supports cost-effectiveness in three ways:

- **Shared resources and knowledge:** Technical expertise from MENA-based innovation institutions (e.g., Enterprise Incubator Foundation in Armenia or others from Jordan, Tunisia, etc.) will be mobilized to build Libya's systems, **eliminating the need for costly proprietary systems** and international consultants. These partners contribute proven toolkits, evaluation criteria, and mentorship systems, reducing learning curve and development costs.
- **Replication and co-investment opportunities:** By showcasing solutions at regional events, the project facilitates cross-border collaboration that may **attract co-funding or replication** in other fragile states facing similar climate challenges. The regional positioning enhances Libya's visibility and access to external funding streams, reducing long-term domestic financing burdens.
- **Peer learning over outsourcing:** Instead of costly South–North technical exchanges, the project emphasizes **South–South learning**, e.g., between Libya and other MENA innovation actors, which is more cost-effective and regionally contextualized.

Implementation modality designed for delivery efficiency, partner diversity, and Libya's FCV operating context, with capacity-assessed Executing Entities and Responsible Parties. UNDP, as the Multilateral Implementing Entity, exercises overall fiduciary, oversight, supervision, and reporting responsibility to the Adaptation Fund Board. Project execution is shared across multiple complementary entities rather than concentrated in a single executing entity, with each role calibrated to comparative advantage and to the requirements of an FCV operating environment. **UNDP Libya Country Office** acts as lead Executing Entity, providing in-country presence, established field operations, government and counterpart relationships across Libya's parallel governance structures, security risk management infrastructure, and the

operational continuity required by Libya's FCV context. **The Environment Protection Fund** acts as Executing Entity for the Climate Innovation Facility, established as a sub-vehicle of the Fund under Component 2, with the EPF taking progressive ownership of grant management, monitoring, and innovation selection processes from Year 3 and full operational, administrative and financial transfer by the end of Year 4. **Selected public universities** (final selection during full proposal preparation) act as Executing Entities for the three Adaptation Innovation Hubs, hosting hub operations within their existing infrastructure and committed to host institutional support beyond the project period through Memoranda of Understanding signed during the inception phase. **National civil society organisations and community-based organisations** are engaged as Responsible Parties through standard UNDP Responsible Party Agreements (RPAs), supporting innovation challenge facilitation, training delivery, and grantee mentorship. **Private sector engagement** in this project is strategic as well as transactional. Beyond procurement, the private sector is engaged as an active partner in the adaptation-innovation ecosystem: as mentors and Advisory Panel members at the Hubs; as demand-side actors and potential adopters, procurers or off-takers of proven innovations (agribusiness, water utilities, construction and ICT firms, municipal service providers); as sources of co-sponsorship to supplement public capital; and as providers of investor-readiness support and follow-on finance for innovations advancing through the acceleration tier. These roles are introduced through the Hub Advisory Panels and the Component 3 acceleration package, and will be developed into a fuller private-sector engagement strategy - including co-financing, off-take and follow-on-finance partnerships - during full proposal preparation. For the procurement of goods, services, and works supporting hub operations and Component 3 grant implementation specifically, engagement is conducted exclusively through UNDP procurement procedures, including the use of UNDP global Long-Term Agreements (LTAs) where applicable, and is not channelled through Responsible Party Agreements. Capacity assessments are conducted at full proposal stage for all named Executing Entities and prospective Responsible Parties, applying UNDP's standard instruments (HACT micro-assessment where applicable; Partner Capacity Assessment Tool for non-government partners; institutional capacity diagnostic for the Environment Protection Fund), with capacity gaps addressed through targeted capacity-building plans embedded in Component 2. The 70 piloted and 15 accelerated grantees selected through Component 3's open call undergo proportionate, grant-tier-appropriate capacity due diligence at proposal evaluation stage. The National Designated Authority - the Ministry of Environment as Libya's NDA for the Adaptation Fund - is the project's government endorsement counterpart and chairs the project's National Steering Committee, but does not host the Project Management Unit; the lean PMU is hosted by UNDP Libya within its existing operational architecture, minimising administrative cost while ensuring direct technical assistance to hubs and grantees. The implementation modality and its operational arrangements - including private sector engagement modalities - will be reviewed in consultation with the UNDP Regional Bureau for Arab States ahead of full proposal submission, and the project will draw on lessons from UNDP Libya's parallel GEF-8 proposal development process.

Overall, the project achieves strong value-for-money by minimizing infrastructure costs, allocating resources to high-impact innovation testing, and embedding activities within established national institutions that ensure long-term sustainability. By generating a diversified portfolio of scalable adaptation solutions the project delivers a higher resilience return per dollar and positions successful pilots for follow-on public, private and climate finance.

- F.** Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist. If applicable, please refer to relevant regional plans and strategies where they exist.

The proposed project is fully aligned with the Adaptation Fund's strategic focus on vulnerable developing countries, particularly those experiencing fragility, climate risk, and institutional capacity gaps. It responds to Libya's urgent adaptation needs by leveraging innovation as a strategic enabler of climate resilience and supporting the emergence of a national climate innovation ecosystem embedded in the country's planning and development architecture.

1. Contribution to Libya's National Adaptation Plan (NAP) development process

Libya's first National Adaptation Plan is at an early stage of development, with technical preparation supported by the GIZ-CASEP project under the Ministry of Environment. The proposed project is designed to feed into the NAP development process - through the National Adaptation Innovation needs and gap assessment under Component 1, the National Adaptation Innovation Standard developed under Component 2, the 70 piloted and 15 accelerated Libyan-led innovations financed under Component 3, and the policy briefs produced under Component 4 - as inputs into the innovation and technology dimensions of Libya's NAP. A Joint Coordination Protocol between UNDP Libya, the Ministry of Environment and GIZ-CASEP, formalised in Year 1, governs the alignment and ensures that NAP and project workstreams are mutually reinforcing rather than parallel. Through this contribution, the project's innovation outputs are positioned to inform Libya's NAP rather than to align to a NAP that does not yet exist.

2. Contribution to Libya's first Nationally Determined Contribution (NDC)

Libya's first NDC, drafted in 2025 with submission process underway, identifies innovation as a contributor to adaptation through nature-based solutions, climate data systems, and decentralised action. The project contributes by:

- Piloting innovative, locally developed technologies and practices for climate adaptation in sectors such as water management, agriculture, and early warning.
- Catalyzing bottom-up data generation and community participation in monitoring and reporting of adaptation impacts, contributing to future NDC progress tracking.
- Supporting the identification and acceleration of mitigation co-benefits, particularly in green tech and resource efficiency, aligned with Libya's dual adaptation-mitigation goals.

3. Integration with Local and Sub-national Development Plans

The project directly supports national and local institutions, academic partners, and CSOs in designing climate-resilient innovation strategies tailored to local development priorities. This includes:

- Embedding climate resilience objectives within university R&D agendas, local incubation programmes, and municipal development plans.
- Strengthening local technical and entrepreneurial ecosystems to generate place-based solutions responsive to distinct geographic, environmental, and social risks.
- Encouraging inclusive innovation governance that enables meaningful participation of youth, women, and marginalized groups in identifying and implementing climate responses.

This vertical integration ensures coherence between innovation at the grassroots level and national sustainable development objectives.

4. Support to Sustainable Development Goals (SDGs) and Poverty Reduction

The project advances several key SDGs, including:

- **SDG 13 (Climate Action):** By mainstreaming innovation into climate resilience and adaptation planning.
- **SDG 9 (Industry, Innovation and Infrastructure):** Through support for climate-focused startups, research institutions, and municipal innovation mechanisms.
- **SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities):** Via inclusive design and targeted support to women, youth, and vulnerable groups participating in innovation pipelines.
- **SDG 8 (Decent Work and Economic Growth):** By enabling green jobs and sustainable business models rooted in local adaptation needs.

In fragile and underserved regions, the project uses innovation as a vehicle to promote climate-responsive economic inclusion and resilience.

5. Strengthening Climate Governance and Institutional Innovation Capacity

Libya faces significant gaps in climate governance due to historical centralization and limited institutional innovation capacity. The project addresses these gaps by:

- Operationalizing the **Climate Innovation Facility** under the Environment Protection Fund (EPF), a nationally mandated institution with strong government support.
- Building institutional linkages between academia, government, and civil society to foster a cohesive and sustainable innovation ecosystem.
- Introducing structured, replicable mechanisms to identify, finance, and scale climate adaptation innovations through transparent, criteria-based pipelines.

By embedding innovation within institutional systems, the project supports the development of long-term models that are scalable, locally owned, and regionally relevant.

- G.** Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

The proposed project is committed to full compliance with applicable national technical standards and environmental regulations, as well as with the Environmental and Social Policy (ESP) of the Adaptation Fund and the Social and Environmental Standards (SES) of UNDP.

While Libya's regulatory framework on environmental assessment and innovation standards is still evolving, the project will align with the following key national instruments:

- **Law No. 15 (2003) on the Protection and Improvement of the Environment**, which mandates environmental impact assessments (EIAs) for projects with potential environmental risks;
- Ministerial guidelines under for pollution control, waste management, and ecosystem protection;
- **Digital Transformation Strategy (2023)**, which sets national norms on cybersecurity, data privacy, and infrastructure standards for digital platforms, which will inform the project's digital components;
- Government-endorsed operational mandates of the **Environment Protection Fund**, which provides the legal basis for public financing and governance of environmental initiatives, including climate innovation.

As the host entity of the proposed **Climate Innovation Facility**, the Environment Protection Fund will ensure that all project-supported activities are screened for environmental and social risks and aligned with national policies. All innovation pilots financed through the project will undergo a structured **Social and Environmental Screening Procedure (SESP)** in accordance with UNDP's SES and the Adaptation Fund's ESP. This will include:

- Category classification based on potential risks and impacts;
- Application of mitigation and management measures;
- Public disclosure and stakeholder consultation where needed;
- Monitoring and reporting of any identified environmental or social risks.

The project design embeds **learning and adaptive knowledge transfer** as both a delivery strategy and a safeguard for responsible innovation. Structured learning systems will capture evidence from innovation pilots and feed this knowledge back into institutional processes at the national and sub-national levels. These learning loops will serve as early detection mechanisms for social or environmental concerns, enabling course corrections and policy refinement.

Key safeguards and knowledge integration measures include:

1. **Innovation screening and due diligence:** All proposed innovations - whether technological, nature-based, or process-oriented - will be screened for alignment with environmental standards, social equity principles, and climate adaptation relevance. The screening process will also ensure innovations do not cause maladaptation or unintended environmental harm.
2. **Social inclusion and local empowerment:** Innovation activities will actively involve women, youth, and marginalized communities. Grant selection criteria will prioritize proposals that demonstrate community participation, local ownership, and socially inclusive benefits. Where applicable, consent protocols will be applied in accordance with **Free, Prior, and Informed Consent (FPIC)** procedures.
3. **Cultural and indigenous knowledge integration:** The project will document and, where appropriate, support the adaptation of traditional practices, such as water conservation, land stewardship, and crop diversification, especially in regions such as Fezzan and the Nafusa Mountains. Cultural rights and intellectual property will be safeguarded in accordance with **Standard 4 (Cultural Heritage)** and **Standard 6 (Indigenous Peoples)** of UNDP's SES.
4. **Digital risk management:** In alignment with Libya's Digital Transformation Strategy, all digital components (e.g., knowledge platforms, innovation dashboards) will adhere to best practices on **data privacy**, **open access**, and **cybersecurity**. Infrastructure reliability, especially in underserved regions, will be assessed prior to deployment of digital tools.
5. **Transparency, accountability, and grievance mechanisms:** The project will establish a feedback and grievance redress mechanism at the Environment Protection Fund, aligned with both the Adaptation Fund's grievance handling provisions and UNDP's SES protocols. This will ensure that affected individuals or communities can raise concerns and receive timely responses.
6. **Monitoring, documentation, and public access:** A centralized knowledge portal, hosted by the Ministry of Environment or the Fund, will house documentation related to:
 - Environmental and social screening outcomes;
 - Innovation case studies and impact reports;

- Community engagement records;
- Dashboard visualizations of grant distribution and progress.

This will ensure transparency, allow donor and public oversight, and enable the scaling of innovations with demonstrated environmental and social benefits.

H. Describe if there is duplication of project / programme with other funding sources, if any.

The proposed project has been strategically designed to complement existing initiatives, avoid duplication, and fill a critical gap in Libya's climate adaptation landscape: the lack of a nationally coordinated innovation ecosystem tailored to climate resilience. While several programmes are active in supporting entrepreneurship, climate resilience, or governance reforms, none directly aim to institutionalize climate innovation as a structured public function or policy priority. This project therefore introduces an innovation-focused layer to Libya's adaptation architecture, linking universities, municipalities, incubators, and vulnerable communities through tailored innovation pipelines.

Key relevant and complementary initiatives include:

1. **UNDP – Enhanced National Capacities for Improved Water Security in Libya:** This project supports the National Water Security Strategy, operational capacities for public operators, and community-based water governance. The proposed innovation project will complement it by enabling **digital, low-cost, and localized innovation** for water access, monitoring, and drought resilience. It will utilize data and entry points from water-stressed municipalities already engaged in the Water Security Project, particularly in the Jebel Nafousa region.
2. **UNDP – Environment and Climate Change Mitigation in Libya:** Focused on governance, environmental safeguards, and early warning systems, this project created technical platforms that the innovation initiative will build upon. Specifically, it will pilot **sensor-based monitoring, participatory citizen science, and climate-smart planning tools** through university hubs, ensuring that innovation responds to local environmental data.
3. **GIZ – CASEP and SECCAR projects (EU/BMZ co-financed) supporting Libya's National Adaptation Plan process and sectoral climate resilience:** The GIZ Climate Adaptation Support to the Libyan Economy and Population (CASEP) project, co-financed by the European Union and the German Federal Ministry for Economic Cooperation and Development (BMZ), provides direct technical support to the Libyan Ministry of Environment in the development of Libya's first National Adaptation Plan, working through participatory, multi-stakeholder processes covering priority sectors including water, agriculture, and health. The complementary SECCAR project supports broader sectoral climate resilience and adaptation institutional capacity. The proposed Innovation project is designed to feed directly into Libya's NAP development process rather than to operate in parallel: the National Adaptation Innovation needs and gap assessment under Component 1, the National Adaptation Innovation Standard developed under Component 2, the 70 piloted and 15 accelerated Libyan-led adaptation innovations financed under Component 3, and the policy briefs produced under Component 4 will be made available to the NAP process as inputs into the innovation and technology dimensions of Libya's NAP. To operationalise this complementarity and avoid duplication of vulnerability assessment or sectoral planning streams, a Joint Coordination Protocol will be established between UNDP Libya, the Ministry of Environment, and GIZ-CASEP at project inception, defining: (i) shared use of vulnerability assessment data and methodologies between Component 1 and the NAP process; (ii) reciprocal participation in technical advisory bodies; (iii) joint annual coordination workshops convened by the Ministry of Environment to review combined programming and identify integration opportunities. The Joint Coordination Protocol will be formalised as a deliverable under Component 1 in Year 1.
4. **RENEWAL Project (UNOPS/IFAD – Adaptation Fund):** RENEWAL targets rural resilience and agriculture. To avoid duplication, the innovation project will focus on **co-developing scalable tools and practices**, such as community-run irrigation innovations, drought-adapted value chains, and regenerative agriculture startups. Coordination will be ensured through shared regional engagement in Fezzan and Nafousa.
5. **UNDP BIOFIN – Biodiversity Finance Initiative:** BIOFIN's biodiversity assessments and financing strategies will inform the innovation project's climate-nature nexus design. Innovation criteria under the Climate Innovation Facility will integrate BIOFIN's valuation methodologies, **promoting nature-based innovation solutions with co-benefits for ecosystems and livelihoods**.
6. **UNDP Libya Accelerator Lab:** The Lab has piloted grassroots solutions addressing circular economy, groundwater flooding, and youth innovation. These learnings will be directly fed into the new project's innovation challenges and **serve as a base for scaling successful pilots nationally**.
7. **Deraya Entrepreneurship Initiative (UNDP, Tatweer, Flat6Labs, AfDB):** This multi-stakeholder programme provides business support, competitions, and early-stage coaching. The innovation project will **not duplicate Deraya's**

functions but will collaborate on challenge design, co-hosting climate innovation bootcamps, and funneling climate solutions from Deraya participants into the national innovation facility.

8. **Libya Startup Programme (EU, SPARK, Super Novae):** This programme delivers training and modest seed capital to entrepreneurs, including women and youth. The innovation project will coordinate to ensure complementarity - **targeting climate adaptation-focused ventures** and offering a next-level scale-up pathway via Climate Innovation Hubs at universities.
9. **National Incubators and Hubs (e.g., STREAM, Tatweer TEC, BINA Libya):** Libya has a growing but uneven innovation and startup ecosystem. The project will **build partnerships** with these incubators to integrate climate innovation themes, ensure geographical equity (e.g., underserved regions like Sabha and Sirte), and establish climate-focused programs that benefit from their infrastructure while addressing a critical thematic gap.

Strategic Coordination and Value-Added

To ensure synergy and integration across programmes:

- The project will engage with Libya's existing incubators, entrepreneurship programmes, and UNDP country platforms to **embed climate themes** and avoid duplication of services.
-
- It will use stakeholder coordination forums, including the National LLA Coordination Platform under the parallel UNDP Libya LLA project, the Ministry of Environment's existing technical focal points, the National Climate Change Committee, and the Joint Coordination Protocol with GIZ-CASEP, to align implementation with Libya's first NDC (drafted 2025) and to feed into the National Adaptation Plan as it develops through the GIZ-CASEP process.
- Joint innovation calls, knowledge-sharing platforms, and an inter-institutional climate innovation task force will be launched to align **municipal, academic, and private-sector innovation efforts**.
- Critically, the Climate Innovation Facility will address a **gap unfilled by any current initiative**: dedicated, adaptation-specific innovation support that is inclusive, locally driven, and structurally embedded in Libya's national climate agenda.

- I. Describe the learning and knowledge management component to capture and disseminate lessons learned.

A dedicated learning and knowledge management (KM) architecture is embedded across the project cycle to ensure that innovations, implementation experiences, and lessons learned are systematically captured, curated, and disseminated to inform both national policymaking and regional peer exchange. This is particularly critical given the nascent state of Libya's adaptation ecosystem and the project's role in shaping a replicable innovation model.

Integrated learning framework

- Each component is designed with **built-in feedback loops**, ensuring that implementation results, positive or otherwise, are captured in real time. For instance, Adaptation Innovation Hubs will maintain **project learning logs**, documenting what works (or fails) in startup development, community engagement, and solution deployment.
- A **national knowledge coordination node** will be housed within one of the lead universities, linked to the three Adaptation Innovation Hubs, serving as the repository for project data, case studies, technical toolkits, and monitoring results.
- All supported innovation teams will be required to include a **"lessons and learning" section** in their project reporting templates. These will feed into a central knowledge base, informing the design of future adaptation investments.

Tools and mechanisms for knowledge capture

- **Quarterly learning briefs** will be compiled by the project team, synthesizing key insights from ongoing activities (e.g., performance of accelerated startups, inclusivity in innovation calls, regional collaboration outcomes). These briefs will be circulated to stakeholders and published on an open-access project portal.
- **Annual knowledge reviews** will bring together representatives from universities, the National Council for Economic Diversification, the Climate Change Directorate, and international partners to assess lessons to date and refine strategies.
- A **Lessons Learned Compendium** will be developed by Year 3, capturing at least 15 detailed case studies on innovation acceleration, institutional partnerships, community engagement, and gender-responsive design.

Regional and global dissemination

- The project includes a strong **South–South learning focus**. Through partnerships with innovation actors from other MENA countries (e.g., Armenia, Tunisia, Jordan), knowledge will be exchanged via:
 - Peer-learning visits and exchange missions (minimum 3 over the project period)
 - Joint webinars and regional knowledge showcases
 - Inclusion of Libyan case studies in regional adaptation innovation platforms
- Libya will also contribute to global innovation and adaptation networks, including through submission of cases and evidence to the Adaptation Fund's **Community of Practice for Direct Access Entities (CPDAE)** and the **UNDP Accelerator Lab network**.

National uptake and institutional embedding

- The project will work with the Climate Change Directorate and the Ministry of Higher Education to **institutionalize successful learning tools**, such as the Hub training curricula and selection methodologies for innovation calls, into formal policy and academic programs.
- By the project's final year, a **“National Blueprint for Climate Adaptation Innovation”** will be developed - summarizing the institutional, technical, and financial lessons and offering a roadmap for replication by local governments, other ministries, and external partners.

The project will establish a dedicated Knowledge Management and Learning (KM&L) function embedded within the lead university hub. This function will be responsible for capturing lessons from innovation cycles, stakeholder engagement, and grant implementation. KM outputs will include quarterly learning briefs, a national innovation compendium (Year 3), and regional peer-reviewed case studies. A digital knowledge portal will centralize tools, videos, dashboards, and case studies - available in Arabic and English. To ensure institutional uptake, annual policy dialogues will integrate learning insights into national adaptation planning, while south-south exchanges will promote knowledge transfer across fragile MENA countries.

- J.** Describe the consultative process, including the list of stakeholders consulted, undertaken during project / programme preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The proposed project is grounded in a multi-tiered consultative process led by UNDP Libya in partnership with the Ministry of Environment and other key national institutions. The design process ensured alignment with the Environmental and Social Policy (ESP) and Gender Policy of the Adaptation Fund, and placed particular emphasis on inclusion, innovation, and ownership by vulnerable groups.

- 1. National Local Adaptation Workshop – May 2024:** In May 2024, UNDP and the Ministry of Environment co-convened a national workshop focused on local climate adaptation, bringing together over 80 stakeholders including representatives from 10 municipalities, public universities, women-led organizations, and youth networks. The discussions focused on the role of innovation as a transformative driver in addressing localized climate vulnerabilities, particularly within Libya's fragile and underserved regions. Participants emphasized not only the urgency of decentralized adaptation but also the potential of context-specific innovation, technological, institutional, and social, to unlock scalable, sustainable solutions. Key challenges identified included institutional inertia, gender-based barriers to participation, and the absence of structured financing channels for climate innovation. The workshop's outcomes directly informed the project's design, especially the establishment of university-linked innovation hubs as incubators for climate adaptation solutions, the inclusive structuring of the Climate Innovation Facility to channel small grants toward grassroots innovators, and the active integration of youth and women as central actors in the innovation ecosystem.
- 2. Technical Bilateral Consultations – March to July 2024:** Targeted bilateral consultations were held with the Ministry of Environment's technical departments, the Environment Protection Fund (EPF), national adaptation focal point, and academia. These sessions helped validate the institutional anchoring of the Climate Innovation Facility within the EPF and shaped the project's safeguards, risk screening, and gender mainstreaming components. UNDP's Gender focal point provided feedback on ensuring equitable access to innovation financing and institutional capacity-building for underrepresented groups.
- 3. Strategic High-Level Consultation – July 2024:** A strategic consultation was held with representatives from the Adaptation Fund, GEF, and GCF focal points, and academia. The session ensured policy coherence across vertical funds and Libya's national planning frameworks, especially the forthcoming National Adaptation Plan (NAP) and NDC. Participants emphasized the need to embed innovation within the national climate strategy and to create structured pipelines for community-driven and university-based adaptation solutions. The Ministry of Higher Education expressed

strong interest in linking climate resilience with academic research, which informed the component on establishing innovation hubs in select universities.

4. **Grounding in UNDP Project Experience and Local Engagement:** The project builds on the field-based insights and partnerships generated through ongoing UNDP projects such as the Environment and Climate Change Mitigation Project, BIOFIN, the Water Security in Libya Project, and the EU-funded Climate Change Project. These initiatives engaged a broad range of stakeholders, including CSOs, cooperatives, universities, municipalities, and vulnerable groups, especially in the southern and coastal regions. Consultations during these projects revealed a major gap in institutional innovation capacity, limited access to climate finance, and the systemic exclusion of youth and women from climate-related decision-making processes. The innovation project design directly responds to these findings by establishing structured, equitable mechanisms for participation and innovation support.
5. **Contribution from National Policy Consultations (NAP, NDC, Water Security Strategy):** Between 2024–2025, UNDP supported a series of national policy consultations on climate governance, drought risk management, and water security. These multi-sectoral dialogues provided valuable insights on institutional fragmentation, climate financing bottlenecks, and regional disparities in adaptive capacity. The Innovation Concept Note reflects this by proposing an integrated approach that bridges policy, academia, and community needs. Special focus was placed on enabling bottom-up innovation models that can inform NAP implementation and accelerate NDC delivery through decentralized and inclusive means.
6. **Inclusive and Gender-Responsive Engagement:** Across all consultations, efforts were made to ensure the meaningful participation of women, youth, and marginalized stakeholders, including internally displaced persons and community leaders from climate-vulnerable regions. Specific gender-responsive measures included:
 - Dedicated consultation sessions with women-led cooperatives and female academics;
 - Identification of structural barriers to women's participation in innovation and entrepreneurship (e.g., access to finance, mobility, and digital skills);
 - Design of the Climate Innovation Facility's selection criteria to ensure at least 50% of supported initiatives are led by women or youth;
 - Plans to embed gender-responsive innovation indicators in monitoring frameworks.

This inclusive and iterative consultative process ensured the project design is locally grounded, contextually relevant, and socially equitable, meeting the Adaptation Fund's standards for participatory, environmentally sound, and gender-transformative programming.

- K. Describe how the project/programme draws on multiple perspectives on innovation from e.g., communities that are vulnerable to climate change, research organizations, or other partners in the innovation space, in the context in which the project/programme would take place.

The proposed project is explicitly designed to integrate diverse perspectives on innovation across multiple layers of the Libyan ecosystem, ensuring relevance, ownership and technical robustness. This pluralistic approach reflects the country's emerging but fragmented innovation landscape, while leveraging regional and international expertise to contextualize and scale adaptation solutions.

Community-level perspectives will be systematically embedded through the initial mapping of climate vulnerabilities and stakeholder consultations. These will capture the lived experiences of local populations facing climate stressors such as extreme heat, desertification, and water scarcity. Youth-led organizations, women's cooperatives, and marginalized groups will participate in structured dialogues that inform both the thematic focus of innovation calls and the selection criteria for grants. This ensures that the innovations supported are not only technically sound but rooted in the realities of those most affected by climate change.

Academic and research institutions - selected public universities hosting the three Adaptation Innovation Hubs (final selection during full proposal preparation) - will serve as anchor partners for the innovation hubs. Their role will include co-leading applied research on locally relevant adaptation challenges, co-designing curricula for climate entrepreneurship, and mentoring student-led initiatives. The project also draws on evidence from UNDP Accelerator Lab assessments and FAO-supported resilience studies to inform design parameters and ensure continuity with past diagnostic efforts.

Private sector actors, including existing incubators and early-stage startups identified in the recent ecosystem snapshot, will provide market-driven insights into the feasibility, scalability, and investment-readiness of proposed solutions. By engaging entities such as Tadawul Tech, Benghazi's entrepreneur networks, and co-working spaces like Tatweer Research, the project will triangulate technical feasibility with business viability.

Regional and international knowledge partners will also be engaged to expand the pool of perspectives. Organizations like the Enterprise Incubator Foundation (EIF) from Armenia or similar peer institutions will be invited to provide technical assistance on innovation management, incubation design, and south-south knowledge exchange. This enables Libya to benefit from adaptation experiences in similarly fragile or transitional contexts.

By harmonizing these perspectives, community-driven, research-led, market-responsive, and internationally informed, the project ensures that the innovation process is inclusive, adaptive, and capable of generating impactful climate adaptation solutions that are scalable within and beyond Libya.

L. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Libya faces mounting climate pressures that have outpaced the country's institutional and technological capacity to respond. The proposed USD 5 million investment represents the cost of piloting of a national ecosystem for adaptation innovation in three leading universities - one that does not currently exist and cannot be developed incrementally through fragmented interventions. The project addresses systemic market and institutional failures that prevent climate adaptation solutions from being developed, tested, and scaled, particularly those led by local actors and knowledge institutions.

Urgency and scale of the adaptation gap

Libya is among the world's most water-scarce countries. Over 80 percent of water for agriculture comes from non-renewable aquifers, while rainfall remains sporadic and largely insufficient. Rising temperatures - estimated to have increased by nearly 2°C over the past 50 years - combined with desertification, flash flooding, and urban heat have triggered cascading risks for agriculture, health, water security, and livelihoods. At the same time, less than 1 percent of the country's land is arable, limiting adaptation options and increasing exposure to food insecurity.

In 2023, Libya experienced one of the deadliest climate-induced disasters in its history. Storm Daniel caused catastrophic floods in Derna, resulting in over 6,000 deaths, 40,000 displaced persons and infrastructure damages exceeding USD 500 million. The crisis underscored the country's acute vulnerability and lack of early warning systems, resilient urban planning and responsive adaptation capacity. These losses are preventable with forward-looking, systemic, and locally embedded adaptation responses - precisely what this project is designed to establish.

Investment justification – what the USD 5 million enables

The full USD 5 million is needed to finance a coherent, end-to-end innovation architecture that unlocks and accelerates adaptation solutions across Libya. This includes four critical investment areas:

1. **Laying the foundation for adaptation innovation:** The project will finance the establishment of three Adaptation Innovation Hubs at selected public universities (one in each of western, eastern and southern Libya, with final selection during full proposal preparation), and the establishment of the Climate Innovation Facility under the Environment Protection Fund. Together these serve as anchor institutions to identify, incubate, and refine locally appropriate adaptation solutions - something no existing public institution is currently mandated or equipped to do.
2. **Financing the deployment of early-stage innovations:** Through a national open call for proposals, the project will support 70 piloted adaptation innovations (average USD 18,000 micro-grant), with 15 top performers receiving acceleration grants (average USD 80,000) for scaling preparation. Innovations are expected to address urban heat, climate-resilient water systems, sustainable agriculture, and decentralised early warning mechanisms, among other contextually identified adaptation priorities.
3. **Building institutional and human capacity:** 200 individuals - including students, researchers, entrepreneurs, women- and youth-led innovators, persons with disabilities, ethnic minority community innovators, and municipal planners - will be trained in adaptation innovation, business modelling and adaptation project development across the three hubs (50% women, 30% youth). A structured mentorship and peer-learning framework will accompany technical training, enabling longer-term capacity retention.
4. **Establishing sustainable mechanisms for innovation management:** The project will operationalise the Climate Innovation Facility under the Environment Protection Fund as Libya's permanent institutional steward of adaptation innovation, with eligibility criteria, the four-test innovation screening protocol, appraisal procedures, and grant management systems institutionalised under Component 2. These systems will ensure continuity, transparency, and replicability beyond the life of the project.

If even 50 percent of the 70 piloted and 15 accelerated innovations reach scale, and each benefits an average of approximately 1,500 people through services or access to adaptation technologies, the project could indirectly reach over 125,000 people. With a USD 5 million investment, this translates to approximately USD 40 per indirect beneficiary - a strong ratio for a systemic investment in adaptation resilience in a fragile and conflict-affected operating context.

The cost of inaction and preventable losses

Rebuilding after climate-induced disasters is exponentially more expensive than preventive action. The cost of damages from just one event, Storm Daniel, was over 100 times larger than this proposed project. If innovation-driven adaptation measures reduce the severity or frequency of such losses by even 10 to 15 percent in the coming decade, the return on investment will be substantial. Moreover, without this grant, no mechanism currently exists to crowd in private sector or institutional investment in adaptation innovation in Libya. The cost of inaction is continued fragmentation, rising losses and missed opportunities to localize resilience.

Added value of regional collaboration

The project also benefits from regional partnerships and knowledge exchanges with MENA innovation hubs in Jordan, Egypt, Tunisia and Armenia. These partnerships allow Libya to leapfrog through adapted models, avoid costly mistakes, and mobilize regional expertise without relying on expensive international technical assistance. The regional angle strengthens cost-efficiency through peer learning, shared curricula, and joint programming.

The funding requested represents the cost of piloting a nationally anchored, locally accessible adaptation innovation ecosystem in Libya, through three Adaptation Innovation Hubs at selected public universities and the Climate Innovation Facility under the Environment Protection Fund. This effort will not duplicate existing initiatives but will fill a critical institutional and systemic gap by introducing dedicated structures for adaptation research, solution development, and startup support - none of which currently exist in the country. The investment is designed to generate scalable, inclusive and high-impact outcomes, laying the groundwork for future expansion and replication. By enabling innovation at the local level and fostering linkages across academia, government, and the private sector, the project offers long-term value at a fraction of the cost of recurring climate-related loss and damage. Without this support, Libya's adaptation innovation capacity will remain fragmented and reactive, perpetuating rising risks and foregone opportunities for transformative resilience.

M. Describe how the sustainability of the project / programme outcomes has been taken into account when designing the project / programme.

Sustainability has been designed into the project across the five dimensions assessed by the Adaptation Fund - institutional, social, environmental, economic and financial - with structural investments designed to outlive the project cycle and reduce dependency on continued external funding. Rather than focusing solely on delivering short-term results, the project builds enduring institutional, regulatory, and financial systems for adaptation innovation in Libya, anchored within Libya's existing administrative architecture and supported by named institutional stewards at national and sub-national levels. The exit strategy is built on progressive handover, not abrupt withdrawal, and identifies a distinct institutional steward for each tier of the adaptation innovation architecture established by the project.

Institutional sustainability

The institutional stewardship of the adaptation innovation architecture established by the project is structured across three named anchors. At national level, Libya's National Designated Authority for the Adaptation Fund - the Ministry of Environment - assumes ownership of the National Adaptation Innovation Standard developed under Component 2 and the project's policy uptake outputs under Component 4, ensuring integration into Libya's emerging climate planning processes and into future Adaptation Fund engagement. At intermediate level, the Environment Protection Fund (EPF) assumes the role of long-term institutional and financing steward through the Climate Innovation Facility (CIF) established as a sub-vehicle of the EPF under Component 2, with formal governance, eligibility criteria for adaptation innovation, the four-test screening protocol, appraisal and grant management procedures, and M&E systems all developed and institutionalised during project implementation. At hub level, the three Adaptation Innovation Hubs are anchored within selected public universities through formal Memoranda of Understanding signed during the project's inception phase, with hub operations integrated into university structures and committed to host institutional support during and beyond the project period. This three-tier institutional steward architecture provides the adaptation innovation ecosystem with a defined institutional home at every level of the Libyan governance system, addressing the central sustainability question of who owns the architecture after Adaptation Fund support concludes.

Social sustainability

Social sustainability is built through the project's deliberate investment in a distributed, capacity-strengthened cohort of Libyan adaptation innovators - students, researchers, entrepreneurs, women- and youth-led innovators, ethnic minority community innovators, persons with disabilities - trained and supported through the Adaptation Innovation Hubs over the four-year period. The 200 trained individuals (50% women, 30% youth) and the 70 piloted plus 15 accelerated innovators constitute a sustained delivery capacity that can absorb future climate finance flows from the Climate Innovation Facility, the Adaptation Fund, GCF, bilateral partners and government allocations. Hub Advisory Panels - comprising academics, private sector mentors, local authorities, civil society and innovator representatives, with formal gender and youth quotas - institutionalise community ownership of the innovation pipeline. The project's accommodations for women, youth, persons with disabilities and ethnic minority innovators (mobility-sensitive scheduling, childcare-friendly venues, universal design,

multi-lingual delivery in Tamazight, Tamashek and Tedaga where relevant) ensure the innovator cohort reflects the populations most vulnerable to climate change.

Environmental sustainability

All adaptation innovations financed under Component 3 are screened against the project's Environmental and Social Management Framework at proposal evaluation stage, with environmental safeguards integrated into grant agreements and milestone-based disbursement conditioned on ESMP compliance where relevant. The four-test screening criteria for adaptation innovation (Section II.A) ensure that financed innovations respond to documented climate vulnerabilities and deliver adaptation benefits without generating adverse environmental impacts. The Climate Innovation Facility's eligibility criteria, developed under Component 2, embed environmental safeguards permanently in the appraisal process, ensuring that environmental sustainability is institutionalised in the long-term financing architecture rather than secured only for the project period. The project's environmental sustainability is anchored institutionally in the Ministry of Environment as National Designated Authority and the Environment Protection Fund as financing steward, both of which carry environmental mandates aligned with the project's design.

Economic sustainability

The project's economic sustainability rests on three anchors. First, the 70 piloted and 15 accelerated innovations are designed to generate economic value - for the innovators themselves, for the communities they serve, and for the Libyan adaptation economy - providing the demand signal that justifies continued investment in the architecture beyond the project cycle. Second, the Climate Innovation Facility is designed from inception with multiple financing pathways, capable of receiving and programming adaptation innovation finance from the Adaptation Fund, GCF, bilateral donors and domestic public allocations - a diversification that protects against any single financing source becoming critical. Third, the cohort of 200 trained Libyan adaptation innovators creates a sustained delivery capacity for adaptation programming that can absorb future flows of climate finance, leveraging existing capacity rather than rebuilding it for each new initiative.

Financial sustainability

Financial sustainability beyond the project period is anchored in a clear post-project financing strategy for the Climate Innovation Facility. By Year 4, the Facility transitions into full ownership by the Environment Protection Fund, supported by a diversified set of financing pathways. First, the project will support the Government, through the Ministry of Environment and the Environment Protection Fund, in assessing options for predictable domestic financing of climate innovation. Second, the Facility will be positioned to mobilise external resources - bilateral climate adaptation funding, EU and regional stabilisation programmes, GCF Readiness and Project Preparation Facility windows - building on its tested governance model and evidence of successful pilots. Third, the project will establish a pipeline of investment-ready innovations to attract private-sector co-financing, including from agribusiness, water utilities, ICT companies, and municipal service providers. Fourth, the project will support assessment of the feasibility of green bonds or climate-themed municipal bonds as medium-term financing instruments for scaling proven innovations. The handover strategy begins in Year 3, when Environment Protection Fund staff will progressively assume responsibility for grant management, monitoring, and innovation selection processes. By the end of Year 4, all operational, administrative and financial systems will be fully transferred to the Environment Protection Fund, ensuring that the Climate Innovation Facility functions as a permanent national mechanism capable of mobilising and deploying adaptation innovation finance well beyond the life of the Adaptation Fund grant.

The project's results - vulnerability assessments, the National Adaptation Innovation Standard, piloted and accelerated innovations, knowledge products and policy briefs - are channelled through Libya's National Designated Authority for the Adaptation Fund and the National Climate Change Committee to inform NDC update cycles and to feed into Libya's National Adaptation Plan as it develops. By avoiding parallel systems and instead strengthening existing institutions and frameworks, the project maximises the chances of scale-up and replication through domestic and international channels.

- N.** Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

Project Risk Register

The project operates in a fragile, conflict-affected and politically fragmented operating environment. The risk register below identifies the principal operational, security, fiduciary, partner-capacity and political risks to project delivery, with named likelihood and impact ratings, project-design responses, and concrete mitigation measures. The risk register will be reviewed quarterly through the project's M&E system and updated annually by the Project Steering Committee, with critical risks flagged for immediate Implementing Entity attention.

Risk	Likelihood	Impact	Project response and mitigation
Security and access risks across geographically distributed hubs and innovation grantees. Libya's FCV context - political fragmentation between the Government of National Unity and the Government of National Stability, the presence of armed groups, contested territorial control in parts of the south and centre, and intermittent disruption of road and air access - may restrict project staff access to hub locations and constrain implementation in conflict-affected areas where innovation grantees may operate.	<i>High</i>	<i>High</i>	The project applies a phased entry model: the three Adaptation Innovation Hubs are established in Year 1 in locations selected partly on the basis of stable security access (one in each of western, eastern and southern Libya); innovation grants in conflict-affected areas are assessed for security feasibility at proposal evaluation stage. UNDP's Department of Safety and Security (UNDSS) Security Risk Management protocols apply throughout. The project's reliance on local actors - innovators, hub-based mentors, university partners, the Environment Protection Fund, civil society organisations - reduces dependence on international staff travel. UNDP Libya's existing field operations infrastructure provides the access architecture. The Joint Coordination Protocol with GIZ-CASEP includes shared security risk monitoring. The risk register is reviewed quarterly with security-related flags triggering immediate review of hub-level operations and grantee site selection.
Political volatility, governance fragmentation, and risks to government counterpart engagement. Libya's parallel governance structures, the unresolved political process under UNSMIL's Roadmap, and the possibility of changes in ministerial leadership during the project's four-year period may disrupt project counterpart relationships, delay formal endorsements, or affect the operational status of the National Designated Authority and the Environment Protection Fund.	<i>Medium</i>	<i>High</i>	The project's institutional anchoring in the Ministry of Environment as National Designated Authority is reinforced by parallel anchoring in the Environment Protection Fund (host of the Climate Innovation Facility), the Ministry of Higher Education (university hubs), and the National Climate Change Committee, ensuring that no single political dependency can stall delivery. The project works at university and Fund level - where institutional continuity has historically been greater than at central political level - and through technical institutions whose mandates have proven durable across political cycles. The project's design includes flexible scheduling of national-level deliverables (e.g., the National Adaptation Innovation Standard validation) to absorb central-level delays without affecting hub-level implementation. UNDP Libya's existing relationships across both governance architectures provide implementation continuity.
Government funding and co-financing risks. Sustainability of the project's results - particularly the long-term financing of the Climate Innovation Facility through the Environment Protection Fund, and the eventual integration of adaptation innovation funding into national climate planning processes - depends on government allocations that are subject to fiscal volatility, oil-price exposure, and political	<i>Medium</i>	<i>Medium</i>	The project does not depend on government cash co-financing during implementation. Sustainability commitments to be formalised through Memoranda of Cooperation by Year 3 explicitly include Environment Protection Fund financing readiness, but the project is designed so that core results are achieved within the four-year Adaptation Fund grant. The Climate Innovation Facility is designed from inception with multiple financing pathways - bilateral climate adaptation funding, EU and regional stabilisation programmes, GCF Readiness and Project Preparation Facility windows, private-sector co-financing, and potential domestic public allocations - so that no single financing source is critical to the Facility's continued

Risk	Likelihood	Impact	Project response and mitigation
prioritisation decisions outside the project's control.			operation.
Grant management and disbursement risks across 70 piloting and 15 acceleration grants. The competitive innovation grants facility - disbursing 70 piloting micro-grants (average USD 18,000) and 15 acceleration grants (average USD 80,000) to first-time innovation grantees including informal innovators, students, and community-based organisations - carries elevated risks of disbursement delays, fiduciary irregularities, capacity gaps among grantee organisations, and innovation pilot underperformance.	<i>Medium</i>	<i>High</i>	The grants facility applies milestone-based disbursement with independently verified completion required before final tranche release. Proportionate, grant-tier-appropriate due diligence is applied at proposal evaluation stage, with piloting micro-grants subject to simplified screening complemented by enhanced hub-based mentorship and supervision, and acceleration grants subject to full due diligence. The structured innovation challenge methodology under Component 3 - with hub-based technical screening, independent national selection committee, four-test eligibility screening, and milestone-based disbursement - applies international good practice from comparable AF and UNDP innovation programmes. The Climate Innovation Facility Operations Manual (Component 2 deliverable) institutionalises the grant management architecture beyond the project cycle. The risk register tracks grant disbursement progress quarterly.
Partner capacity risks at Executing Entity, Responsible Party, and grantee levels. Libya's institutional landscape - characterised by years of political fragmentation, fiscal stress, and limited prior climate finance experience - means that prospective Executing Entities (Environment Protection Fund, public universities), Responsible Parties (national CSOs and CBOs), and innovation grantees (startups, university labs, community innovators, women- and youth-led innovators) may have variable financial management, procurement, and programmatic delivery capacity.	<i>Medium</i>	<i>Medium</i>	Capacity assessments are conducted at full proposal stage for all named Executing Entities and prospective Responsible Parties using UNDP's standard instruments - HACT micro-assessment, Partner Capacity Assessment Tool (PCAT) - with capacity gaps addressed through targeted capacity-building plans embedded in Component 2. An institutional capacity diagnostic is applied to the Environment Protection Fund as host of the Climate Innovation Facility. Innovation grantees undergo proportionate due diligence at proposal evaluation stage, with hub-based mentorship and milestone-based disbursement compensating for limited prior experience among innovation grantees. Component 2 itself is in significant part designed to strengthen partner and grantee capacity as a deliberate institutional legacy, ensuring that capacity strengthening is not merely a risk mitigation measure but a core project outcome.
Procurement, operational and reputational risks, including from prior UNDP Libya OAI/audit observations. UNDP Libya's previous Office of Audit and Investigations (OAI) reviews and procurement audit observations identified specific operational risks	<i>Low</i>	<i>Medium</i>	The project incorporates the lessons of previous UNDP Libya OAI and procurement audit observations through: detailed procurement planning to mitigate implementation delays, with all major equipment procurement front-loaded into Year 1 work plans; use of UNDP global Long-Term Agreements (LTAs) for equipment procurement where applicable; private sector engagement structured through UNDP procurement procedures rather than Responsible Party Agreements; quarterly

Risk	Likelihood	Impact	Project response and mitigation
relevant to project implementation in this context. The project must apply the lessons of those reviews, particularly given the procurement of hub equipment (climate data tools, prototyping equipment, connectivity, solar backup systems).			procurement progress monitoring; standard UNDP audit and oversight protocols throughout the four-year period. Delegation of authority arrangements with UNDP Regional Bureau for Arab States are followed for any refurbishment or equipment-procurement actions exceeding country-office thresholds.
Climate hazard risks during implementation. The project operates in an environment of accelerating climate hazards - heatwaves, dust storms, flash flooding, drought - that may directly affect project staff, hub operations, and grantee operations during the implementation period, particularly in southern Libya where climate exposure is most severe.	<i>Medium</i>	<i>Low</i>	The Component 2 hub investments include solar backup systems and resilient connectivity to manage climate-driven disruptions to electricity and operations. UNDP Libya's existing emergency preparedness protocols apply to project staff and operations. The phased hub establishment provides flexibility to adjust implementation sequencing in response to climate-driven disruptions. Innovation grants whose own outcomes depend on climate-stable conditions for testing apply contingency planning at proposal evaluation stage.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	No	Risk: Minimal risk of non-compliance with Libyan legislation. However, decentralized innovation support across different institutions may create coordination gaps in adhering to national regulations. Project approach: The project will be implemented through legally recognized institutions (e.g. universities, ministries) and anchored in existing national policy frameworks on innovation and decentralization. Mitigation measures: A legal compliance review will be conducted during the full proposal stage to ensure alignment with relevant national laws (e.g. Higher Education Act, Environment Law) and AF requirements.
<i>Access and Equity</i>	Yes	Risk: Moderate risk that participants from peripheral or underserved areas may face barriers to accessing innovation grants and support. Project approach: The project will establish inclusive innovation hubs with national outreach and include explicit equity-focused criteria in grant eligibility and selection processes. Mitigation measures: Outreach activities,

		selection panels, and grant criteria will be designed to ensure broad geographic, gender, and socioeconomic inclusion, supported by a grievance redress mechanism.
<i>Marginalized and Vulnerable Groups</i>	Yes	Risk: Medium risk that youth in conflict-affected areas, displaced populations, and persons with disabilities may be excluded. Project approach: Engagement strategies will be tailored through CBOs, youth groups, and CSOs active in vulnerable communities. Mitigation measures: Targeted grant windows, mentorship programmes, and reserved slots in training activities will ensure inclusion of vulnerable groups. Accessibility standards will be applied in innovation hub operations.
<i>Human Rights</i>	No	Risk: There is no indication that the project would violate human rights. Project approach: The project aligns with Libya's commitments to non-discrimination and inclusive development under national and international human rights frameworks. Mitigation measures: All trainings, partnerships, and grant agreements will integrate human rights safeguards and require partner compliance.
<i>Gender Equity and Women's Empowerment</i>	Yes	Risk: Cultural and institutional norms may limit women's participation in innovation ecosystems. Project approach: A Gender Assessment and Gender Action Plan will be prepared during the PPG stage and guide inclusive design of activities. Mitigation measures: Minimum targets (e.g., 50% female participation), gender-responsive eligibility criteria, and support for women-led enterprises will be implemented across all components.
<i>Core Labour Rights</i>	No	Risk: Most engagements will be academic or consultancy-based. Informal employment or lack of contracts may occur in startup environments. Project approach: Formal contracts will be mandatory for staff and grantees, aligned with ILO standards. Mitigation measures: Partner institutions will be required to comply with national labour laws and ILO principles. Periodic monitoring will verify adherence.
<i>Indigenous Peoples</i>	Risk identified - further assessment required	Risk: While Libya is not generally classified as having Indigenous Peoples in the strictest international legal sense, distinct ethnic minority communities with traditional cultural systems and distinct linguistic identities are present in parts of the project's potential geographic footprint, and the AF ESP Principle 7 screening commitment must be applied where the AF's functional criteria are potentially met. Communities present in potential project areas: Amazigh communities in the Nafusah Mountains and western Libya; Tuareg

		communities in the Fezzan region (including Murzuq and Ghat); Tebu communities in the southeastern desert (including Kufra). These communities have distinct cultural identities, traditional territorial relationships and face documented marginalisation. Project approach: Whether AF ESP Principle 7 applies in full will be determined through site-specific assessment once Component 3 innovation grant locations are confirmed. Mitigation measures: (i) desk review of community presence and characteristics during full proposal preparation, drawing on UNHCR, IOM, and civil society sources; (ii) direct consultation with community representatives where any potentially affected communities are identified, in relevant local languages or dialects (Tamazight, Tamashek, Tedaga); (iii) anthropological and legal review of the application of AF ESP Principle 7 criteria; (iv) where Amazigh, Tuareg, Tebu or other distinct minority communities are confirmed to be present in priority areas, the ESMP and Stakeholder Engagement Plan will include culturally appropriate engagement, community representative involvement in site-level consultations, specific benefit-sharing arrangements, and grievance access mechanisms - consistent with AF ESP requirements and the principle of free, prior, and informed consent where applicable. The Innovation Hub training programme and the innovation challenge methodology under Component 3 actively encourage and accommodate participation by ethnic minority innovators, with multi-lingual delivery and proactive outreach to Amazigh, Tuareg and Tebu community innovators.
<i>Involuntary Resettlement</i>	No	The project does not involve physical infrastructure, land acquisition, or construction that would cause resettlement.
<i>Protection of Natural Habitats</i>	Yes	Risk: Startup projects may propose pilots affecting natural areas. Project approach: All grants will be screened for environmental risk and any field-based activities will be subject to safeguards. Mitigation measures: Grant conditions will include mandatory environmental screening and exclusion criteria for interventions in sensitive ecosystems.
<i>Conservation of Biological Diversity</i>	Yes	Risk: The project itself does not pose biodiversity threats, but startup pilots may introduce risks if interventions are land-based. Project approach: The innovation framework will include environmental vetting for all field-based pilots. Mitigation measures: Guidance will be provided to grantees, and ESMPs applied where relevant to avoid biodiversity loss.

<i>Climate Change</i>	No	Risk: None. The project's core objective is to address climate adaptation. Project approach: All funded initiatives will be required to demonstrate alignment with climate resilience goals. Mitigation measures: Climate-responsiveness will be a scoring criterion for grants and a central theme in training content.
<i>Pollution Prevention and Resource Efficiency</i>	Yes	Risk: Risks may emerge from startup prototypes involving chemicals, energy use, or digital infrastructure. Project approach: Technical screening and guidelines will be included for resource and energy efficiency in startup operations. Mitigation measures: Environmental clauses in grant agreements will regulate waste, energy, and materials management.
<i>Public Health</i>	No	Risk: The project is unlikely to create direct health impacts, but large gatherings or infrastructure upgrades (e.g., labs) could create minor risks. Project approach: All events and trainings will be held in safe venues with health protocols. Mitigation measures: Compliance with national safety and health standards will be mandatory for all project sites and activities.
<i>Physical and Cultural Heritage</i>	No	Risk: None anticipated. No planned activities will affect historical or cultural assets. Project approach: Screening criteria will exclude interventions that may affect cultural heritage. Mitigation measures: National cultural authorities will be consulted if any unexpected risks arise.
<i>Lands and Soil Conservation</i>	Yes	Risk: Most activities are institutional or urban. However, nature-based solutions may be proposed by startups. Project approach: Grant appraisal will consider impacts on land and soil. Mitigation measures: Technical support will be provided to ensure land-based interventions follow sustainable land use practices.

Safeguards Architecture and Pre-Commitments for Full Proposal Stage

The project applies a dual safeguards architecture aligned with both the Adaptation Fund Environmental and Social Policy (AF ESP) and UNDP's Social and Environmental Standards (UNDP SES), with each safeguards instrument named here, anchored to its lifecycle trigger point, and pre-committed as a deliverable for full proposal development.

Preliminary risk categorisation. Based on the screening above and the project's design - which combines policy and capacity strengthening with downstream Component 3 adaptation innovation grants whose specific sub-project sites and activities are determined through the open call rather than at design stage - the project is preliminarily categorised as **AF ESP Category B (moderate risk)** and as **UNDP SES Moderate Risk**, with risks that are site-specific, generally reversible, manageable through standard mitigation measures, and not expected to be unprecedented or to extend beyond grant footprints. The preliminary categorisation will be confirmed during full proposal development, with sub-project-level categorisation applied to each Component 3 innovation grant at proposal evaluation stage.

Full ESP and UNDP SES screening at full proposal stage. A complete AF ESP screening across the 15 environmental and social principles, conducted in parallel with UNDP's Social and Environmental Screening Procedure (SESP), will be completed during full proposal development. Both screenings will be informed by the participatory adaptation innovation needs and gap assessment under Component 1 and by direct consultation with potentially

affected groups, including women, youth, persons with disabilities, internally displaced persons, and ethnic minority communities present in Fezzan and Nafusah Mountains.

Environmental and Social Management Framework (ESMF). Given that specific Component 3 innovation grant sub-projects, sites and activities are not known at concept stage and will be determined through the national open call during implementation, the project will develop an **Environmental and Social Management Framework (ESMF)** as part of full proposal development. The ESMF will provide: (i) sub-project screening criteria aligned with the AF ESP 15 principles and UNDP SES; (ii) an exclusion list (no resettlement-triggering activities, no ecosystem conversion, no activities in protected or ecologically sensitive zones, no activities involving involuntary labour, no activities involving hazardous materials beyond standard prototyping safety thresholds); (iii) sub-project risk categorisation protocols; (iv) standard ESMP templates for moderate-risk sub-projects; (v) chance-find and heritage protection protocols; (vi) grievance mechanism procedures applicable at sub-project level. The ESMF will be the operational safeguards instrument for the Component 3 innovation grants throughout implementation, embedded in the Climate Innovation Facility Operations Manual to ensure long-term application beyond the project cycle.

Stakeholder Engagement Plan (SEP). A dedicated **Stakeholder Engagement Plan (SEP)** will be developed at full proposal stage, informed by the consultations conducted during concept and full proposal development phases and aligned with both AF ESP requirements and UNDP SES Standard 6 (Stakeholder Engagement and Disclosure). The SEP will define stakeholder identification and analysis, engagement modalities and frequency, disclosure procedures (in Arabic and minority languages where relevant - including Tamazight, Tamashek and Tedaga), the project-level grievance redress mechanism, and accountability commitments. The SEP will be a living document updated annually based on stakeholder feedback.

Gender Action Plan (GAP). A dedicated **Gender Action Plan (GAP)**, aligned with the Adaptation Fund Gender Policy and UNDP SES Standard 5 (Gender Equality and Women's Empowerment), will be developed at full proposal stage, building on a gender analysis to be undertaken during full proposal preparation. The GAP will define gender-responsive targets across all components, gender-disaggregated indicators in the project results framework, the project's gender-balanced governance and decision-making arrangements (including the 50 per cent female participation target across hub training and innovation grant cohorts and formal gender quotas on selection committees and Hub Advisory Panels), targeted measures to overcome gender-specific barriers to participation in Libya's context (including mobility restrictions, social norms, and access to information), and gender focal point arrangements at hub and national levels.

Engagement of UNDP Libya Social and Environmental Safeguards focal point. The UNDP Libya Country Office Social and Environmental Safeguards (SES) focal point will be engaged throughout all phases of safeguards work - supporting the SESP screening, the ESMF, the SEP and the GAP development at full proposal stage, providing implementation oversight during the four-year delivery period, and reviewing sub-project ESMPs prior to grant approval. SES focal point engagement is reflected in the project's implementation arrangements and in the budget allocation for safeguards oversight.

Together, these instruments - ESMF, SEP, GAP, sub-project ESMPs - constitute a complete safeguards architecture aligned with both AF and UNDP requirements. All instruments will be disclosed publicly in line with AF ESP and UNDP SES disclosure requirements before relevant project activities commence.

PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

- A. Record of endorsement on behalf of the government¹⁴** *Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project / programme. Add more lines as necessary. The endorsement letters should be attached as an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:*

(Enter Name, Position, Ministry)	Date: (Month, day, year)
(Enter Name, Position, Ministry)	Date: (Month, day, year)
(Enter Name, Position, Ministry)	Date: (Month, day, year)

⁶ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (.....list here.....) and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
<i>Name & Signature</i> Implementing Entity Coordinator	
Date: (Month, Day, Year)	Tel. and email:
Project Contact Person:	
Tel. And Email:	



ADAPTATION FUND

I _____ ment

[Government Letter Head]

[Date of Endorsement Letter]

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for [Title of Project/Programme]

In my capacity as designated authority for the Adaptation Fund in [country], I confirm that the above (select national or regional) project/programme proposal is in accordance with the government's (select national or regional) priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the (select country or region).

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by [implementing entity] and executed by [national or local executing entity].

Sincerely,

[Name of Designated Government Official]
[Position/Title in Government]



التاريخ: 14 / / هـ
الموافق: 20 / / م

الرقم الإشاري:
رقم الملف:

Letter of Endorsement by Government

8th of August 2025

**To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5**

Subject: Endorsement for "Innovation Ecosystems for Climate Adaptation in Libya" Project.

In my capacity as designated authority for the Adaptation Fund in Libya, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Libya.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by United Nations Development Programme and executed by The Environment Protection Fund.

Sincerely,

**Eng. Ahmed Abdulqader Alsoudani
Senior Officer
Ministry of Environment
Libya**

Tel: + 218 9133 98 900
Email: ahalarabi@environment.gov.ly



Project Formulation Grant (PFG)

Submission Date: xx August 2026

Adaptation Fund Project ID: N/A

Countries: State of Libya

Title of Project/Programme: Innovation Ecosystems for Climate Adaptation in Libya

Type of IE: Multilateral Implementing Entity

Implementing Entity: United Nations Development Programme Libya

Executing Entities: During the PFG phase, all project preparation activities will be implemented by UNDP Libya. For the full project, UNDP Libya Country Office is expected to serve as the lead Executing Entity; the Environment Protection Fund is expected to serve as Executing Entity for the Climate Innovation Facility; and selected public universities, with final selection during full proposal preparation, are expected to serve as Executing Entities for the Adaptation Innovation Hubs.

A. Project Preparation Timeframe

Start date of PFG	1 st November 2026
Completion date of PFG	1 st February 2027

B. Proposed Project Preparation Activities (\$)

List of Proposed Project Preparation Activities	Output of the PFG Activities	US\$ Amount	Budget note
1. Development of Full Funding Proposal (FFP)	Complete Innovation Window Full Funding Proposal package ready for Adaptation Fund submission.	18,300	- International consultant to lead technical preparation and quality assurance of the Full Funding Proposal (25 days @ \$600/day = \$15,000); - National consultant support for consolidation, coordination, review-comment integration and final submission preparation (11 days @ \$300/day = \$3,300);
2. Mapping of innovation ecosystem and needs assessment	Innovation ecosystem mapping and needs assessment report completed.	23,963	- Two national experts for data collection, consultations, institutional analysis and ecosystem mapping (2 experts × 24 days each × \$300/day = \$14,400); - Consultations/ logistics (\$4,163); - International expert for methodology, technical quality assurance and peer review (9 days @ \$600/day = \$5,400);
3. Environmental and Social Safeguards: full AF ESP/SESP screening and ESMF	AF ESP/UNDP SESP assessment and Environmental and Social Management Framework prepared.	15,668	- International E&S specialist to lead AF ESP/UNDP SESP screening, ESMF preparation and quality assurance (15 days @ \$600/day = \$9,000); - National E&S specialist for country data, consultations and contextualisation of screening procedures (14 days @ \$250/day = \$3,500); - Logistics and meetings with MoE (\$3,168);

List of Proposed Project Preparation Activities	Output of the PFG Activities	US\$ Amount	Budget note
4. Ethnic-minority (AF ESP Principle 7) site-specific assessment	Documented assessment of AF ESP Principle 7 applicability completed.	6,452	- National social/anthropological expert for desk review, consultations, legal review and findings documentation (<i>12 days @ \$300/day = \$3,600</i>); - Consultations in local languages/dialects, logistics and DSA (<i>\$2,852</i>);
5. Design of Climate Innovation Facility Operations Manual, grant mechanism and four-test screening protocol	Draft Climate Innovation Facility Operations Manual prepared for the Full Funding Proposal.	14,747	- International innovation specialist to lead preparation of the Operations Manual and quality assurance (<i>12 days @ \$600/day = \$7,200</i>); - National legal and policy specialist to support national alignment and institutional-responsibility analysis (<i>12 days @ \$300/day = \$3,600</i>); - Stakeholder consultation, validation, translation and layout support for the Manual (<i>\$3,947</i>);
6. Hub selection, readiness assessment and host-university MoUs	University selection methodology, readiness assessment, selection report and draft host-university MoUs completed.	8,295	- National institutional consultant for methodology, university assessments, consultations, selection report and MoU support (<i>18 days @ \$300/day = \$5,400</i>); - University assessment missions, consultations, logistics and DSA (<i>\$2,895</i>);
7. Capacity assessment of Executing Entities and prospective Responsible Parties	Capacity assessments, gap analysis and capacity development plan completed.	8,295	- National institutional-capacity consultant to conduct assessments and prepare the gap analysis and capacity development plan (<i>18 days @ \$300/day = \$5,400</i>); - Assessment missions, logistics and DSA (<i>\$2,895</i>);

List of Proposed Project Preparation Activities	Output of the PFG Activities	US\$ Amount	Budget note
8. Gender Assessment and Gender Action Plan	Gender Assessment and project-specific Gender Action Plan completed.	9,217	- National gender expert to lead gender analysis and prepare the Gender Action Plan (<i>18 days @ \$300/day = \$5,400</i>); - Consultations, focus groups and community meetings for gender-disaggregated evidence and validation (<i>\$1,900</i>); - Translation and printing for consultation materials and findings validation (<i>\$1,917</i>);
9. Stakeholder consultations and initial validation workshops	Stakeholder Engagement Plan prepared and initial validation workshops completed.	13,036	<i>Stakeholder/SEP consultant to prepare the Stakeholder Engagement Plan and consultation documentation (14 days @ \$300/day = \$4,200);</i> <i>Two workshops for facilitation, interpretation, materials and participation support (\$6,000);</i> <i>Travel / logistics: consultation and workshop logistics support (\$2,836).</i>
10. Learning needs assessment and development of strategic training framework	Learning needs diagnostic and strategic training framework completed.	7,373	- International training/capacity expert to lead the strategic training framework and quality assurance (<i>6 days @ \$600/day = \$3,600</i>); - National education-systems consultant to assess local learning needs and contextualise the framework (<i>9 days @ \$300/day = \$2,700</i>); - Targeted data collection, interviews and formatting (<i>\$1,073</i>);
11. National validation and high-level engagement events	National validation event report completed prior to submission.	9,217	Venue, facilitation, interpretation, documentation, materials and reporting for the national validation event (<i>\$9,217</i>);

List of Proposed Project Preparation Activities	Output of the PFG Activities	US\$ Amount	Budget note
12. Translation and layout of Final Proposal and Annexes	Quality-assured bilingual proposal package professionally formatted and ready for Adaptation Fund submission.	3,686	- Translation of proposal and annexes, including terminology review (\$2,300); - Graphic design and layout for the proposal and annexes (\$1,386);
Project Preparation Activities		138,249	
Implementing Entity Fee (8.5%)		11,751	
Grand Total		150,000	

Description of PFG activities:

The requested Project Formulation Grant amount is proportionate and necessary because the proposed intervention is an Adaptation Fund Innovation Window project. The Project Preparation Activities subtotal is US\$138,249, with a separate US\$11,751 Implementing Entity Fee calculated at 8.5%, bringing the total Project Formulation Grant request to US\$150,000. Its preparation therefore goes beyond that of a conventional adaptation project. The PFG will support an efficient, sequenced process in which analytical work generates the innovation ecosystem evidence base. Existing information and previous analytical work will be reused where available, and targeted specialist inputs will be coordinated to avoid duplication across assessments, consultations and proposal preparation. This evidence will inform innovation governance, hub functions and grant-mechanism design. The emerging design will then be assessed through integrated safeguards, gender, fiduciary and capacity work before being consolidated into a technically complete, institutionally feasible and operationally ready Innovation Window Full Funding Proposal. Together, the activities below will reduce preparation risks and strengthen proposal quality, accountability, transparency, oversight, feasibility, learning value, value for money and institutional sustainability.

1. **Development of the Adaptation Fund Full Funding Proposal** - preparation of a complete and technically robust Innovation Window Full Funding Proposal using the official Adaptation Fund template. The proposal package will integrate the outputs of all PFG activities, including the narrative, Results Framework with indicators, baselines and targets, Theory of Change, climate rationale, cost-effectiveness analysis, implementation arrangements, monitoring and evaluation framework, budget, implementation plan, procurement arrangements and mandatory annexes. It will consolidate the innovation rationale, ecosystem evidence, pipeline and grant mechanism, safeguards, fiduciary inputs, institutional arrangements and validation findings, avoiding duplicate analysis across annexes and the main proposal. The final package will be ready for Adaptation Fund review and will ensure consistency between the endorsed Concept Note, proposal narrative, Results Framework, Theory of Change, governance and decision-making arrangements, implementation arrangements, budget structure and annexes.
2. **Mapping of innovation ecosystem and needs assessment** - assessment of the climate-relevant innovation ecosystem, distinguishing innovation supply from innovation demand. Supply includes innovators, startups, universities, incubators and research institutions. Demand includes adaptation priorities, climate risks, sectoral needs, municipal priorities and policy requirements. As the evidence-generating entry point of the formulation process, the assessment will draw on existing reports, national priorities, institutional knowledge and previous analytical work before filling targeted evidence gaps. It will identify innovation support organizations, university innovation centres, entrepreneurship support programmes, financing ecosystem actors, regulatory and policy barriers, coordination mechanisms, existing adaptation initiatives, innovation gaps, locally led opportunities and capacity gaps. The findings will inform the Climate Innovation Facility design, hub functions, innovation pipeline, grant mechanisms, capacity-building priorities, policy integration and the overall Full Funding Proposal.
3. **Environmental and Social Safeguards: full AF ESP/SESP screening and Environmental and Social Management Framework** - full assessment against all fifteen Adaptation Fund Environmental and Social Principles, completed in parallel with the UNDP Social and Environmental Screening Procedure to avoid duplicative safeguard processes. The activity will confirm risk categorisation and prepare an Environmental and Social Management Framework proportionate to the grant-making modality. Building on the emerging Innovation Window project design, institutional roles and grant mechanism, the framework will guide future

screening, due diligence and management of downstream innovation grants and pilot investments selected through the open call during full-project implementation. Its preparation will be coordinated with the Stakeholder Engagement Plan, Gender Action Plan and project-level grievance mechanism so that consultations and evidence collection are used efficiently across instruments. It will include an Exclusion List, sub-project screening procedures, environmental and social due diligence procedures, institutional responsibilities, oversight, monitoring and reporting procedures, mitigation hierarchy, disclosure requirements and ESMP templates. These measures will enable responsible preparation for future testing, validation and scaling of adaptation innovations in compliance with the AF ESP and alignment with Libyan procedures.

4. **Ethnic-minority (AF ESP Principle 7) site-specific assessment** - assessment of the applicability of Adaptation Fund Environmental and Social Principle 7 through desk review, stakeholder consultations, anthropological assessment, legal review and documentation of findings, without presuming applicability before assessment. The work will build on safeguard, stakeholder and hub-selection consultations where appropriate, while retaining the targeted specialist input required for culturally appropriate analysis. Where relevant, the assessment will consider Amazigh, Tuareg and Tebu communities in candidate hub and innovation-grant locations using relevant languages and dialects. Findings will inform inclusive innovation design, the Environmental and Social Management Framework, Stakeholder Engagement Plan and proposed Full Funding Proposal implementation arrangements.
5. **Design of Climate Innovation Facility Operations Manual, grant mechanism and four-test screening protocol** - preparation of the operational and fiduciary mechanism for selecting, awarding and managing innovation grants under the full project. This will be delivered through a draft Climate Innovation Facility Operations Manual, developed with key stakeholders and validated for inclusion in the Full Funding Proposal. The Manual will translate ecosystem evidence and institutional analysis into innovation governance arrangements, institutional roles, decision-making authority, grant eligibility criteria and the four-test adaptation innovation screening methodology. It will also define proposal appraisal procedures, conflict-of-interest safeguards, approval processes, fiduciary controls, milestone-based disbursement, procurement principles, financial management procedures, monitoring and reporting, grievance mechanism, transparency measures, quality assurance, records management, grant agreement templates, scoring tools, learning, adaptive management and knowledge management procedures. By consolidating these requirements into one operational instrument, the activity will avoid fragmented procedures and support efficient, transparent and accountable design of the innovation pipeline for the full project.
6. **Hub selection, readiness assessment and host-university MoUs** - transparent, objective and evidence-based selection methodology for host public universities. The methodology will include eligibility criteria and a multi-criteria assessment framework covering institutional readiness, infrastructure, governance, human resources, digital infrastructure, innovation ecosystem readiness, geographic balance, institutional commitment and sustainability. Building on the ecosystem assessment, the activity will produce an institutional readiness assessment report and a selection report documenting the rationale for the proposed universities. It will reuse information collected through ecosystem mapping and capacity assessments where relevant, reducing duplication while ensuring transparency and accountability in identifying long-term institutional anchors for locally led climate adaptation innovation. Draft Memoranda of Understanding will define institutional responsibilities, accountability and reporting expectations for the full project, as well as proposed minimum

commitments to sustain hub functions, learning services and innovation support after project closure.

7. **Capacity assessment of Executing Entities and prospective Responsible Parties** - institutional capacity assessment of Executing Entities and prospective Responsible Parties, including HACT micro-assessment where applicable and PCAT or equivalent assessment where appropriate. Assessments of prospective Responsible Parties will be undertaken only where such entities have been identified during project preparation and where the relevant modality is applicable. The assessment will determine whether proposed innovation governance and implementation arrangements are operationally and fiduciary ready for inclusion in the Full Funding Proposal. It will review financial management, procurement, monitoring and reporting, environmental and social safeguard capacity, gender mainstreaming capacity, grant management capacity, oversight and risk management capacity. Findings will be coordinated with hub selection, safeguards and implementation-arrangement design to avoid separate and overlapping institutional reviews. The activity will produce a capacity gap analysis and capacity development plan that directly informs assurance measures, financial management responsibilities, risk management provisions and any capacity-strengthening conditions in the Full Funding Proposal.
8. **Gender Assessment and Gender Action Plan** - gender analysis aligned with the Adaptation Fund Gender Policy and Gender Action Plan, UNDP Gender Equality Strategy and UNDP Social and Environmental Standard 5. The assessment will be proportionate to the preparation phase and will identify differentiated climate vulnerabilities, gender-responsive stakeholder mapping, barriers to participation, opportunities for women-led and locally led adaptation innovation, and gender-responsive ecosystem considerations. It will draw on shared consultations and available data where appropriate, while using targeted specialist input to fill gender-specific evidence gaps. The activity will provide recommendations for project design and innovation grant selection, and will produce a project-specific Gender Action Plan with gender indicators, a gender-responsive monitoring framework, monitoring arrangements and institutional responsibilities. These outputs will support preparation of implementation and reporting arrangements and directly inform the Full Funding Proposal.
9. **Stakeholder Engagement Plan and initial validation workshops** - preparation of a Stakeholder Engagement Plan covering stakeholder identification, analysis and mapping, engagement strategy, consultation methodology, communication strategy, grievance redress mechanism, disclosure approach, consultation schedule, institutional responsibilities, monitoring arrangements and reporting arrangements. Stakeholder engagement will continue throughout project formulation and will include government, municipalities, academia, innovation hubs, civil society, private sector, youth, women, persons with disabilities, vulnerable communities and regions across Libya. The consultation process will be coordinated across safeguards, gender, ecosystem mapping, hub selection and validation activities so that stakeholder time and project resources are used efficiently. Initial validation workshops will test the emerging evidence base, innovation pipeline, project design, safeguard instruments, governance arrangements, institutional responsibilities and innovation priorities. They will also support meaningful participation, transparent feedback, national ownership and early buy-in.
10. **Learning needs assessment and development of strategic training framework** - diagnostic assessment identifying institutional learning needs, innovation management capacity, climate adaptation technical capacity, entrepreneurship support capacity, mentoring needs, incubation needs, acceleration needs, knowledge management requirements, training priorities and long-term institutional strengthening needs across universities, startups and

public agencies. The assessment will build on ecosystem mapping, university readiness work and available institutional information to avoid repeating data collection. The resulting strategic training framework and modular curricula outline for climate innovation and entrepreneurship will inform the design of the project's Component 2 capacity development programme, innovation acceleration and learning functions, and ensure the Full Funding Proposal is responsive to local needs and institutional readiness.

11. **National validation and high-level engagement events** - national validation event to confirm the consolidated Full Funding Proposal, safeguard instruments, innovation governance arrangements, implementation arrangements, implementation risks and proposed mitigation measures. The event will also confirm institutional roles, strengthen government ownership, document stakeholder feedback, consolidate final recommendations before submission and support national consensus on the proposed project design. By validating multiple preparation outputs through a coordinated national process, the event will reduce duplication and ensure efficient use of senior stakeholder engagement. The workshop report will become part of the project preparation documentation and will record feedback, institutional confirmations, decision-making inputs and final recommendations demonstrating governance, accountability, technical, institutional and proposal readiness.
12. **Translation and layout of Final Proposal and Annexes** - translation and professional formatting of the Full Funding Proposal and annexes to produce a quality-assured, bilingual and internally consistent final package. The package will comply with Adaptation Fund submission requirements and be ready for submission without further formatting. Before submission, it will undergo a final editorial and consistency review to ensure alignment between the proposal narrative, innovation terminology, annexes, budget and supporting documentation. Translation will include technical review of English and Arabic terminology, and graphic design will ensure consistency across the proposal and all annexes.

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and the Adaptation Fund criteria for project identification and formulation. The proposed PFG activities are limited to the due-diligence, innovation design, consultation, safeguards, fiduciary, institutional-capacity and documentation work required to convert the endorsed concept into a technically complete Innovation Window Full Funding Proposal. Project Preparation Activities total US\$138,249, the Implementing Entity Fee is US\$11,751, and the total Project Formulation Grant is US\$150,000. They do not pre-empt implementation decisions or finance activities outside the approved preparation scope. The activity sequence ensures that ecosystem evidence informs innovation governance and institutional design, while integrated assessments and coordinated consultations avoid duplication and support value for money. It also ensures that the proposed design is assessed through safeguards and fiduciary due diligence, and that the final proposal includes clear decision-making arrangements, institutional responsibilities, accountability, oversight, monitoring and reporting provisions ready for Adaptation Fund technical review.

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
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Nancy Bennet		09 Aug 2026	Ahmad Afaneh		Ahmad.afaneh@undp.org
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Description on the consultative process, including the list of stakeholders consulted, undertaken during project / programme preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

The proposed project is grounded in a multi-tiered consultative process led by UNDP Libya in partnership with the Ministry of Environment and other key national institutions. The design process ensured alignment with the Environmental and Social Policy (ESP) and Gender Policy of the Adaptation Fund, and placed particular emphasis on inclusion, innovation, and ownership by vulnerable groups.

- 1. National Local Adaptation Workshop – May 2024:** In May 2024, UNDP and the Ministry of Environment co-convened a national workshop focused on local climate adaptation, bringing together over 80 stakeholders including representatives from 10 municipalities, public universities, women-led organizations, and youth networks. The discussions focused on the role of innovation as a transformative driver in addressing localized climate vulnerabilities, particularly within Libya's fragile and underserved regions. Participants emphasized not only the urgency of decentralized adaptation but also the potential of context-specific innovation, technological, institutional, and social, to unlock scalable, sustainable solutions. Key challenges identified included institutional inertia, gender-based barriers to participation, and the absence of structured financing channels for climate innovation. The workshop's outcomes directly informed the project's design, especially the establishment of university-linked innovation hubs as incubators for climate adaptation solutions, the inclusive structuring of the Climate Innovation Facility to channel small grants toward grassroots innovators, and the active integration of youth and women as central actors in the innovation ecosystem.
- 2. Technical Bilateral Consultations – March to July 2024:** Targeted bilateral consultations were held with the Ministry of Environment's technical departments, the Environment Protection Fund (EPF), national adaptation focal point, and academia. These sessions helped validate the institutional anchoring of the Climate Innovation Facility within the EPF and shaped the project's safeguards, risk screening, and gender mainstreaming components. UNDP's Gender focal point provided feedback on ensuring equitable access to innovation financing and institutional capacity-building for underrepresented groups.
- 3. Strategic High-Level Consultation – July 2024:** A strategic consultation was held with representatives from the Adaptation Fund, GEF, and GCF focal points, and academia. The session ensured policy coherence across vertical funds and Libya's national planning frameworks, especially the forthcoming National Adaptation Plan (NAP) and NDC. Participants emphasized the need to embed innovation within the national climate strategy and to create structured pipelines for community-driven and university-based adaptation solutions. The Ministry of Higher Education expressed strong interest in linking climate resilience with academic research, which informed the component on establishing innovation hubs in select universities.
- 4. Grounding in UNDP Project Experience and Local Engagement:** The project builds on the field-based insights and partnerships generated through ongoing UNDP projects such as the Environment and Climate Change Mitigation Project, BIOFIN, the Water Security in Libya Project, and the EU-funded Climate Change Project. These initiatives engaged a broad range of stakeholders, including CSOs, cooperatives, universities, municipalities, and vulnerable groups, especially in the southern and coastal regions. Consultations during these projects revealed a major gap in institutional innovation capacity, limited access to climate finance, and the systemic exclusion of youth and women from climate-related decision-making processes. The innovation project design directly responds to these findings by establishing structured, equitable mechanisms for participation and innovation support.
- 5. Contribution from National Policy Consultations (NAP, NDC, Water Security Strategy):** Between 2024–2025, UNDP supported a series of national policy consultations on climate governance, drought risk management, and water security. These multi-sectoral dialogues provided valuable insights on institutional fragmentation, climate financing bottlenecks, and regional disparities in adaptive capacity. The Innovation Concept Note reflects this by proposing an integrated approach that bridges policy, academia, and community needs. Special focus was placed on enabling bottom-up innovation models that can inform NAP implementation and accelerate NDC delivery through decentralized and inclusive means.
- 6. Inclusive and Gender-Responsive Engagement:** Across all consultations, efforts were made to ensure the meaningful participation of women, youth, and marginalized stakeholders, including internally displaced persons and community leaders from climate-vulnerable regions. Specific gender-responsive measures included:
 - Dedicated consultation sessions with women-led cooperatives and female academics;
 - Identification of structural barriers to women's participation in innovation and entrepreneurship (e.g., access to finance, mobility, and digital skills);
 - Design of the Climate Innovation Facility's selection criteria to ensure at least 50% of supported initiatives are led by women or youth;

- Plans to embed gender-responsive innovation indicators in monitoring frameworks.

This inclusive and iterative consultative process ensured the project design is locally grounded, contextually relevant, and socially equitable, meeting the Adaptation Fund's standards for participatory, environmentally sound, and gender-transformative programming.

Description on how the project / programme would provide economic, social, and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme would avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

The proposed project is purposefully designed to maximize inclusive and sustainable adaptation benefits, particularly for vulnerable communities and at-risk groups such as youth, women, conflict-affected populations, and marginalized rural households. The innovation-based approach ensures that economic, social, and environmental dividends are not only delivered, but are locally owned, replicable, and sustained beyond the project's duration. In parallel, the project will fully comply with the Adaptation Fund's Environmental and Social Policy (ESP) and Gender Policy through robust safeguards, inclusive design, and participatory monitoring systems.

Beneficiary methodology and disaggregation. The project's expected beneficiary population is calculated using a transparent, replicable methodology applied consistently across all results indicators. **Direct beneficiaries** are defined as individuals who receive measurable adaptation benefits attributable to the project - through Component 3 grant-financed adaptation innovations (the 70 piloted and 15 accelerated innovations), Component 2 hub-based capacity-building activities, or Component 1 participatory consultation processes. The expected direct beneficiary population is **30,000 people**, of whom at least **15,000 women (50 per cent)** and **9,000 youth aged 15–35 (30 per cent)**, derived from an average direct reach of approximately 350 people per piloted innovation and 1,000 people per accelerated innovation, plus 600 stakeholders directly engaged through Component 1 consultations and 200 individuals trained through Component 2 hubs (with overlap between categories netted out conservatively). **Indirect beneficiaries** are defined as individuals who benefit from the project's broader systemic outputs - the National Adaptation Innovation Standard, the Climate Innovation Facility under the Environment Protection Fund, the policy briefs and the National Adaptation Innovation Compendium - and from the scaling of innovations beyond their pilot footprints. The expected indirect beneficiary population is **125,000 people**, derived from the assumption that 50 per cent of the 70 piloted and 15 accelerated innovations reach scale post-project, each benefiting an average of 3,000 individuals through services, technologies or systems uptake. All beneficiary figures are conservative, will be refined during full proposal preparation through innovation-typology-specific reach analysis, and will be disaggregated by gender, age (youth), and inclusion of vulnerable groups (persons with disabilities, internally displaced persons, ethnic minority communities - Amazigh, Tuareg, Tebu - where present in innovation sites) in the project results framework. Beneficiary tracking is anchored in the project's M&E system with quarterly reporting against AF Innovation Indicators and annual independent verification.

Social sustainability

Social sustainability is built through the project's deliberate investment in a distributed, capacity-strengthened cohort of Libyan adaptation innovators - students, researchers, entrepreneurs, women- and youth-led innovators, ethnic minority community innovators, persons with disabilities - trained and supported through the Adaptation Innovation Hubs over the four-year period. The 200 trained individuals (50% women, 30% youth) and the 70 piloted plus 15 accelerated innovators constitute a sustained delivery capacity that can absorb future climate finance flows from the Climate Innovation Facility, the Adaptation Fund, GCF, bilateral partners and government allocations. Hub Advisory Panels - comprising academics, private sector mentors, local authorities, civil society and innovator representatives, with formal gender and youth quotas - institutionalise community ownership of the innovation pipeline. The project's accommodations for women, youth, persons with disabilities and ethnic minority innovators (mobility-sensitive scheduling, childcare-friendly venues, universal design, multi-lingual delivery in Tamazight, Tamashek and Tedaga where relevant) ensure the innovator cohort reflects the populations most vulnerable to climate change.

Gender Equity and Women's Empowerment

Risk: Cultural and institutional norms may limit women's participation in innovation ecosystems.

Project approach: A Gender Assessment and Gender Action Plan will be prepared during the PPG stage and guide inclusive design of activities.

Mitigation measures: Minimum targets (e.g., 50% female participation), gender-responsive eligibility criteria, and support for women-led enterprises will be implemented across all components.

Gender Action Plan (GAP). A dedicated **Gender Action Plan (GAP)**, aligned with the Adaptation Fund Gender Policy and UNDP SES Standard 5 (Gender Equality and Women's Empowerment), will be developed at full proposal stage, building on a gender analysis to be undertaken during full proposal preparation. The GAP will define gender-responsive targets across all components, gender-disaggregated indicators in the project results framework, the project's gender-

balanced governance and decision-making arrangements (including the 50 per cent female participation target across hub training and innovation grant cohorts and formal gender quotas on selection committees and Hub Advisory Panels), targeted measures to overcome gender-specific barriers to participation in Libya's context (including mobility restrictions, social norms, and access to information), and gender focal point arrangements at hub and national levels.