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Adaptation Fund Board
Project and Programme Review Committee
Thirty-eighth Meeting
Bonn, Germany, 19-23 October 2026

PROPOSAL FOR TUNISIA

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ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT
TECHNICAL REVIEW OF PROJECT PROPOSAL FOR
"STRENGTHENING ADAPTIVE CAPACITY AND LIVELIHOOD IN MOST VULNERABLE TRADITIONAL OASES IN THE GOVERNORATE OF TOZEUR (TUNISIA)"

Project Title	Strengthening adaptive capacity and livelihood in most vulnerable traditional oases in the Governorate of Tozeur (Tunisia)
Project ID	AF00000547
Category	Regular size project (over $1 million)
Type	Single country project
Stage	Fully-developed project
Country	Tunisia
Implementing Entity	UNDP
Financing Requested	USD 14,999,998.00
Reviewer	Ahmad Ghosn

Co-reviewer(s)

IE Contact Person **Lina Madadha,Nancy Bennet,Robin Merlier,Siriboon Ketphichai**

Secretariat's Overall Comment

The project “Strengthening adaptive capacity and livelihood in most vulnerable traditional oases in the Governorate of Tozeur (Tunisia)” aims to enhance the climate resilience of traditional oasis management systems in the Governorate of Tozeur.

The initial technical review raises several issues, such as reducing document length to AF limits and inclusion of letter of endorsement in Part IV; revising attached annexes and contents; justifying UNDP involvement in the project execution (endorsement by DA);revising components financing table; providing more details on the project activities targets and USPs in Part IIA; quantifying project benefits and revising the GAP; demonstrating project cost-effectiveness against other options; providing a summary table of consultation; specifying the project AF overall risk category and revising the AF E&S checklist; revising the project management arrangements to reflect E&S and gender aspects; clarifying further the M&E plan; aligning the project RF and alignment with AF RF as per the AF guidance of July 2026; inclusion of AF core impact indicators tables; revising detailed budget; among other Clarification Requests (CRs), Corrective Action Requests (CARs) and notes raised in the review.

Country Eligibility

Is the country party to the Kyoto Protocol or the Paris Agreement?

Response: Yes

Secretariat: Yes. Tunisia is a party to both Kyoto Protocol and Paris Agreement.

Is the country a developing country particularly vulnerable to the adverse effects of climate change?

Response: Yes

Secretariat: Yes. Tunisia is a developing country vulnerable to the adverse effects of climate change including droughts, extreme water scarcity, rising sea levels, etc. In Tozeur, extreme heatwaves, decreasing groundwater resources, and severe frequent droughts threaten its ancient desert oases and vital date palm agriculture.

Project Eligibility

Has the designated government authority for the Adaptation Fund endorsed the project/programme?

Response: Yes

Secretariat: Yes. As per the Endorsement letter dated 25 June 2026.

Note: The Endorsement letter refers to UNDP's implementation role, with no reference to its involvement in project execution.

Does the length of the proposal amount to no more than One hundred (100) pages for the fully-developed project document, and one hundred (100) pages for its annexes?

Response: Not Cleared

Secretariat: No. The proposal document is 133 pages. Also, Annexes are lengthy and not fully/ clearly presented, among other issues noted below.

CAR1: Please reduce the proposal length, particularly Part IIIG (detailed budget), to ensure compliance with the AF proposal length limit (100 pages. Also, revise the Annexes presentation (see related comment below) for more clarity and compliance with related AF length limit (100 pages.

CR1: For the Annexes, please address the following:

1. Move "Annex 3" and utilize as appropriate in Part IIIG.
2. Move/ utilize as appropriate the information provided in Annex 11 in Part IIIF.
3. Some Annexes only have links (e.g. Annexes 2, 4, 5, 6, etc.). Please provide final full Annexes text not only links.
4. Some Annexes are not required (e.g.: Annexes 8, 9, 10, 12). A brief synopsis of these Annexes could be reflected at related Parts/ sections of the project document, if/ as needed. For example, the issues addressed in the SESP Annex should logically be reflected in the ESMF (No need to attach SESP Annex, it can instead be briefly mentioned at related sections to demonstrate UNDP's compliance with AF ESP & GP).
5. To ensure alignment with AF document length for annexes, only attach the key annexes (not links). Key annexes may include: Gender Assessment and Gender Action Plan; Consultations details and report; ESMF/ ESMP Annex; and detailed budget (if/ as needed). Letter of Endorsement and IE certification are usually included in Part IVA and Part IVB respectively.

CAR2: Please include the Endorsement letter in Part IVA and provide a "signed" Implementing Entity certification in Part IVB.

CR2: For more clarity/ focus consider revising the paragraph under "Project Objective" to have the objective statement as a standalone statement followed by the text on how to achieve this objective. A proposed objective statement would be "To enhance the climate resilience of traditional oasis management systems in the Governorate of Tozeur".

CAR3: In Table 8 "Project components and financing", pp. 38-39, also include allocated amounts at output level.

Editorial Notes:

1. Change the title “INDEX” on p. 2 to “Table of Contents”.
2. Provide tables numbers and headings for all tables in the document (e.g.: detailed budget table, disbursement schedule, etc.) and revise list of tables accordingly.
3. Conduct a round of editing proofreading after addressing the review comments.

Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?

Response: Not Cleared

Secretariat: Yes. See Part IIA, pp. 40-59. Concrete actions include: water-related adaptation investments, land rehabilitation; enhancement of local agro-biodiversity practices; adoption of climate-resilient agricultural technologies/ practices and sustainable land management practices; fire-risk reduction; integrated plant disease management; improved organic waste management; profitability enhancement via value-chain support, market access, and livelihood diversification, etc.; Income-Generating Activities (IGAs); among other supporting assessments/ planning tools and knowledge management/ learning/ capacity building activities. However, additional details/ clarifications are needed,

CAR4: In Part IIA, please address the following:
1. Specify executing entity for each component (UNDP, UGPO-CC)
2. Provide more details on the activities (including USPs) and quantify related targets for all components.
3. Highlight in related discussions on USPs how they will be managed in compliance with the AF requirements that can found at: : Guidance Document for Project/Programme with Unidentified Sub-Projects.
4. Please clarify the criteria by which the IGAs will be prioritized/ selected.

CR3: Please indicate in a brief paragraph at the end of Part I “after objectives” or as appropriate in Part IIA, the AF strategic objectives/ outcomes supported by the project (related information can be extracted from Part IIIF).

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: Not Cleared

Secretariat: To a large extent. See Part IIB, pp. 60-62. However, it is recommended to address some related issues noted below.

CR4: Please quantify the economic benefits further and provide numbers for the percentages mentioned, and number of individuals rather than households.(disaggregated by gender where/ as possible).

CAR5: Gender Analysis and Gender Action Plan (GAP) Annex reads as a draft with TC/ not final. Also, the GAP needs to be costed with clear/ specific budget line. Please provide the final version of the Annex including a budgeted GAP and related budget lines. Same applies to the ESMF Annex which also needs to include a budgeted ESMP along with related budget lines.

CAR6: In Part IIB, it is stated on p. 62 that "A project-level grievance redress mechanism (GRM), whose “Terms of Reference can be found in the ESMF”, will be established and made accessible to all stakeholders, including vulnerable groups, to ensure that concerns can be raised and addressed in a timely manner". Please note that

The GRM should be established and final at this stage with sufficient details and procedures, etc. The GRM provided as an Annex to the ESMF Annex reads a rough draft and requires further revision. Also, addressing the GRM issues would logically best fit under Part IIIC.

Is the project / programme cost effective?

Response: Not Cleared

Secretariat: Not fully addressed. See Part IIC, pp. 62-64. The presented cost-effectiveness analysis focusses on the project investments only. Cost effectiveness should also be compared with other alternative intervention options (if any), including "no action" scenario/ alternative, and should include estimates of the losses avoided and/ or gains.

CAR7: Please revise Part IIC discussion to include a comparison analysis with alternative options including "no action" option/ alternative. This analysis should be supported by related verified statistics and estimates of the losses avoided and/ or gains to demonstrate the cost-effectiveness the project proposed options against other alternatives. The above would be best presented in a tabulated form, along with related conclusions.

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: Cleared

Secretariat: Yes. See Part IID, pp. 64-67.

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

Response: Cleared

Secretariat: Yes. See Part IIE, pp. 67-70.

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

Response: Cleared

Secretariat: No. See Part IIF, pp. 70-71.

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

Response: Cleared

Secretariat: Yes. A dedicated component is included for the purpose (Component 3). See Part IIG, pp. 71-72.

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: Not fully addressed. See Part IIH, pp. 72-75.

CR5: Please revise Part IIH discussion to reflect in a tabulated form the consultations conducted during the CN and full proposal stages and refer to related Annex for further details. The table should include: consultations dates, consulted entities/ local communities, participants number disaggregated by gender, topics discussed and outcomes, and how these outcomes are considered in project design.

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

Response: Cleared

Secretariat: Yes. See Part II"I", pp. 75-78.

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

Response: Not Cleared

Secretariat: Not clearly presented. See Part IIIF, p. 97.

CAR8: Revise the alignment table in compliance with the AF guidelines of July 2026 that can be accessed at: https://www.adaptation-fund.org/wp-content/uploads/2026/04/AF-SRF-Updated-templates_results-framework-table-and-results-framework-alignment-table.pdf. The table should reflect the project outcome and output levels and associated indicators, AF related outcome and output levels and indicators, allocated amounts at AF outcome/ output indicator levels, and total allocated amounts at AF outcome and output levels (which should be equal to total components cost at each level).

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

Response: Cleared

Secretariat: Yes. See Part IIJ, pp. 78-80.

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: Not fully. See Part IIK, pp. 80-81.

CAR9: Specify the project AF overall risk category (A, B, C) of the project based on related assessments/

screening.

CAR10: In Part IIK, please address the following:

1. Add table number and heading.
2. In column 2 of AF E&S check list, please indicate with a check mark (✓) the principles that do not require further assessment. (Note E&S principles 1, 4 and 6 always requires further assessment).
3. In Column 3 Specify the risks/ impacts and level for all listed principles and clearly highlight related mitigation measures.
4. Ensure that Part IIK risks/ impacts are consistent with those discussed in Part IIIC and ESMF/ ESMP.
5. Refer to ESMP, GAP, and USPs as appropriate in column 3 and/ or Part IIK discussions.

Resource Availability

Is the requested project / programme funding within the cap of the country?

Response: Cleared

Secretariat: Yes.

Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?

Response: Cleared

Secretariat: Yes. The Implementing Fee (USD 1,175,115) is 8.5% of the Total Project/Programme Cost (USD 13,824,883).

Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?

Response: Not Cleared

Secretariat: Yes. the project execution Cost (USD 1,175,275) is 8.5% of the total project cost. However, clarification is needed regarding the calculation of UNDP execution costs.

CR6: Please provide adequate justification of UNDP in the project execution (Endorsement by the DA) and clarify the compliance of UNDP execution costs with related AF requirements/ ceiling. As per the AF requirements, when the Implementing Entity serves as an Executing Entity, the limit for execution is 1.5%. When the IE provides part of execution services for the project, to limit the execution costs of the IE to 1.5 per cent of the cost of the part of the project or programme executed by the IE.

Eligibility of IE

Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?

Response: Cleared

Secretariat: Yes. UNDP is accredited by the AFB. Accreditation Expiration Date: 10 October 2029.

Implementation Arrangements

Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund?

Response: Not Cleared

Secretariat: Yes. See Part IIIA, pp. 82-87. However, some clarifications are needed.

CAR11: Neither the IE nor the EEs arrangements reflect any provisions/human resources to ensure adequate management of the project E&S and gender related aspects. Such provisions/ resources are required in compliance with AF ESP and GP and must therefore by included at both implementation (UNDP/ IE) and execution (PMU) levels.

Are there measures for financial and project/programme risk management?

Response: Not Cleared

Secretariat: Yes. See Part IIIB, pp. 88-89. However, please address the comment below.

CR7: Add a column at the very right of Table 16 to indicate risk/ impact level after applying the mitigation measures.

Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund?

Response: Not Cleared

Secretariat: Unclear. See Part IIIC, pp. 89-90.

CAR12: Please address the following:
1. An ESMP is required to demonstrate how the project environmental and social risks will be managed in compliance with AF ESP. A typical ESMP Matrix/ table generally includes the AF E&S principle, the project component output/ activity related to the risk/ impact (including arrangements for USPs), the associated risk/ impact, mitigation measures, the responsible entity/ies for implementing the ESMP mitigation measures, the IE arrangements to supervise its implementation by the EE, the M&E frequency to ensure compliance with mitigation measures and AF ESP & GP, and the allocated budgets/ budget lines to implement mitigation

measures and monitoring/ evaluation. The ESMP should also reflect opportunities for consultation and adaptive management.

2. ensure the consistency of ESMP risks/ impacts with those of Part IIK E&S checklist table.

3. Refer to the gender action plan (GAP) as appropriate in Part IIIC discussions.

4. A credible GRM should be accessible and meaningful and includes all steps of the grievance process, including where grievances can be addressed should be established at full proposal stage. Please ensure that the GRM is developed at this stage (possibly as part of the ESMF) and include in Part IIIC a brief discussion of the GRM and refer to related annexes, for further details.

Is a budget on the Implementing Entity Management Fee use included?

Response: Not Cleared

Secretariat: Yes. However, the IE Management Fee should be included in Part IIIG, not as an Annex.

CR8: Move "Annex 3: Breakdown of the IE Management Fee" and include/ utilize as appropriate in Part IIIG detailed budget table.

Is an explanation and a breakdown of the execution costs included?

Response: Cleared

Secretariat: Yes. See pp. 114-115 of Part IIIG.

Is a detailed budget including budget notes included?

Response: Not Cleared

Secretariat: Yes. See Part IIIG, pp. 98-131 (34 pages). However, for more clarity and trackability of the current information provided in Part IIIG, it is highly recommended to include in this section a simplified/ consolidated table (with table number and heading). This table should reflect allocated amount at activity level (not only on output level) along with related notes (in an additional column to be added at the right end of the table). Note: to have adequate space for the requested consolidated summary table, delete columns 4,5,6,7 & 8 in current table and present activities allocated amounts for the whole project duration (not on yearly basis). Same applies to the breakdown of execution costs and IE implementation fee. Can keep current table/ notes as Annex if/ as needed and refer to it for details. This is recommended to save space and meet AF document length limit.

CR9: In Part IIIG, G1 section, please address the following:

1. Provide a more simplified/ consolidated budget table based on Annex 6 to reflect total expenditure at activity level (not only output level) during the project full duration (not yearly basis) and delete columns 4,5,6,7 & 8 (and the term "Quantum") in current table, to save space for budget notes. Integrate budget notes text (not numbers) in the table in a new column to the very far right of the table. Also, provide a brief paragraph to refer to Annex 6 for further details (i.e., budget lines, yearly allocations, etc.). Same applies to the breakdown of execution costs and the IE fee (which can be included in the requested simplified/ consolidated table).

2. Clearly indicate/ reflect as appropriate (at related budget lines) the allocated budgets for the Gender Action Plan and ESMP/ E&S risks management.

Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?

Response: Not Cleared

Secretariat: Yes. See Part IIID, pp. 90-91. However, some clarifications are needed.

CAR13: Please address the following:

1. Project completion report is also required as per AF policy. In addition to financial reports. Please reflect in Part IIID discussions and/or plans as appropriate
2. According to AF requirements Baseline study costs should be covered by IE. Please revise budget allocation in Table 17 accordingly.

Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?

Response: Cleared

Secretariat: Yes. See Part IIID, Table 17, p. 91.

Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?

Response: Not Cleared

Secretariat: Yes. See Part IIIE, pp. 91-96. However, some clarifications/ revisions need to be addressed, as indicated below.

CAR14: Please address the following:
1. Align the project results framework matrix/ table format with the AF guidance of July 2026 which can be accessed at: https://www.adaptation-fund.org/wp-content/uploads/2026/04/AF-SRF-Updated-templates_results-framework-table-and-results-framework-alignment-table.pdf.
2. Ensure that the households are reflected by numbers and disaggregated by gender. Also, ensure that all percentages are reflected by numbers.

CAR15: Include in separate dedicated tables the applicable AF core impact indicators. At least the core impact indicator "Number of beneficiaries" including estimations for direct and indirect beneficiaries should be included. Other core impact indicators must be added if the project includes activities targeting the areas identified in AF results framework, namely (1) Early Warning System; (2) Assets Produced, Developed; Improved, or Strengthened; (3) Increased income, or avoided decrease in income or (4) Natural Assets Protected or Rehabilitated. Related guidance on core impact indicators tables can be found at:
Methodologies for reporting Adaptation Fund core impact indicators (78 kB, DOC)
Methodologies for reporting Adaptation Fund core impact indicators (152 kB, PDF)
Ensure that the targets of the core impact indicators are consistent with the project results framework.

Is a disbursement schedule with time-bound milestones included?

Response: Cleared

Secretariat: Yes. See Part IIIH, p. 132. Note: Please add table number and heading.

ADAPTATION FUND

FULLY DEVELOPED PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT INFORMATION

Title of Project	Strengthening adaptive capacity and livelihood in most vulnerable traditional oases in the Governorate of Tozeur (Tunisia)
Country:	Tunisia
Thematic Focal Area:	Multi-sector projects
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	UNDP
Executing Entities:	Ministry of Environment- National Climate change Coordination Unit (UGPO-CC); UNDP
Amount of Financing Requested:	14,999,998 (in U.S Dollars Equivalent)

Project Formulation Grant Request (available to NIEs only): Yes ☐ No ☒

Amount of Requested financing for PFG: 0 USD (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: https://www.adaptation-fund.org/apply-funding/designated-authorities

Stage of Submission:

☒ This proposal has been submitted before including at a different stage (concept, fully developed proposal)

☐ This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: 8/24/2023

Please note that fully developed proposal documents should not exceed 100 pages for the main document, and 100 pages for the annexes.

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Acronyms

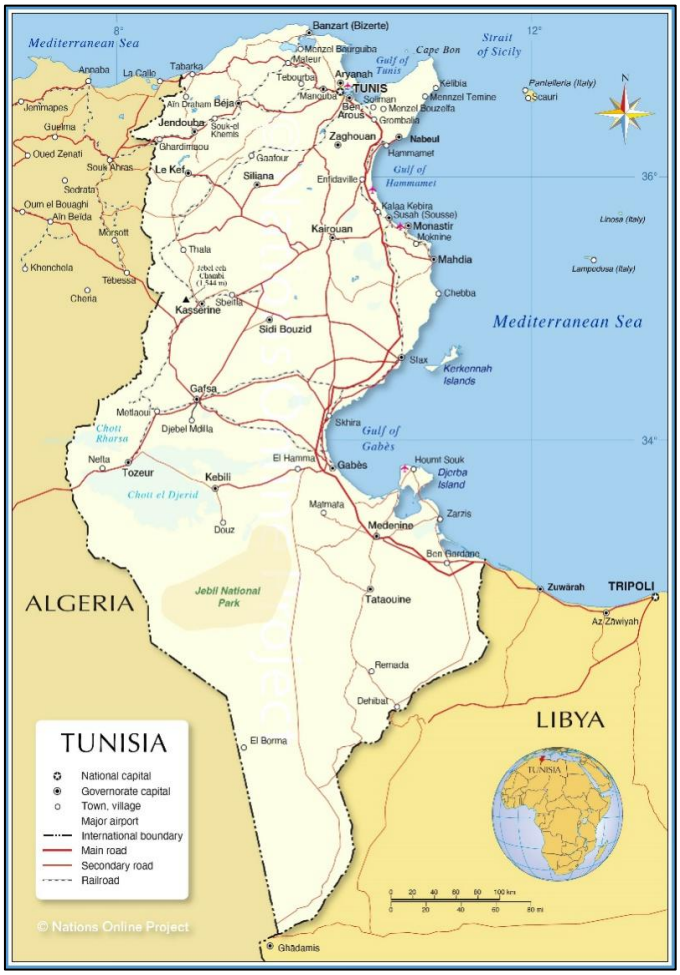
AF	Adaptation Fund
ANME	Agence Nationale pour la Maitrise de l'Energie
ANPE	Agence Nationale de Protection de l'Environnement
AR6	Sixth Assessment Report
CC	Climate Change
CKP	Climate Change Knowledge Portal
CMIP5-6	Coupled Model Intercomparison Project Phase 5-6
CRDA	Commissariat Régional au Développement Agricole
CRRAO	Centre Régional de Recherche Agricole dans les domaines oasiens
CSO	Civil society organization
CTD	Centre Technique des Dattes
CTV	Local Agriculture Directorate
EE	Executing Entity
EIA	Environmental impact assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
ESS	Environmental and Social Sustainability
FAO	Food and Agriculture Organization
GAP	Gender Action Plan
GCF	Green Climate Fund
GDA	Groupement de développement Agricole / Agricultural Development Group
GDP	Gross domestic product
GIEs	Groupements d'intérêt économique
GIS	Geographic Information System
GRM	Grievance Redress Mechanism
IE	Implementing Entity
IGA	Income-generating activity
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated pest management
LOE	Letter of Endorsement
M&E	Monitoring and Evaluation
MARHP	Ministère de l'Agriculture, des Ressources Hydrauliques et de la Pêche
MTR	Mid-term Review
NDC	Nationally Determined Contribution
NGO	Non-governmental organization
PDES	Plan Directeur des Eaux du Sud
PMC	Project Management Costs
PMU	Project Management Unit
POPP	Programme and Operations Policies and Procedures
PPR	Project Progress Review
PV	Photovoltaic
RBM	Results-based management
RCP	Representative Concentration Pathway
RF	Results Framework
SDG	Sustainable Development Goal
SEP	Stakeholder Engagement Plan
SES	Social and Environmental Standards
SESP	Social and Environmental Screening Procedure
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
SMEs	Small and medium-sized enterprises
SMSA	Société mutuelle de services agricoles
SSP	Shared Socioeconomic Pathway
STEG	Tunisian Company for Electricity and Gas
TE	Terminal Evaluation
UGPO-CC	National Coordination Unit on Climate Change within the Ministry of Environment
WSDI	Warm Spell Duration Index

Project Background and Context

Geographic and socio-economic context

Tunisia is a North African country, located on the southern shore of the Mediterranean Sea. It is the smallest country in North Africa, occupying an area of approximately 164 000 km^2, and sharing land borders with Algeria to the west and Libya to the southeast (Figure 1[1]). The country extends over 1,200 km from north to south and approximately 280 km from east to west. Northern Tunisia is characterised by a Mediterranean climate, with mild, rainy winters and hot, dry summers, while the southern regions are predominantly arid and influenced by Sarahan conditions.

Figure 1. Political Map of Tunisia demonstrating governorates and major urban centres



Tunisia is composed of several distinct geographic zones, including a mountainous northern zone, a semi-arid central plateau dominating the western part of the country, a low-lying, fertile coastal zone abutting the Mediterranean in the east, and a vast arid southern region forming part of the Sahara Desert. The eastern boundary of the Saharan zone is marked by the Matmata and Dahar mountain chains[2], which extend into the northern Sahara and shape the country's geomorphology. The Southwest is also home to Chott el Djerid, a vast salt lake that sits at 17 meters below sea level, marking the lowest point in Tunisia's topography. These geographic and climate gradients strongly influence natural resource availability, land use patterns and population distribution across the country.

Tunisia has a population of approximately 12.4 million people[3]. The country is administratively divided into 24 governorates and 264 delegations, and around 350 municipalities. Population distribution is highly uneven, largely reflecting climatic and geographic conditions. More than 80% of the population is concentrated in the northern and eastern coastal regions, where climatic conditions are more favourable and economic opportunities are more diversified. In contrast, the southern and inland regions are sparsely populated due to high aridity, water scarcity and limited economic opportunities. The country is also highly urbanised, with over 70% of the population living in urban areas[4].

Within this national context, significant regional disparities exist, particularly between the more developed coastal areas and the arid inland and southern regions. The Governorate of Tozeur, located in south-western Tunisia, is one of the most sparsely populated and environmentally constrained regions of the country. Characterised by a hot desert climate, very low annual rainfall (typically below 100 mm) and a strong dependence on groundwater resources, Tozeur illustrates the structural exposure of southern regions to water scarcity and climate-related risks. These characteristics make it a particularly relevant area for climate adaptation interventions, especially in relation to traditional oasis ecosystems.

[1] Nations Online. (2023). *Political map of Tunisia*. [Online]. Available: https://www.nationsonline.org/oneworld/map/tunisia-political-map.htm
[2] Intergovernmental Panel on Climate Change. (2023). Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the IPCC. H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.). Cambridge University Press, Cambridge, UK and New York, USA. [Online]. Available: https://doi.org/10.1017/9781009325844
[3] Figure for 2025. United Nations Population Fund. [Online]. Available: https://www.unfpa.org/data/world-population/TN
[4] United Nations Population Division. World Urbanization Prospects: 2018 Revision.

Understanding the oasis as a socio-ecological system

Traditional oases in the Governorate of Tozeur constitute complex socio-ecological systems that have developed over centuries in response to extremely arid climatic conditions. They combine ecological, productive, economic, social and cultural functions within a highly constrained environmental context, characterised by water scarcity and thermal extremes. Understanding the oasis as an integrated system is essential to situate climate impacts and risks beyond a purely biophysical perspective.

Traditional and modern oases in Tunisia differ significantly in their ecological structure, production systems, irrigation practices, land tenure arrangements and socio-economic functions. Traditional oases are generally characterised by dense, multi-layered and diversified agro-ecosystems combining date palms, fruit trees, vegetables and fodder crops, while modern oases are more commercially oriented and often rely on simplified production systems dominated by monoculture and modern irrigation infrastructure. These differences are important from an adaptation perspective because traditional oasis systems provide important ecological and socio-economic functions, including microclimate regulation, agrobiodiversity conservation, livelihood diversification and buffering against climate variability, but also face specific vulnerabilities linked to fragmentation, ageing infrastructure and water stress.

Summary of the characteristics of traditional and modern oases in Tunisia[79]

Characteristic	Traditional oasis	Modern oasis
Morphology/layout	Fragmented and small farms (mean area <0.5ha)	Contiguous, larger farms
Palm tree density	High density (> 200 trees/ha)	Medium density (100–150 trees/ha)
Date varietals	Mostly common varieties	Mostly commercial varieties
Land tenure	Sharecropping (khemassat)	Wage-earning and direct farming methods
Intensity	High density and wide species diversity	Extensive and organised, fewer species
Intercropping	Vegetable and forage crops	Monoculture
Irrigation	Surface irrigation network of earthen canals	Modern irrigation network with concrete or PVC pipes, water-saving systems
Historical use	Subsistence-focused	Commercialised

The project specifically focuses on traditional oasis systems because of their high socio-ecological value, their role in maintaining oasis agrobiodiversity and ecosystem functions, and their increasing vulnerability to climate-related pressures, including drought, heat stress, salinisation and declining water availability.

A multi-layered agro-ecological system

From an agro-ecological perspective, traditional oases are organised as multi-layered production systems. They are typically structured around three main vegetation strata: (i) an upper layer dominated by date palms, which provide shade and create a moderated microclimate; (ii) an intermediate layer composed of fruit trees; and (iii) a lower layer of annual crops, vegetables or fodder. This vertical stratification plays a critical role in regulating temperature, reducing evapotranspiration and optimising the use of limited water resources. The ecological functioning of the oasis depends on the integrity of this stratified structure and on the maintenance of soil fertility and water flows.

A diversified economic system

Beyond agricultural production, traditional oases function as diversified local economic systems. Date production remains the central economic activity, but it is complemented by a range of other livelihood activities, including horticulture, livestock rearing, small-scale processing, handicrafts and, in some locations, oasis-based tourism. These activities contribute to income diversification and risk spreading in an environment exposed to high climatic variability. Economic interactions within the oasis are closely linked to land tenure arrangements, access to water, and the organisation of collective infrastructure such as irrigation networks.

Historically, oases also served as important centers of trade and exchange across southern Tunisia, supporting the movement of goods, people and knowledge across arid territories. Today, their economic

contribution extends beyond agriculture to include handicrafts, local services and oasis-based tourism, reinforcing their role as territorial anchors for local development.

A social and cultural space

Traditional Oases also represent important social and cultural spaces. They are embedded in systems of collective organisation governing land, water and labour, often based on customary rules and long-established social institutions. Traditional knowledge related to water management, cropping practices and ecosystem maintenance has been transmitted across generations and forms a key component of oasis resilience. In addition, oases hold strong cultural and symbolic value, shaping local identities and social cohesion within oasis communities.

Women also play an important role in oasis systems through their contribution to agricultural activities, processing, handicrafts, household resilience and the transmission of traditional knowledge and cultural practices across generations.

Taken together, these agro-ecological, economic and socio-cultural dimensions define the oasis as a tightly coupled socio-ecological system. Climate impacts therefore affect not only biophysical components such as crops and water resources, but also livelihoods, social organisation and cultural practices.

Socio-economic context of Tunisia

Tunisia is classified as a lower-middle-income country, with a per capita Gross Domestic Product (GDP) of approximately USD 4,181[5] and a Human Development Index (HDI) of 0.746, ranking 105th out of 193 countries[6]. The country's economy is relatively diversified, with services contributing around 64% of GDP, followed by industry (26%) and agriculture (10%)[7]. Tunisia's economic activity is heavily concentrated along its 1,148-kilometer Mediterranean coastline, which hosts major urban centres, ports, tourism infrastructure and fishing activities, and constitutes the core of the country's economic development.

Despite its relatively small contribution to GDP, agriculture occupies more than 25% of the national territory, provides employment for approximately 13% of the population and accounts for nearly 80% of national water use[8]. The country is known for its agricultural productivity and diversified production systems, but this strong dependence on water resources makes the sector particularly sensitive to climate variability and increasing water scarcity. Rapid urbanization, population growth and rising irrigation needs have further increased water demand, placing additional pressure on already limited water resources[9].

Tunisia faces several structural development challenges, including high unemployment, persistent poverty, regional inequalities and limited economic growth. Economic performance has remained relatively weak in recent years, with a sharp contraction of -9% in 2020 due to the COVID-19 pandemic, followed by a partial recovery to 4.7% in 2021 and 2.8% in 2022, before slowing again to 0.2% in 2023 and 1.6% in 2024[10]. Poverty levels have remained relatively stable at approximately 15% since 2015, reflecting limited economic opportunities in certain regions[11].

Internal migration is a significant socio-economic trend, particularly from southern and inland regions towards coastal urban areas, driven by the search for improved livelihoods[12]. This trend is especially pronounced among men and youth and has contributed to demographic imbalances in some regions, including a higher proportion of women and female-headed households[13].

Gender disparities remain a development concern in Tunisia. The country has a Gender Gap Index score of 0.67 and ranks 115th out of 146 countries globally[14]. While progress has been made in areas such as health and education, inequalities persist in economic participation and access to opportunities,

[5] Figures for 2024. Available at: https://data.worldbank.org/?locations=XN-TN
[6] Figures for 2023. Available at: https://hdr.undp.org/data-center/specific-country-data#/countries/TUN
[7] Available at: https://tradingeconomics.com/tunisia/gdp-growth
[8] FAO: Water efficiency, productivity and sustainability in the MENA regions (WEPS-NENA). Available at: https://www.fao.org/in-action/water-efficiency-nena/countries/tunisia/background-and-sites/ar/
[9] Climate Risk Profile: Tunisia (2025): The World Bank Group.
[10] Figures available at: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=TN
[11] Carnegie Endowment for International Peace. (2021). Tunisia Facing Increasing Poverty and Regional Inequalities. Available: https://carnegieendowment.org/sada/85654.
[12] Zuccotti, C.V., Geddes, A., Bacchi, A., Nori, M., and Stojanov, R. (2018). Drivers and patterns of rural youth migration and its impact on food security and rural livelihoods in Tunisia. Technical Report: Food and Agriculture Organization of the United Nations (FAO), Migration Policy Centre. Available: https://cadmus.eui.eu/handle/1814/53724
[13] Atlas from the Governorate of Tozeur. Tunisian Republic.
[14] Figure for 2024. Available at: https://countryeconomy.com/demography/global-gender-gap-index/tunisia

particularly in rural areas[15].

These structural characteristics, particularly the high dependence on climate-sensitive sectors and the increasing pressure on water resources, contribute to shaping Tunisia's overall vulnerability to climate variability and change. In arid regions such as the Governorate of Tozeur, where natural constraints are already pronounced, climate conditions play a decisive role in determining resource availability, agricultural productivity and livelihood sustainability.

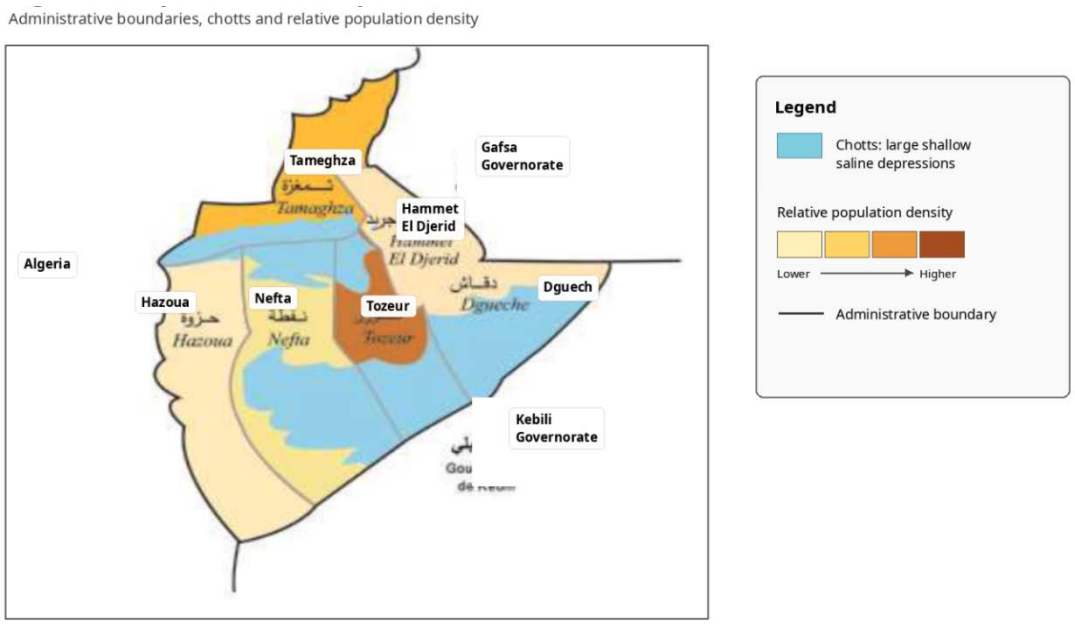
Socio-economic context of Tozeur Governorate

The Governorate of Tozeur, located in western Tunisia, covers an area of approximately 5,600 km² and had an estimated population of 120,080 in 2025. It is divided into 6 delegations, namely: Tozeur; Nefta; Tamerza; Degache; El Hamma of Jerid and Hazoua. The governorate is characterized by a highly uneven distribution of population across its districts.[16] More than 40% of the population is concentrated in the city of Tozeur, occupying only 12.6% of the governorate's total area. In contrast, around 48% of the population is located in the two major districts of Degache and Nefta, situated around the Chott Djérid. The districts of Hazoua and Tamerza together host only 11% of the population, despite accounting for approximately 40.3% of the governorate's total area[17].

Regarding bulk infrastructure in the region, improvements have been noted in recent decades in transportation of people, goods, animals, fodder, and conveyance of water[18]. However, rural transportation infrastructure was seen to have declined during this time period, predominantly as a result of poor maintenance following flood events[19].

As a result of Tozeur's inherent aridity the area has a low population density (Figure 2) with uneven distribution, much like the Tunisia's other southern regions. Major economic activities in the region are linked to the availability of water, and most inhabitants reside in major towns or aggregate around its oasis ecosystems, which are critical resources for its population. Its economy is centred on agriculture and tourism, with the cultivation and production of dates supporting livelihoods throughout the governorate. In 2016 alone, the 29 traditional targeted oases produced almost 20 000 tons of dates (Figure 3). More than half of these (54%) were produced in the delegation of Tozeur (being the largest), with the remaining 46% produced in Degache and El Hamma el Jerid (15% each), Tamerza (10%), and Nefta (6%).

Figure 2. Administrative divisions and population density of the Governorate of Tozeur



Note: The original figure states that an updated map was pending publication to reflect the new administrative division of Tozeur Governorate, including the newly designated Hammet El Djerid delegation.
Population density classes are reproduced as relative classes because the source figure does not provide numeric thresholds.

[15] UN Women. (2023). Tunisia Country Snapshot. Available: https://data.unwomen.org/arab-states/country/tunisia

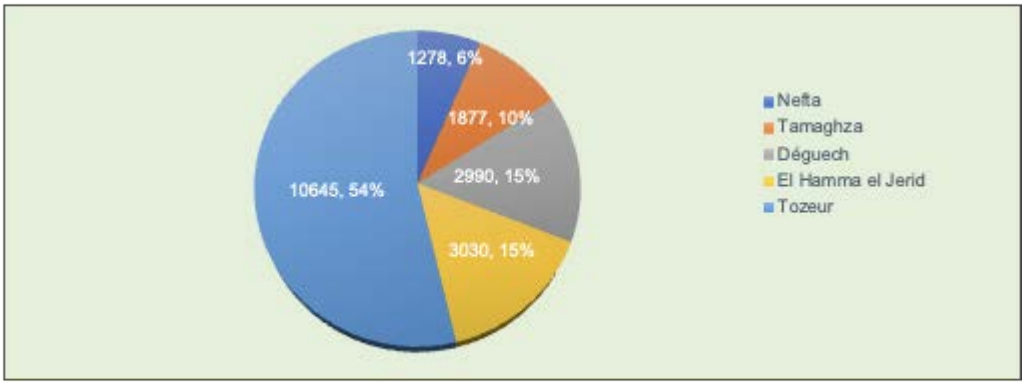
[16] According to the latest available detailed spatial data (2014 population census).

[17] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.

[18] Verner, D. (2013). *Tunisia in a Changing Climate: Assessment and Actions for Increased Resilience and Development*. The World Bank, Washington, DC. [Online]. Available: http://hdl.handle.net/10986/13114

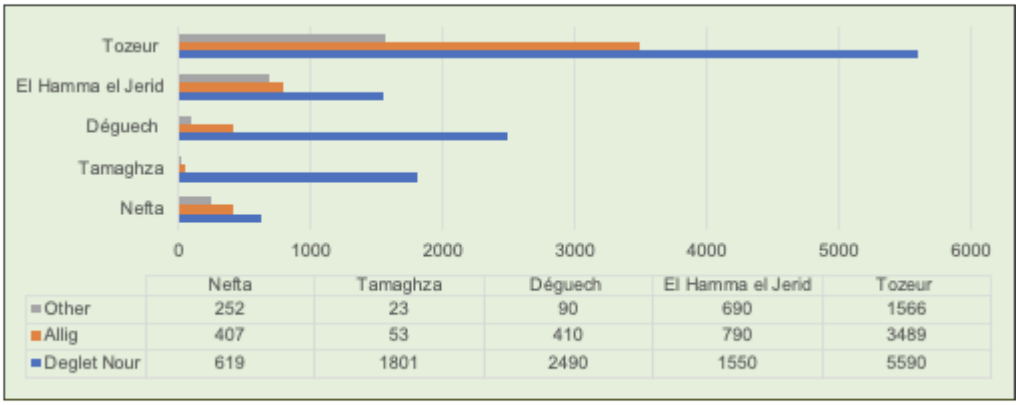
[19] *Ibid.*

Figure 3. Annual date production (tons) and % contribution to total production in the five delegations of Tozeur Governorate[20]



Southern Tunisia is an area known for its production of the economically important *Deglet nour* date varietal, which accounted for ~82% of date palm cultivars in Nefzaoua region in 2015[21]. The delegations within Tozeur Governorate show a similar dominance of this varietal as shown by Figure 4 where the proportion of *Deglet Nour* relative to other date varietals ranged between 48% and 96% in 2016.

Figure 4. Annual production (tons) of Deglet nour, Allig, and other date varietals in the five delegations[22]



	Nefta	Tamaghza	Déguech	El Hamma el Jerid	Tozeur
Other	252	23	90	690	1566
Allig	407	53	410	790	3489
Deglet Nour	619	1801	2490	1550	5590

The unemployment rate has increased from 15.4% (2014) to 24.8% in 2019, with the rate for higher education graduates very high (over 26%)[23]. Until the end of 2015, the labour market in Tunisia suffered from a structural imbalance that lasted under the effect of the slowdown in economic activity. In all delegations of the Governorate of Tozeur, the unemployment rate is still higher for women than for men. The disparities are even more pronounced for higher education graduates, where the rate of unemployed women graduates is almost double that of men in all the intervention areas. Although the governorate's population has continued to increase according to recent official estimates, available migration data indicate that outmigration remains an important socio-economic challenge. Limited employment opportunities and difficulties in integrating young people into the local labour market continue to drive migration, particularly among young people and economically active groups. This trend contributes to the gradual weakening of the agricultural labour force and reduces the long-term vitality of traditional oasis communities.

Household livelihoods have also become more diversified. In addition to agriculture, many families depend on remittances, small trade, construction, services, tourism-related activities and other non-farm income sources. This diversification partly reflects the declining profitability of traditional oasis agriculture, which is increasingly constrained by water scarcity, ageing irrigation infrastructure, rising production costs and reduced access to reliable labour.

Since the 1960s, the decline of traditional water sources has been driven by the combined effects of

[20] Data source: Acterra Consulting. (2022). *Report on enhancing nature-based solutions for oasis ecosystems and agrosystems adaptation in the Governorate of Tozeur*. (Unpublished).
[21] Hamza, H. *et al.* (2015). Date Palm Status and Perspective in Tunisia. In: Al-Khayri, J., Jain, S., Johnson, D. (eds). *Date Palm Genetic Resources and Utilization*. Springer, Dordrecht. [Online]. Available: https://doi.org/10.1007/978-94-017-9694-1_6
[22] *Ibid.*
[23] http://www.itceq.tn/files/tableaux-de-bord/social/tbord-social-inclusion.pdf (No more recent data has been identified).

groundwater over-extraction, insufficient recharge, drought and rising temperatures. In parallel, modern oasis development has expanded in some areas, often based on deeper groundwater abstraction, more commercial date production and less diversified farming systems. Where such expansion occurs outside formal planning and water allocation systems, it can increase pressure on already stressed aquifers and create competition with traditional oases for access to land and water.

These dynamics have important implications for climate adaptation. Traditional oases remain socially, economically and ecologically important, but their resilience is being weakened by water stress, reduced profitability, land fragmentation, plot abandonment and limited maintenance capacity. Strengthening their adaptive capacity therefore requires not only improving water management, but also supporting viable livelihoods, better local organization, and more sustainable forms of economic diversification.

Project area

The Governorate of Tozeur was selected as the project's intervention area following a screening of Tunisia's climate and socio-economic context. Located in the country's hyper-arid southwest, Tozeur combines some of the highest levels of climate exposure and vulnerability in Tunisia. As detailed in the following sections, the governorate is characterised by extreme heat, chronic water scarcity, increasing drought conditions, high dependence on groundwater resources, and a strong reliance of local livelihoods on climate-sensitive traditional oasis systems. These interacting factors make Tozeur one of the country's climate vulnerability hotspots and a priority area for adaptation interventions.

This strategic choice is further supported by a comprehensive vulnerability assessment conducted by the Ministry of Environment between 2022 and 2023, which identified the traditional oases of Tozeur as among the country's most climate-vulnerable oasis systems. The study included: (i) a detailed assessment of current and future vulnerabilities affecting water resources, soils, biodiversity, agricultural production systems, livelihoods and socio-economic conditions; (ii) the preparation of a governorate-wide climate change adaptation plan; and (iii) the development of five orientation documents for local adaptation plans in the traditional oases. These assessments provide the scientific and strategic basis for the geographical targeting of the proposed project.

The following sections present the climate trends, hazards, exposure and vulnerability analyses that underpin the selection of the Governorate of Tozeur as the project's intervention area.

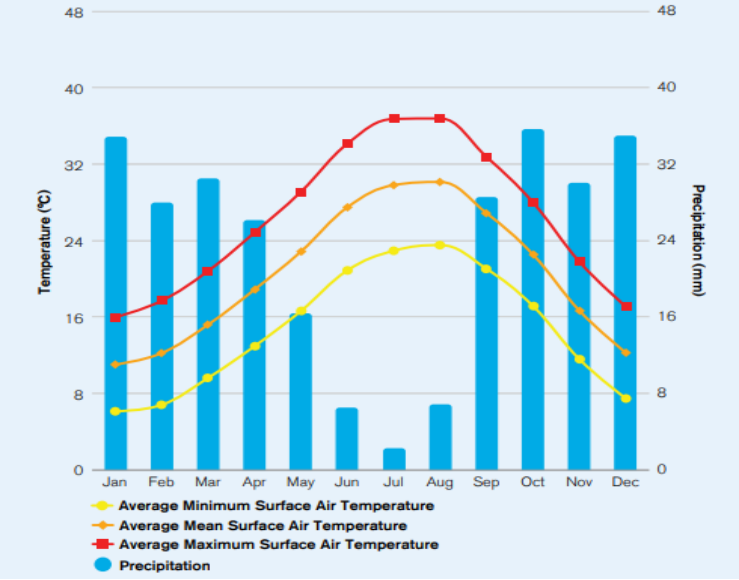
Climate context of Tunisia and Tozeur Governorate[24]

Current climate characteristics

Tunisia exhibits strong climatic contrasts driven by latitude, topography and proximity to the Mediterranean Sea. According to long-term climatological data, the country's mean annual temperature is approximately 20.5°C[25], with a marked north-south gradient. Northern coastal and mountainous regions generally record lower average temperatures, while southern inland regions are significantly warmer.

The Governorate of Tozeur, located in southern Tunisia, is characterised by very high baseline temperatures consistent with its arid to hyper-arid climatic setting. Mean annual temperatures in Tozeur are among the highest nationally, typically exceeding 22°C[26]. Summers are extremely hot, with frequent days of very high maximum temperatures, while winters remain mild relative to northern regions. These

Figure 5: Monthly historical national climatology of average temperature and total precipitation (country-wide values)



[24] All tables and figures in this section are sourced from the Climate Risk Country Profile: Tunisia, published by the World Bank in 2025. Link: https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/17191-WB_Tunisia%20Country%20Profile-WEB.pdf
[25] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[26] Ibid.

temperature characteristics form the baseline climatic context within which recent trends and future changes are observed[27].

Current climate trends

The Governorate of Tozeur lies predominantly within arid to hyper-arid bioclimatic zones. Baseline climatic conditions are characterized by very high temperatures, extremely low and irregular precipitation, and structurally limited renewable water resources. Observed climate trends at both national and sub-national levels indicate a clear intensification of these conditions over recent decades.

The analysis below presents observed climate trends first at the national level and then at the level of the Governorate of Tozeur and its traditional oases, based on available secondary data.

Temperatures

Observed climate data indicate that Tunisia has experienced a sustained warming trend over recent decades. Between 1971 and 2020, average temperatures increased at an estimated rate of approximately 0.46°C per decade[28]. This warming has affected both minimum and maximum temperatures, with stronger increases observed for maximum daytime temperatures, particularly during spring and summer months. Southern and interior regions exhibit some of the highest warming rates recorded nationally.

Within this national context, Tozeur is among the governorates experiencing the highest absolute temperature levels and some of the strongest warming trends. Observed maximum temperature trends in Tozeur have approached 0.6°C per decade over recent decades[29] (see Table 1). The governorate already experiences very high summer temperatures and a large number of hot days annually compared to northern and coastal regions. The Acterra (2022) vulnerability analysis of traditional oases in the Governorate of Tozeur[30] indicates that increasing temperatures have been observed across oasis area. However, long-term climate observations specifically collected at the scale of individual oasis systems remain limited.

Table 1: Historical air surface temperature averages (1991-2020), and Trends per decade (1971-2020), colored according to intensity

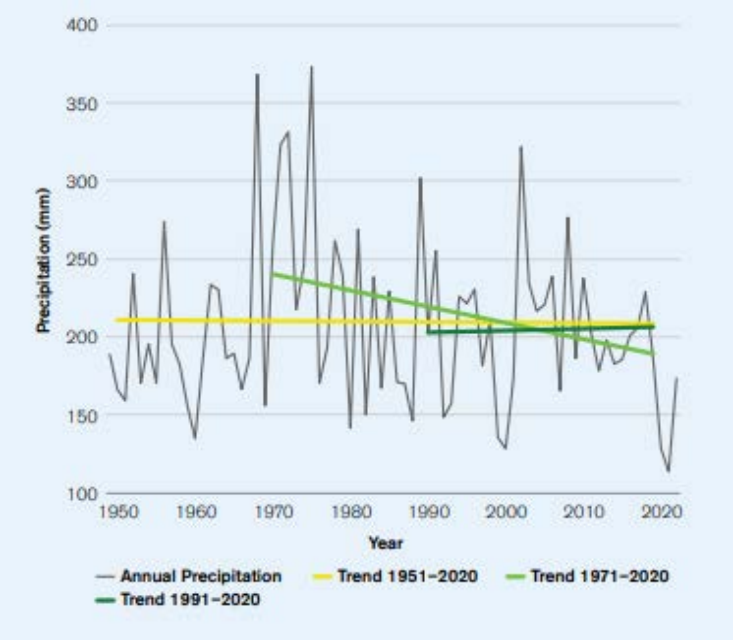
Region	Historical Air Surface Temperature Averages (1991–2020) (degrees C)					Trend per Decade (1971–2020)		
	Temp	Min Temp (night temp)	Max Temp (day temp)	Coldest Month (January) temp	Warmest Month (July or August) temp	(degrees C/ decade)	Min Temp	Max Temp
Tunisia	20.51	14.74	26.33	11	30.11	0.46	0.43	0.52
Jendouba	17.67	11.83	23.56	9.59	26.85	0.38	0.3	0.45
Beja	18.43	12.77	24.14	10.16	27.49	0.42	0.36	0.51
Bizerte	18.71	13.52	23.96	11.01	27.44	0.36	0.33	0.41
Manouba	19.06	13.63	24.54	11.02	28.02	0.42	0.39	0.49
Ariana	19.15	14.14	24.21	11.04	28.02	0.35	0.33	0.37
Tunis	19.22	14.16	24.32	11.02	28.12	0.39	0.37	0.44
Ben Arous	19.23	14.16	24.34	11.04	28.14	0.41	0.39	0.47
Nabeul	19.26	14.96	23.6	11.67	27.83	0.38	0.39	0.37
Le Kef	16.99	10.83	23.2	8.1	26.97	0.43	0.35	0.55
Siliana	17.65	11.65	23.68	8.76	27.54	0.47	0.4	0.58
Zaghouan	18.98	13.48	24.52	10.67	28.24	0.45	0.42	0.53
Kairouan	19.44	13.46	25.46	10.75	28.96	0.49	0.44	0.59
Sousse	20.07	14.67	25.53	11.79	29.17	0.45	0.43	0.49
Monastir	20.19	15.44	25.01	12.11	28.96	0.44	0.43	0.45
Mahdia	20.01	14.84	25.23	11.83	28.84	0.47	0.46	0.49
Kasserine	17.16	11.04	23.32	7.55	27.72	0.42	0.36	0.53
Sidi Bouz	19.48	13.51	25.5	10.38	29.12	0.44	0.39	0.53
Sfax	19.98	14.72	25.3	11.7	28.78	0.46	0.44	0.49
Gafsa	19.89	13.76	26.08	9.84	30.21	0.44	0.38	0.55
Tozeur	22.1	15.88	28.37	11.36	32.79	0.46	0.35	0.58
Kebili	22.11	16.19	28.08	11.72	32.21	0.48	0.45	0.56
Gabes	20.75	15.61	25.94	11.72	29.86	0.48	0.45	0.53
Medenine	21.55	16.54	26.6	12.67	30.29	0.46	0.46	0.45
Tataouine	22.14	16.1	28.22	11.63	31.79	0.48	0.48	0.5

[27] Ibid.
[28] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[29] Ibid.
[30] Acterra. (2022). *Rapport d'évaluation des vulnérabilités et des risques au changement climatique des oasis traditionnelles du Gouvernorat de Tozeur.* Livrable 3 of the AFD Adapt'Action programme. Unpublished technical report.

Precipitations and water stress

Tunisia is characterised by low average annual precipitation and high interannual variability. Over the period 1970-2020, national average precipitation declined by approximately 8.9 mm per decade, corresponding to a reduction of about 3% per decade relative to the 1995-2014 reference period[31] (see Figure 6). However, this trend is sensitive to the period analyzed and is not statistically significant at the national scale due to strong natural variability. Spatially, southern regions show clearer negative precipitation signals than northern coastal and mountainous areas (Acterra (2022)). The Governorate of Tozeur is characterised by extremely low annual rainfall, typically well below 100 mm per year, combined with very high potential evapotranspiration[32]. As a result, traditional oases are structurally dependent on recharge of groundwater resources rather than direct rainfall.

Figure 6: Tunisia's annual precipitation between 1951 and 2023 and decadal trends for different periods as indicated



The Acterra (2022) vulnerability analysis of traditional oases in the Governorate of Tozeur, indicates that Tozeur has experienced clear precipitation declines relative to historical averages, with reductions exceeding 8% reported over recent decades[33] (see Table 2).

The analysis also highlights spatial variability across delegations, with more pronounced water stress conditions reported in delegations hosting older and more intensively cultivated oasis systems, such as Degache and Tozeur Nord, compared to more peripheral or less densely cultivated areas. At the oasis level, the same study highlights persistent water stress conditions linked to limited recharge, high evaporation rates and increasing demand, although rainfall plays a marginal role in the overall water balance of oasis systems.

Table 2: Historical data (1991-2020), and decadal trend (1971-2020) for annual precipitation (in mm), color coded by intensity. Significant Decadal Trends, at the 90% Confidence Level, are Highlighted in Bold.

	Historical Precipitation Yearly Averages (1991–2020)					Precipitation Trend per Decade (1971–2020)		Hist Drought Days	Hist Wet Days
Regions	Total PR (mm)	Interannual Variability (mm)	Min (mm) (July)	Max (mm)	Month max	Trend (mm)	Trend (% respect hist)	CDD (days)	CWD (days)
Tunisia	280.56	21.09	2.29	35.65	Oct	−8.91	−3.18	107.72	4.12
Jendouba	933.01	59.07	4.1	72.56	Jan	−14.48	−1.55	46.61	8.89
Beja	760.53	53.03	4.04	69.57	Jan	−11.89	−1.56	50.35	7.71
Bizerte	700.28	57.71	2.8	102.11	Jan	−18.62	−2.66	60.82	8.18
Manouba	604.9	51.56	3.57	111.35	Jan	−9.54	−1.58	56.4	6.3
Ariana	527.91	53.79	3.21	32.52	Jan	−12.86	−2.44	71.49	7.12
Tunis	510.48	53.24	3.51	30.85	Jan	−11.08	−2.17	66.1	6.32
Ben Arous	509.06	52.34	3.56	143.85	Jan	−11.96	−2.35	67.38	6.07
Nabeul	483.54	52.76	2.8	56.33	Dec	−8.09	−1.67	75.07	6.57
Le Kef	740.25	48.3	6.84	54.72	Jan	−9.83	−1.33	36.36	6.3
Siliana	699.16	49.45	7.11	17.12	Jan	−8.24	−1.18	37.77	6.12
Zaghouan	551.57	51.69	5.28	102.98	Jan	−8.08	−1.46	55.85	5.58
Kairouan	422.45	40.39	5.71	52.17	Oct	−3.34	−0.79	52.18	4.64
Sousse	382.49	44.09	4.35	84.85	Oct	−6.76	−1.77	70.15	4.66
Monastir	334.28	41.77	3.09	55.41	Oct	−7.49	−2.24	72.46	5.08
Mahdia	303.48	35.53	2.99	34.11	Oct	−5.36	−1.77	76.16	4.55
Kasserine	461.39	33.32	8.46	66.96	Jan	−9.41	−2.04	39.11	5.13
Sidi Bouz	308.44	30.3	4.44	44.8	Oct	−4.95	−1.60	62.44	4.24
Sfax	258.08	28.59	2.27	39.58	Oct	−9.32	−3.61	94.04	4.12
Gafsa	211.48	23.73	2.83	94.12	Sept	−6.03	−2.85	76.2	3.66
Tozeur	102.69	18.59	0.59	56.01	Sept	**−8.29**	**−8.07**	120.25	3
Kebili	105.54	14.56	0.18	14.56	Oct	**−8.68**	**−8.22**	146.33	2.9
Gabes	183.33	22.58	0.79	17.21	Oct	**−11.24**	**−6.13**	124.47	3.61
Medenine	165.53	24.33	0.21	70.06	Oct	**−10.71**	**−6.47**	135.66	3.79
Tataouine	92.13	13.34	0.07	71.49	Oct	**−5.16**	**−5.60**	162.46	2.77

[31] Ibid.
[32] Ibid.
[33] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.

Climate projections

This section summarizes projected future climate trends relevant to the Governorate of Tozeur, based on existing national and regional climate projections. No new modelling has been undertaken; the analysis relies on secondary sources.

Climate scenarios and data sources

Future climate projections presented are primarily derived from CMIP6 multi-model ensembles as synthesized in the World Bank Climate Risk Country Profile for Tunisia. The SSP3-7.0[34] emissions scenario is used as the main reference, representing a medium-to-high emissions pathway broadly consistent with current global trajectories. For sub-national analysis, in particular for the Governorate of Tozeur, the assessment also draws on the Acterra vulnerability assessment (2022) which provides delegation-level climate indicators and RCP-based projections[35].

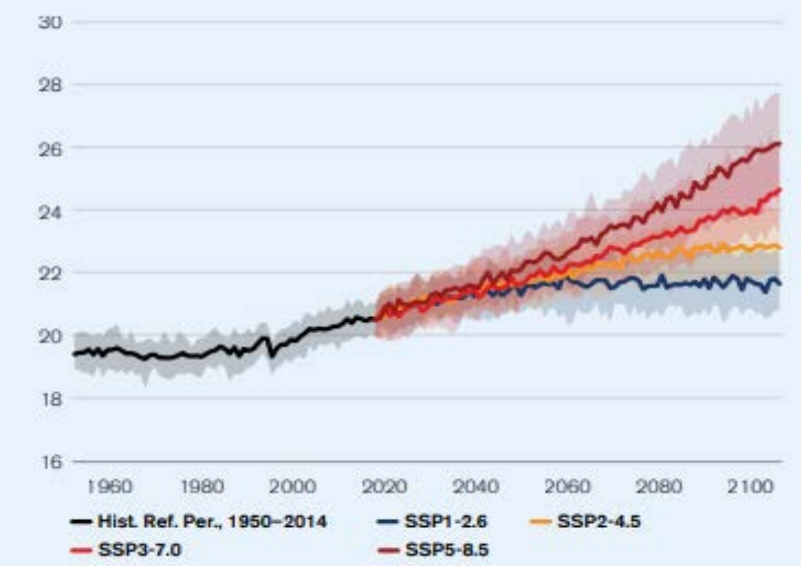
Summary of climate data, scenarios and assumptions

Element	Description
Main climate data sources	World Bank Climate Risk Country Profile for Tunisia (2025), based on CMIP6 multi-model ensembles, is used for national-scale climate trends and projections. Acterra vulnerability assessment (2022) is used for Governorate and delegation-level analysis in Tozeur, as it provides the most recent and comprehensive climate vulnerability assessment and downscaled indicators currently available for the project area.
Climate scenarios used	SSP3-7.0 (CMIP6) is used for all national-scale historical trends and future climate projections presented in this proposal, as it is the scenario used in the latest World Bank Climate Risk Country Profile. RCP4.5 and RCP8.5 (CMIP5) are used only for the Governorate of Tozeur and delegation-level analyses, because these are the scenarios underlying the Acterra study, which remains the most detailed and locally relevant source currently available for the project area.
Baseline reference periods	CMIP6 projections (World Bank): 1995-2014 Acterra analysis: 1990-2021
Confidence levels (based on IPCC AR6)[36]	Temperature trends: high confidence Precipitation trends: medium to low confidence (high variability and model uncertainty) Climate extremes (heatwaves, droughts, intense rainfall): medium confidence
Key limitations	Significant uncertainty for precipitation projections, particularly at sub-national scale Partial non-equivalence between CMIP5 (RCP) and CMIP6 (SSP) frameworks

Projected temperature trends

As shown in Figure 7, under the SSP3-7.0 scenario, Tunisia's average annual temperature is projected to increase substantially over the coming decades. By mid-century (2040-2059), national mean temperatures are projected to increase by around 1.5-2.0°C relative to the 1995-2014 reference period. Projected warming rates between 2000 and 2050 are estimated at around 0.35-0.38°C per decade[37]. Projected increases are stronger in summer than in winter, and maximum temperatures are expected to rise more rapidly than minimum temperatures. The number of hot days (maximum temperature

Figure 7: Projected average mean surface air temperature for different climate change scenarios in Tunisia



[34] Acronym: Shared Socioeconomic Pathway (SSP).
[35] Acronym: Representative Concentration Pathway (RCP).
[36] Confidence levels are derived qualitatively from the consistency of observed trends, model agreement, and the level of uncertainty reported across sources. Acronyms: Intergovernmental Panel on Climate Change (IPCC); Sixth Assessment Report (AR6).
[37] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.

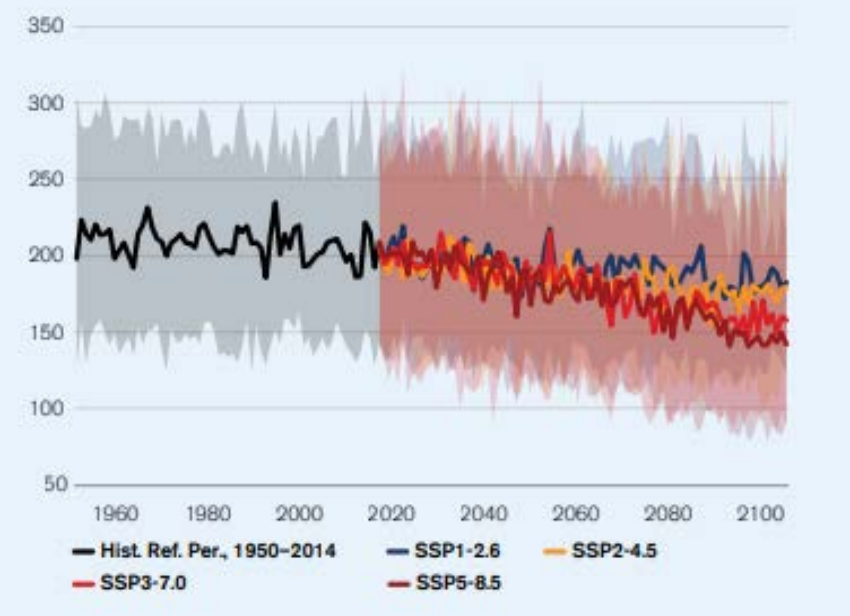
exceeding 35°C) is projected to increase markedly at the national level by mid-century. For the Governorate of Tozeur, multiple sources confirm a strong and consistent warming signal. World Bank Climate Change Knowledge Portal (CKP) projections indicate that average surface air temperature could reach approximately 24.06°C by 2040-2059 under SSP3.7 scenario. RCP-based projections at governorate level further indicate continued increases in mean, minimum and maximum temperatures by 2050, confirming a robust warming trend across all temperature indicators.

These projections confirm that southern interior regions, and particularly Tozeur, are among the most exposed areas in Tunisia to future warming. This increase in baseline temperatures is expected to significantly intensify thermal stress in oasis ecosystems, with direct implications for evapotranspiration rates, water demand, agricultural productivity and human health.

Projected precipitation trends

Under the SSP3-7.0 scenario, average annual precipitation in Tunisia is projected to decline by approximately 7.9% by the period 2040-2059 relative to the historical baseline (1995-2014)[38] (see Figure 8). Model results indicate spatial heterogeneity, with stronger projected declines in northern regions and weaker or uncertain signals in southern regions.

Figure 8: Projected annual precipitation for Tunisia for different climate change scenarios



For the Governorate of Tozeur, uncertainty remains high for the total annual precipitation, but available projections consistently indicate a declining tendency and a shift in rainfall patterns. Acterra projections show a decrease in cumulative annual precipitation from 108 mm (1990-2021) to 102 mm under RCP4.5 and 99 mm under RCP8.5 by 2050, confirming a downward trend. This is consistent with World Bank Climate Change Knowledge Portal estimates, which indicate a decrease from 98.88 mm (1994-2015) to 93.8 mm by 2040-2059 (see table below), corresponding to a -5.14% change (hist to 2050).

Beyond total precipitation, projections indicate a marked change in rainfall regimes, including longer dry periods and reduced persistence of rainfall events. In parallel, projections suggest a shift toward more irregular and concentrated precipitation regimes, with fewer but more intense rainfall events.

In this context, the primary driver of future water stress in Tozeur is not the change in total annual precipitation alone, but the combined effect of rising temperatures, increased evapotranspiration, and declining or more variable precipitation, which leads to a widening water deficit. Longer dry periods, reduced rainfall frequency, and more intense but less effective precipitation reduce groundwater recharge and increase irrigation demand.

Projected irrigation water requirements are expected to increase across all oasis systems and delegations under both RCP4.5 and RCP8.5 scenarios by 2050 (Figure 9)[39]. At the same time, irrigation water deficits (expressed in m^3/ha) are projected to rise across all delegations (Figure 10), reflecting a growing and structural imbalance between crop water demand and available water supply under future climate conditions.

[38] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[39] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.

Figure 9: Baseline and projected additional water requirements (mm) for the oases in each delegation by 2050 and RCP scenario[40]

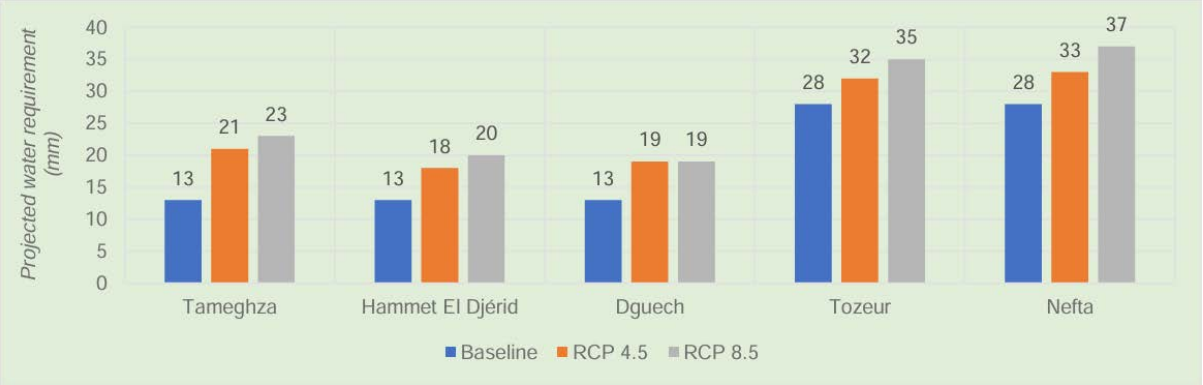
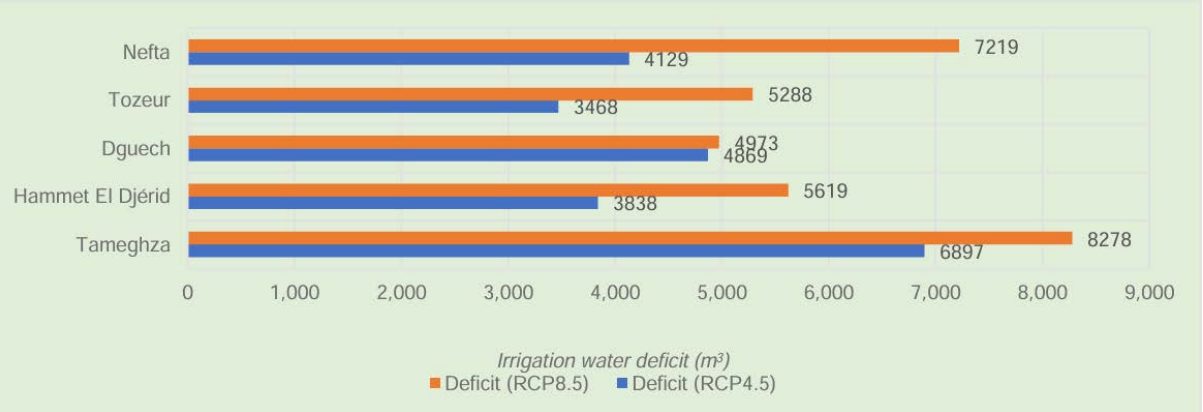


Figure 10: Projected increases in the irrigation water deficit (m^3/ha) for the oases in each delegation by 2050 and RCP scenario[41]



Overall, climate change is expected to result in a progressive deterioration of the water balance in oasis systems in Tozeur, driven by declining precipitation, longer dry spells, reduced rainfall effectiveness, and increased evapotranspiration and crop water demands, ultimately exacerbating groundwater depletion and water scarcity.

[40] Project Concept Note, based on: Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[41] Ibid.

Table 3: CMIP6 simulated historical averages (1994-2015), mid-century SSP3-7.0 averages (2040-2059) and trends per decade (2000-2050)

Regions	Precipitation (mm)						Consecutive Dry Days (days)			CWD (days)
	1994–2015	2040–2059	% Change (hist to 2050)	Trend	Trend (%)	Year of Emergence	1994–2015	2040–2059	Trend	1994–2015
Tunisia	207.97	191.54	–7.90	–3.06	–1.47	2036	111.85	114.28	1.15	5.26
Jendouba	687.47	616.12	–10.38	–13.38	–1.95	2041	43.27	51.79	1.8	11.71
Beja	531.87	480.01	–9.75	–11.03	–2.07	2045	50.52	58.98	2.28	10.44
Bizerte	569.44	515.15	–9.53	–10.95	–1.92	2044	59.15	68.37	2.41	11.17
Manouba	414.27	373.29	–9.89	–7.54	–1.82	2046	60.85	69.11	2.24	9.13
Ariana	474.64	428.06	–9.81	–8.19	–1.73	2052	72.6	78.62	1.64	9.84
Tunis	435.26	392.85	–9.74	–7.47	–1.72	2051	69.53	75.48	1.43	9.14
Ben_Arous	421	379.39	–9.88	–7	–1.66	2052	69.09	75	1.33	8.8
Nabeul	441.61	398.97	–9.66	–7.67	–1.74	2056	72.44	80.33	1.96	9.49
Le_Kef	429.72	381.86	–11.14	–8.19	–1.91	2039	39.58	48.91	1.73	8.49
Siliana	441.4	395.49	–10.40	–8.14	–1.84	2046	40.76	47.27	1.61	8.57
Zaghouan	403.41	363.53	–9.89	–6.29	–1.56	2052	58.5	64.4	1.6	8.17
Kairouan	322.36	297.19	–7.81	–5.59	–1.73	2059	63.15	68.18	1.32	6.69
Sousse	317.52	292.88	–7.76	–5.5	–1.73	2062	77.84	81.43	1.46	7.1
Monastir	326.27	307.69	–5.69	–5.33	–1.63	2066	80.08	84.43	1.23	7.19
Mahdia	268.65	253.63	–5.59	–3.77	–1.40	2067	84.95	87.81	1.12	6.25
Kasserine	322.98	291.44	–9.77	–6.17	–1.91	2042	41.78	48.92	1.59	6.68
Sidi_Bouz	230.76	216.29	–6.27	–3.61	–1.56	2060	71.17	77.15	1.65	5.52
Sfax	208.96	199.08	–4.73	–2.49	–1.19	2069	93.59	96.82	1.19	5.4
Gafsa	159.36	148.01	–7.12	–2.67	–1.68	2042	87.19	91.01	1.37	4.49
Tozeur	98.88	93.8	–5.14	–0.97	–0.98	2023	126.79	128.73	1.43	3.48
Kebili	82.22	78.69	–4.29	–0.37	–0.45	2005	148.82	147.53	0.49	3.28
Gabes	136.54	132.18	–3.19	–1.28	–0.94	2060	118.19	118.67	0.43	4.35
Medenine	135.3	129.84	–4.04	–0.5	–0.37	2062	131.44	133.46	0.8	4.66
Tataouine	67.12	63.68	–5.13	–0.1	–0.15	2005	170.74	169.13	0.87	3.09

Climate-related hazards

Heat extremes (hot days, heat waves, hot nights)

Tunisia already experiences frequent extreme heat conditions. According to the World Bank Climate Risk Country Profile, the country recorded an average of 57 hot days per year during the historical period (days with maximum temperature exceeding 35°C). Southern interior governorates, including Tozeur, already experience close to three months per year with maximum temperatures above 35°C.[42]

Extreme heat exposure is particularly pronounced in southern Tunisia. Over the period 1975-2025, population exposure to very high temperatures (maximum temperature exceeding 40°C) reached 92% in the Governorate of Tozeur.[43]

Night-time heat is also a documented extreme. According to the Climate Risk Country Profile, nearly the entire population of the governorate of Tozeur and Kebili lives in areas where the annual number of very hot nights (minimum temperature exceeding 26°C) already exceeds health-relevant risks thresholds during the historical reference period.[44]

At sub-governorate level, Acterra (2022) documents[45] heat extremes using the Warm Spell Duration Index (WSDI). For the observed period 1990-2021, the study reports average annual values of approximately 25 heatwave days per year across delegations, including 24.8 days in Degache, 25.0 days in Tozeur and 25.6 days in Tamerza.

Future projections indicate a significant intensification of heat extremes. Under the SSP3-7.0 scenario, the number of hot days (Tmax > 35°C) at national scale is projected to increase from 57 days per year during the historical period to 83.54 days per year by 2040-2059, corresponding to nearly three months per year[46]. Tunisia is projected to experience an increase of approximately 6.19 additional hot days per decade between 2000 and 2050. Southern interior regions, including Tozeur, Kebili and Tataouine, already exhibit levels of exposure consistent with these projected national averages.

[42] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[43] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[44] Ibid.
[45] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[46] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.

At the level of Tozeur, CKP projections indicate that the number of hot days (Tmax > 35°C) could reach approximately 125 days per year by mid-century, representing the highest level nationally. Tropical nights (Tmin > 23°C) are projected to reach around 130 nights per year, indicating sustained night-time heat stress[47]. In addition, the number of days per year with a heat index exceeding 35°C is projected to reach approximately 51 days by 2040-2059 and up to 95 days by the end of the century.

Recent extreme heat events further illustrate the ongoing intensification of thermal stress in southern Tunisia. During the summers of 2023, 2024 and 2025, the country experienced successive severe heatwaves, particularly affecting inland governorates. In July 2025, the National Institute of Meteorology (INM) reported exceptionally high temperatures exceeding seasonal averages, with the highest temperature recorded nationally in the Governorate of Tozeur (47°C)[48]. These recent events are consistent with the observed warming trend and with attribution studies assessed by the IPCC AR6 and the World Weather Attribution initiative, which conclude that anthropogenic climate change is increasing both the likelihood and intensity of heatwaves across the Mediterranean and North Africa.

Prolonged droughts and dry spells

At national scale, prolonged dry spells are characterised in the Climate Risk Country Profile using the indicator “maximum yearly number of consecutive dry days” (CDD; days with precipitation below 1 mm). For the historical reference period (1991-2020), the national average value is estimated at 108 consecutive dry days per year, with strong interannual variability.

CMIP6-simulated historical averages for the period 1994-2015 further indicate that Tozeur records among the highest values of maximum consecutive dry days in Tunisia, with an average of 126.79 consecutive dry days per year, compared to a national average of 111.85 days.[49]

The Acterra (2022) study analyses drought hazards for traditional oases using the same Consecutive Dry Days (CDD) indicator. For the observed period 1990-2021, reported average values range between 87 and 94 consecutive dry days across delegations, with the highest values observed in Degache (94 days) and Tamerza (87 days).

Future projections indicate a continued persistence and slight intensification of dry spells in Tunisia into the future. Under SSP3-7.0, the national average maximum number of consecutive dry days is projected to increase from approximately 112 days historically to 114 days by 2040-2059[50].

At the level of Tozeur, projections indicate an increase in consecutive dry days from 89 days to 93 days (RCP4.5) and 97 days (RCP8.5), confirming a trend toward longer and more persistent dry periods.

While this increase appears moderate at national scale, many regions of Tunisia already experience near-universal population exposure to prolonged dry spells. Projections further indicate that drought conditions are expected to persist or intensify through the second half of the century (2050-2099), contributing to longer dry spells[51].

Episodes of intense rainfall and flooding

Despite overall aridity, extreme precipitation events remain a climate hazard in Tunisia. The Climate Risk Country Profile includes return-period analyses for heavy rainfall events and documents the occurrence of intense one-day precipitation events, confirming that flash flooding risks persist even in arid regions.

At local level, Acterra (2022) documents intense rainfall events using a threshold of daily rainfall exceeding 40 mm. Such events are reported to have caused flooding and significant material damage in the delegation of Tamerza. The study further notes that, over the observed period (1990–2021), the signal of intense rainfall episodes is more pronounced in Tamerza than in Degache.

Future projections indicate that intense rainfall events are likely to occur more frequently. In a warmer climate, the increased capacity of the atmosphere to hold moisture leads to a decrease in the return period of extreme one-day precipitation events across most of Tunisia.

[47] Ibid.
[48] https://news-tunisia.tunisienumerique.com/extreme-heatwave-hits-tunisia-record-temperatures-reach-47c-in-tozeur/
[49] Ibid.
[50] Ibid.
[51] Ibid.

At the level of Tozeur, Acterra projections indicate an increase in the number of days with intense to extreme rainfall from 0.6 days to 0.8 days (RCP4.5) and up to 1 day (RCP8.5), confirming a trend toward more intense but less frequent rainfall events.

This implies that intense rainfall events previously considered rare are expected to recur more often, increasing flood risk for infrastructure, agriculture and human safety. Under the SSP3-7.0 scenario, rare 100-year return period precipitation events[52] are projected to become approximately 20% more frequent by 2050, and up to twice as frequent by the end of the century, although uncertainty remains high for very rare events[53]. The combination of more intense rainfall and generally drier background conditions is expected to increase the likelihood of flash floods.

Salinization

Salinization constitutes a critical but often under-explicitly characterized climate-related hazard affecting oasis systems in the Governorate of Tozeur. It operates as a slow-onset degradation process, resulting from the interaction between climatic stressors and anthropogenic pressures on water and soil systems.

From a climatic perspective, increasing temperatures and prolonged drought conditions contribute to higher evapotranspiration rates and reduced natural leaching of salts from soils. At national scale, climate change is expected to intensify drought frequency and evaporation, thereby increasing irrigation demand and exacerbating water scarcity. In such conditions, the concentration of salts in soils and shallow aquifers tends to increase. Salinization processes are already observed in Tunisian aquifers and are expected to worsen under climate change due to warming and increased water stress[54].

At the oasis level, evidence from the Acterra (2022) vulnerability assessment indicates that salinization is driven by a combination of factors: (i) the use of saline irrigation water, (ii) insufficient or dysfunctional drainage systems leading to hydromorphic conditions, and (iii) reduced rainfall limiting natural soil leaching. Oasis soils in Tozeur are structurally exposed to hydro-halomorphic processes, given their long history of irrigation and their location in low-lying areas near chotts. The proximity of the Chott el Djerid further reinforces salinization risks through saline intrusion mechanisms, particularly under conditions of groundwater overexploitation and declining piezometric levels.

Climate change acts as a risk multiplier within this system. Increasing aridity and groundwater depletion accelerate salt accumulation in both soils and aquifers, while reduced water availability constrains farmers' capacity to maintain adequate leaching practices. Evidence from Acterra (2022) also shows that abandonment of irrigated plots leads to rapid salinity build-up, triggering ecological shifts towards halophytic vegetation and increasing secondary risks such as fire hazards.

The impacts of salinization are systemic. They include declining soil fertility, reduced agricultural productivity (notably date palm yields), degradation of water quality, and long-term risks of irreversible aquifer contamination. These processes directly affect the economic viability of oasis agriculture and contribute to the progressive marginalization of traditional farming systems.

Sand/dust storms

Sand and dust storms represent an additional climate-related hazard affecting southern Tunisia, including the Governorate of Tozeur, although they are not systematically captured in standard climate hazard datasets. These phenomena are closely linked to desertification processes, land degradation and regional atmospheric dynamics.

At regional scale, desertification is identified as a major risk in Tunisia, driven by the combined effects of human pressures and climate change[55]. Rising temperatures and shifting precipitation patterns are expected to intensify land degradation, increasing the availability of loose sediments and thus the potential for dust mobilization[56]. Sand and dust storms originating from the Sahara can affect Tunisia and beyond, with documented impacts on air quality, agriculture and infrastructure. Climate projections suggest that while the frequency of such events may decrease, their intensity is likely to increase due to greater dust availability associated with drought conditions.

At the local level, the Acterra (2022) study provides evidence of strong exposure of Tozeur to wind erosion and sand encroachment processes. Degradation of vegetation cover, particularly in steppe and

[52] A 100-year return period event corresponds to an extreme rainfall event with a 1% annual probability of occurrence.
[53] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[54] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[55] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[56] Ibid.

dune ecosystems, exposes soils to aeolian erosion. Mobile sand is transported by dominant winds and can reach oasis systems, leading to partial burial of agricultural plots, disruption of irrigation infrastructure and degradation of ecosystem functioning.

The impacts of sand and dust storms are multi-dimensional. They include direct physical damage to crops and infrastructure, reduced agricultural productivity due to sand deposition, deterioration of air quality with associated health risks, and broader contributions to desertification processes. In oasis environments, these impacts are particularly critical due to the fragility of the agro-ecological balance and the dependence on finely managed soil and water systems.

Overview of observed and projected trends in selected climate hazards for the Tozeur Governorate

This section provides a consolidated overview of observed and projected trends for key climate hazards affecting the governorate of Tozeur.

Table 4: Overview of observed and projected trends in selected climate hazards for the Tozeur Governorate[57]

Climate hazards	Variables and corresponding indicators	Observed 1990-2021	Projections RCP 4.5 (2050)	Projections RCP 8.5 (2050)
TREND				
Increased temperature	Minimum, average, and maximum annual temperatures	Min. 14.92 Avg. 21.3 Max. 27.8	Min. 15.9 Avg. 22.3 Max. 28.78	Min. 16.14 Avg. 22.5 Max. 29
	Potential evapotranspiration	-1305	-1327	-1362
Decreased rainfall	Cumulative annual precipitation	108	102	99
EXTREME EVENTS				
Meteorological drought	WSDI heat wave index	24.5	46	49
	Index of consecutive dry days (CDD)	89	93	97
	Index of consecutive rainy days (CWD)	2.9	2.6	2.5
Agricultural drought and water stress	Water balance from October to May	-1206	-1230	-1250
Intense rainfall	Number of days with heavy to extreme rainfall	0.6	0.8	1
Heatwaves	Number of days of extreme heat between June and August	65-75	87-94	94-100

Exposure

In the IPCC AR6 framework, exposure refers to the presence of people, livelihoods, ecosystems, infrastructure, services or assets in places and settings that could be adversely affected by climate-related hazards. At the national scale, Tunisia is characterised by high exposure to climate hazards, particularly extreme heat and drought, reflecting both its biophysical conditions and the spatial distribution of population and economic activities in climate-sensitive regions.

Large parts of Tunisia are already exposed to high levels of heat stress, with projected increases in the frequency, duration and intensity of extreme heat events over the coming decades[58]. Southern inland governorates, including Tozeur, are identified among the areas with the highest levels of current and future exposure to extreme heat, due to their climatic conditions and location within the Saharan and pre-Saharan zones. Exposure to extreme temperatures is expected to intensify further under future climate scenarios, increasing potential impacts on human health, livelihoods and economic activities[59]. This national-level perspective provides an important contextual backdrop for understanding exposure patterns at the sub-national scale, and situates the Governorate of Tozeur among the most climate-exposed territories in Tunisia.

[57] Project Concept Note, based on: Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[58] World Bank Group (2025). *Climate Risk Country Profile: Tunisia*.
[59] Ibid.

Table 5: Percent of the population at high health risk for three periods (retrospective, future, and distant future) (source: World Bank Group (2025). Climate Risk Country Profile: Tunisia)

	Hot Days (Tmax > 40°C)			Tropical Nights (Tmin > 26°C)			Heat Index > 35°C			Wet Bulb Temperature > 27°C
Regions	2000	2035	2075	2000	2035	2075	2000	2035	2075	2075
Tunisia	9.82	29.26	67.15	8.9	34.64	92.49	2.43	36.77	95.1	0
Jendouba	0	0	54.77	0	2.75	25.68	0	0	100	2.67
Beja	0	0	76.36	0	0.06	92.73	0	0	100	0.04
Bizerte	0	0	5.77	0	7.81	100	0	0	100	42.8
Manouba	0	0	93.82	0	0	100	0	0	100	3.67
Ariana	0	0	17.14	0	38.85	100	0	0	100	82.86
Tunis	0	0	28.49	0	3.73	100	0	0	100	71.51
Ben Arous	0	0	7.6	0	0	100	0	0	100	78.53
Nabeul	0	0	0	0	32.59	100	0	0	100	69.6
Le Kef	0	32.02	100	0	0	82.78	0	0	69.1	0
Siliana	0	1.66	100	0	0	72.3	0	0	71.91	0
Zaghouan	0	0	51.5	0	0	100	0	0	100	0.02
Kairouan	0	65.39	99.91	0	21.23	99.34	0	43.16	99.34	0
Sousse	0	25.23	74.45	0	66.34	100	0	75.73	100	21.56
Monastir	0	6.04	52.38	0	48.55	100	0	98.97	100	47.62
Mahdia	0	26.01	76.25	0.23	31.54	100	0	100	100	35.85
Kasserine	0	39.12	100	0	4.08	48.26	0	0	37.09	0
Sidi Bouz	0	98.67	100	0	53.07	100	0	54.72	100	6.01
Sfax	0	38.69	79.01	8.94	83.35	100	0	100	100	57.49
Gafsa	63.53	98.09	100	34.04	92.1	100	1.42	52.96	100	0
Tozeur	92.1	100	100	100	100	100	88.68	91.37	100	0
Kebili	100	100	100	94.85	100	100	59.49	100	100	7.75
Gabes	43.41	77.79	96.2	41.18	100	100	0.53	100	100	52.44
Medenine	30.87	45.58	78.58	36.93	100	100	3.18	100	100	59.54
Tataouine	87.2	99.99	100	53.26	100	100	3.81	98.6	100	5.92

Table 5 presents selected heat-related exposure indicators. The table shows the share of the population exposed to extreme heat conditions across Tunisian governorates for three reference periods (retrospective, near future and distant future). It highlights that Tozeur consistently ranks among the most exposed governorates for multiple indicators, including hot days (Tmax > 40°C), tropical nights (Tmin > 26°C) and extreme heat index conditions (>35°C), particularly by 2035 and 2075.[60]

Acterra (2022) highlights that exposure in Tozeur is inherently high due to the geographical concentration of oasis systems, agricultural activities and settlements within hyper-arid and arid climatic zones. Traditional oases, irrigated perimeters and associated economic activities are spatially concentrated in environments where climatic variability and extremes directly affect system functioning.

With respect to water resources, exposure is characterised by the reliance of oasis systems on groundwater sources located in areas with very limited natural recharge. The spatial coincidence between oasis perimeters and groundwater abstraction zones increases exposure to hydro-climatic stresses, particularly prolonged droughts and rising temperatures that affect evapotranspiration and water demand.

In the case of agricultural and productive systems, exposure is linked to the location of date palm plantations, arboriculture and lower-strata crops in areas subject to extreme heat and chronic water scarcity. The study indicates that these systems are directly exposed to climatic stresses that affect crop development cycles, labour conditions and productivity, given the absence of significant spatial buffers between production areas and harsh climatic conditions.

Exposure of ecosystems and biodiversity is also high, as natural habitats such as rangelands, forested areas and oasis-associated vegetation are located in zones already characterised by climatic stress and limited resilience margins. The spatial distribution of these ecosystems within arid landscapes increases their exposure to drought and temperature extremes, with implications for ecosystem services and ecological functioning.

Overall, exposure in the Governorate of Tozeur is structurally high across all domains considered, reflecting the convergence of climatic hazards, spatial concentration of sensitive systems, and limited opportunities for spatial relocation or avoidance of climate stressors. This high level of exposure, when

[60] Ibid.

combined with the vulnerability patterns described below contributes to elevated climate risks in oasis systems.

Vulnerability of oases

Overall vulnerability levels

Table 6 below provides a clear and policy-relevant overview of how overall vulnerability levels differ across delegations and increase under the higher-emissions scenario (Acterra, 2022). Four qualitative vulnerability classes are distinguished: low, intermediate, and very high. These classes reflect increasing levels of propensity of oasis systems to be adversely affected, resulting from the combined effects of sensitivity and adaptive capacity across the systems considered (water resources, biodiversity/ecosystems and agrosystems). In the Governorate of Tozeur, no delegation falls within the "low" vulnerability class for the scenarios analyzed; results are concentrated in the intermediate, high and very high categories.

Table 6: Global weighted vulnerability levels by delegation (qualitative classes) (source: reconstructed from the Acterra vulnerability study)

Delegation	RCP4.5 (2050)	RCP8.5 (2050)
Degache	Intermediate	High
Hammet Jerid	Intermediate	High
Nafta	High	Very high
Tozeur	High	High
Tamerza	High	High

While this aggregated assessment provides a useful comparative overview across delegations, it is primarily based on a weighted synthesis of sectoral indicators and gives limited visibility to underlying socio-economic differentiation and structural drivers of vulnerability. In the following, vulnerability is unpacked using sensitivity and then adaptive capacity, while explicitly integrating key socio-economic factors and drawing, where relevant, on complementary evidence from other studies and sources.

Sensitivity of oasis ecosystems

Sensitivity is analyzed across interconnected agro-ecological, hydrological and socio-economic dimensions.

From an agro-ecological perspective, sensitivity to climate hazards is particularly pronounced in certain delegations, where heat stress and water scarcity undermine the viability and upkeep of oasis plots. In Degache, biodiversity is characterized as *very highly vulnerable* to extreme climate effects, based on a set of thematic indicators[61]. Even limited declines in irrigated or vegetated surfaces can have significant consequences in a context of structural ecological scarcity, where oasis systems rely on dense vegetation cover to regulate microclimates, protect soils and sustain agricultural productivity[62]. Reduced maintenance or abandonment of plots, often linked to declining water availability and profitability, therefore directly translates into losses of agrobiodiversity and associated ecosystem functions.

Sensitivity is also evident in productive oasis agrosystems, which are characterized through five determinants specific to traditional oases: overall date yields, Deglet Nour yields, yields of other date varieties in the upper layer, arboriculture yields in the intermediate layer, and vegetable and fodder yields in the lower layer. A synthesis of historical observations and projected trends indicates that agrosystem vulnerability increases under the RCP4.5 scenario and even more markedly under RCP8.5. Across delegations, the highest vulnerability levels are consistently reported for Nefta, followed by Tozeur, Degache, Hammet El Djérid and Tamerza, regardless of the scenario considered.[63]

Sensitivity levels vary across delegations. Indicators related to land availability per head of livestock and vegetated surfaces show the most constrained situations in the delegation of Tozeur, while relatively higher values are observed in Nefta and Tamerza. Under both RCP4.5 and RCP8.5, pressure on productive and vegetated areas is expected to intensify, particularly in delegations already experiencing high water stress, increasing the risk of further degradation and abandonment.

[61] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[62] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[63] Ibid.

With regard to water resources, sensitivity is already assessed as high across all delegations and is projected to worsen significantly by 2050. Based on a normalized standardized water vulnerability index, all delegations show an aggravation of vulnerability relative to the historical reference period, with the highest sensitivity levels observed in Nefta and Tozeur. This reflects the central role of water as a limiting factor for oasis survival, affecting agricultural production, ecosystem functioning and livelihoods simultaneously. This increasing sensitivity reflects the strong dependence of oasis ecosystems, agrosystems and societies on water resources, and signals growing pressure and competition between sectors. This evolution is also likely to be accompanied by intensified exploitation of groundwater resources, many of which being weakly renewable or non-renewable, alongside a deterioration in water quality affecting drinking water, agriculture and tourism-related uses.[64]

Sensitivity of local populations and ecosystems is also strongly related to socio-economic factors. Prolonged droughts and heat extremes affect crop yields, labour conditions and income stability, increasing the vulnerability of households whose livelihoods remain highly dependent on oasis agriculture. Declining profitability and rising production constraints contribute to reduced maintenance, erosion of traditional knowledge and weakening of social structures, which in turn reinforce ecological degradation. These dynamics also affect other local economic activities, including oasis-based tourism, which depends on the maintenance of cultivated landscapes and associated ecosystem services.

Overall, the sensitivity of oasis systems in the Governorate of Tozeur reflects the combined effects of climate stress, water dependence and socio-economic fragility. The risk of degradation and loss of biodiversity is therefore closely linked to the capacity of local actors to continue managing and maintaining these highly human-dependent systems under increasing climatic pressure.

Adaptive capacity

Adaptive capacity refers to the ability of oasis systems and actors to adjust to climate-related pressures, moderate potential damages and maintain key ecological and socio-economic functions. In the traditional oases of the Governorate of Tozeur, available evidence indicates that adaptive capacity exists but remains structurally constrained and unevenly distributed across actors and territories. Adaptive capacity is shaped by a combination of technical, operational, infrastructural, institutional and knowledge-related factors[65].

From a technical and operational perspective, irrigation practices and water management options constitute a central determinant of adaptive capacity. Evidence from experimental and applied research in the Governorate of Tozeur indicates that substantial reductions in irrigation water consumption are technically feasible. Water use could be reduced from current levels of approximately 23,000 m³ per hectare to 16,000 m³ per hectare through the Programme National d'économie de l'Eau, to 12,000 m³ per hectare under experimental research conditions, and to 9,000 m³ per hectare using localized irrigation systems tested in the delegation of Degache[66]. Comparative assessments of irrigation techniques further indicate that the highest reported application efficiency, at 57%, is achieved through bubbler irrigation, which is also associated with the highest yield and water productivity values (66 kg per palm and 0.66 kg per m³)[67]. These findings indicate that while technical adaptive capacity exists in principle, its effective implementation remains constrained by investment capacity, operational conditions and governance arrangements.

Adaptive capacity is also influenced by operational parameters and infrastructure used in water management. Reference values applied in planning and monitoring include PDES[68] estimates of irrigation needs of 65.0 l/s/ha for traditional oases and 0.75 l/s/ha for modern oases, while CRDA[69] (2021)[70] data show substantial variability in applied irrigation doses across delegations. Irrigation scheduling ("tours d'eau") further illustrates uneven adaptive capacity, with the 2017 oasis census indicating predominantly 7-day rotations, compared to longer rotations of 7-15 days in traditional oases and 5-10 days in modern oases documented by CRDA (2021), including specific cases in Dghoumes, Bouhlel, Castilla and El Wiffak Jhim2.

The physical infrastructure available for groundwater abstraction also conditions adaptive capacity. An inventory of phreatic aquifer units shows marked differences in depth, salinity, available resources,

[64] Ibid.
[65] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[66] Ibid.
[67] Ibid.
[68] Acronym: Plan Directeur des Eaux du Sud (PDES).
[69] Acronym: Commissariat Régional au Développement Agricole.
[70] Acronym: Regional Commissariat for Agricultural Development.

withdrawals and numbers of equipped wells across the governorate. Two systems, Aîn Elkarma and Djérid, are identified as among the most exploited, with reported overexploitation rates of 133.9% and 104.3% of available resources, respectively[71]. This situation reflects a high level of structural dependence on groundwater resources, which further limits the margin for adaptive responses based solely on increased abstraction.

Adaptive capacity is also shaped by institutional and governance dimensions, particularly in relation to water resource management. At national level, Tunisia has established a relatively comprehensive institutional and strategic framework for climate change adaptation (see Section II.D), including commitments under the Nationally Determined Contribution (NDC), and long-term sectoral strategies. These frameworks provide an enabling environment for adaptation planning. However, adaptation efforts have historically been implemented through a predominantly sectoral approach, with remaining challenges in terms of operationalization, coordination and effective implementation at local level.

In the Governorate of Tozeur, the effectiveness of water governance systems, including regulatory frameworks for groundwater abstraction, allocation mechanisms and local management structures, plays a critical role in determining the capacity of oasis systems to respond to increasing water stress. Available evidence suggests that constraints remain in terms of implementation capacity, monitoring and enforcement of regulations, and coordination across stakeholders. At local level, the role and capacities of Agricultural Development Groups (GDAs), which are key actors in water management and service provision, are constrained by institutional and operational limitations, including restricted mandates, limited access to financial incentives, and insufficient human and material resources. More broadly, recent analyses highlight the need for stronger coordination mechanisms and more robust institutional arrangements involving government entities, local authorities, partners and GDAs, in order to effectively design and implement integrated oasis management interventions. This includes strengthening contractual frameworks, resource mobilization and coordination tools to support multi-stakeholder engagement.

In this context, strengthening governance instruments becomes a key component of adaptive capacity. Climate Change Oasis Management Plans, developed at delegation level, represent an important entry point for strengthening integrated and participatory governance of oasis systems. However, their effectiveness depends on their updating, operationalization and integration into broader planning and regulatory frameworks. These gaps can be highlighted for funding through the revision and updating of five delegation-level Oasis adaptation plans (Nefta, Tamerza, Degache, Hammet Jerid, and Tozeur), which can be consolidated into a governorate-level framework contributing to the integration of climate change adaptation into oasis management policies and regulations at national level. These institutional dimensions are addressed under Component 1 of the project, which focuses on strengthening governance frameworks, planning instruments and coordination mechanisms for climate-resilient oasis management.

Beyond water management, adaptive capacity is strongly conditioned by the economic viability of oasis production systems. Multiple studies on oasis systems in Tunisia and North Africa highlight that the capacity of farmers to invest in irrigation efficiency, plot maintenance and adaptive practices depends directly on production profitability and access to markets.[72] In traditional oases, declining economic viability for small producers, linked to high production and maintenance costs and increasing competition with modern or informal oasis expansions, reduces reinvestment capacity and contribute to plot abandonment. As a result, economic adaptive capacity among small producers in traditional oases can be characterized as structurally weak, despite the availability of technically viable adaptation options. These economic constraints are widely recognized as limiting the effective uptake of technically feasible adaptation options, even where knowledge and technologies are available.[73]

Adaptive capacity is also influenced by the diversification of livelihoods and income sources. Households combining oasis agriculture with complementary activities, such as tourism services, artisanal production or livestock, exhibit greater resilience to climatic shocks and water shortages, as diversified income streams buffer climate-induced losses in agricultural production[74]. However, these

[71] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[72] https://openknowledge.fao.org/server/api/core/bitstreams/f5eb8435-43c2-4e14-9aa6-875d44d94aa1/content; https://documents1.worldbank.org/curated/en/769241468189233827/pdf/Tunisia-Oases-Ecosystems-and-Livelihoods-Project.pdf
[73] Ibid.
[74] https://www.worldbank.org/en/news/feature/2019/05/24/renewal-of-tunisian-oases-creates-jobs-boosts-climate-resilience?utm_source=chatgpt.com

opportunities are unevenly distributed across delegations and remain highly sensitive to climate extremes, particularly heatwaves that affect tourism activities.

Social organization and collective institutions constitute another key dimension of adaptive capacity. Oasis systems historically rely on collective arrangements for water allocation, infrastructure maintenance and conflict resolution. Where water user associations, cooperatives or other community-based organizations function effectively, they enhance adaptive capacity by facilitating coordination, maintenance of shared infrastructure and knowledge exchange. Conversely, weakening of these structures, linked to outmigration, ageing of producers and socio-economic differentiation, reduces the capacity for collective adaptation and accelerates degradation processes.

Adaptive capacity is further shaped by knowledge systems and institutional support. Local and traditional knowledge related to crop diversification, irrigation scheduling and ecosystem management remains a critical asset in oasis adaptation, particularly under conditions of high climate uncertainty (IPCC AR6). At the same time, access to extension services, training and public support programmes condition the ability of producers to translate knowledge into adaptive action. Gaps in outreach, technical assistance and institutional coordination therefore translate into uneven and often insufficient adaptive responses at oasis level.

Overall, adaptive capacity in the Governorate of Tozeur emerges as multi-dimensional and unevenly distributed and currently insufficient to fully offset projected climate risks. While technical options for reducing water stress exist, their effectiveness is constrained by economic viability, institutional fragmentation, unequal access to collective structures and limited livelihood diversification. This confirms that strengthening adaptive capacity in traditional oases requires interventions that go beyond irrigation efficiency alone, addressing economic, social and governance dimensions simultaneously.

Gendered and socially differentiated vulnerability

Vulnerability within oasis systems in the Governorate of Tozeur is not only shaped by biophysical and economic factors, but is also strongly differentiated across social groups, including gender, age, and socio-cultural characteristics. Evidence from stakeholder consultations and previous assessments highlights that climate risks affect different population groups in distinct ways, reflecting differentiated roles, access to resources and adaptive capacities.

Gendered vulnerability is particularly pronounced in oasis systems. Structural inequalities in access to land, financial resources and decision-making power limit women's adaptive capacity. In Tunisia, land tenure is largely controlled by men, with women often accessing land only through male relatives, which constrains their ability to invest in adaptation measures or access credit and agricultural support services[75].

In the Tozeur region, as heads of household increasingly abandon certain oases for lack of profitability or limited financial means, women's contribution to the composition of family income has expanded into new (previously unexplored) areas, including paid work outside the oasis[76]. This type of employment is becoming of major importance, firstly to show their presence in the household but also to contribute to household resources. In addition to the traditional responsibilities of housework and child-rearing, in many household's oasis women must oversee the household budget and manage and certain decision-making. Lifestyles, customs, behaviour, and even economic activities vary greatly. In the urban areas of Tozeur and Nafta, for example, a certain discrimination between agriculture and domestic life is very clear. Women in these areas generally do not work in the fields, as the tasks are considered difficult. In the mountainous areas of Tamerza, where the way of life is semi-rural, women are involved in the work in the lower fields of the oasis (irrigation, hoeing, weeding, harvesting, packaging, conservation of local seeds, processing for family consumption, henna crops, summer crops such as fodder and medicinal plants). Women are also sometimes responsible for the management of the herds, employed as family helpers or as workers in the date packaging workshops; and in the informal and precarious sector, which is characterized by difficult working conditions and the virtual absence of social rights, where, moreover, compliance with sanitary and phytosanitary measures is not systematic[77]. Their remuneration varies from 15 to 20 dinars (USD 6.38 USD per day, 2022 rate). In terms of health, women suffer from chronic illnesses, sometimes directly linked to climatic conditions and unsuitable working

[75] Acterra (2022). *Analyse de la vulnérabilité des oasis traditionnelles du gouvernorat de Tozeur*.
[76] Ibid.
[77] Ibid.

conditions. This situation very often pushes women into poverty and social exclusion, accentuating their vulnerabilities because they have no resources or alternative solutions to remedy them.

Youth vulnerability is closely linked to the declining viability of oasis-based livelihoods under increasing climate stress. Reduced agricultural productivity, increasing water constraints, and rising production costs contribute to limited economic opportunities, which are reported to drive outmigration and reduce the availability of labour for oasis maintenance.

Certain population groups, including elderly individuals and those with limited mobility, may face increased exposure to climate hazards such as extreme heat, due to health constraints and reduced adaptive capacity, although locally disaggregated data remain limited. Available evidence indicates that harsh environmental conditions contribute to migration towards urban areas, which in turn leads to the erosion of cultural practices and traditional knowledge systems. While data remain limited, these dynamics highlight an additional layer of vulnerability associated with the loss of locally adapted knowledge under climate stress.

Overall, these differentiated vulnerabilities highlight the importance of adopting inclusive and context-sensitive adaptation approaches, addressing structural inequalities in access to resources, reducing gendered burdens, and strengthening the resilience of the most vulnerable groups within oasis systems.

Annex 12 summarizes key gendered dimensions of climate risks.

Oasis ecosystem and climate impacts

This section focuses on major climate hazards affecting oasis systems, including prolonged droughts, extreme heat, intense rainfall/flooding), as well as salinization processes and sand and dust storms, and examines their impacts across key oasis dimensions.

Water resources

- Prolonged droughts contribute to reduced natural recharge of aquifers, increasing pressure on already overexploited groundwater resources and reinforcing dependence on deep and energy-intensive pumping systems, while contributing to a progressive deterioration of the overall water balance in oasis systems.
- Extreme heat increases evapotranspiration and irrigation demand, accelerating groundwater depletion and exacerbating salinization processes in soils and shallow water tables.
- Intense rainfall and flooding, while episodic, can damage fragile hydraulic infrastructure (seguias, channels), temporarily disrupting water distribution within oases.
- Salinization processes are intensified by the interaction between climate change and groundwater overexploitation. Rising temperatures increase evapotranspiration, while prolonged droughts reduce natural leaching and groundwater recharge. Combined with excessive groundwater abstraction, these processes favour the capillary rise of saline groundwater and the progressive accumulation of salts in the root zone, contributing to declining water quality, reduced soil fertility and increasing irrigation requirements.

Agricultural production systems

- Extreme heat affects date palm physiology through well-documented mechanisms. Rising winter temperatures reduce the chilling hours required for normal flowering, while sustained temperatures above 40°C during sensitive reproductive periods accelerate flower abortion and reduce fruit set. These processes lead to lower yields, reduced fruit quality and shifts in harvest timing, while heat stress also reduces the productivity of understory crops.
- Drought conditions constrain water availability for irrigated agriculture, affecting market gardening, fodder production and livestock feeding systems.
- Climate stresses contribute to the gradual erosion of agrobiodiversity[78], as farmers abandon water-intensive or climate-sensitive crop varieties.
- Climate-induced degradation of soils and water systems can also favour the proliferation of opportunistic and stress-tolerant plant species, including halophytic vegetation. While these species are generally native, their expansion can outcompete cultivated crops, reduce productive land use and contribute to further degradation of oasis agro-ecosystems.

[78] In this context, the term “agrobiodiversity” refers specifically to the diversity of cultivated crops, associated plant species and ecosystem functions within oasis agro-systems, including date palm varieties, understory crops and managed vegetation layers. This is distinct from broader biodiversity, which encompasses all species and ecosystems in the wider natural environment. The focus on agrobiodiversity reflects the central role of managed agro-ecosystems in sustaining livelihoods and ecological functions in oasis systems.

- Wind erosion and sand encroachment associated with sand and dust storms can lead to the burial of crops, damage to irrigation infrastructure and reduced agricultural productivity in exposed oasis areas.
- Extreme heat and prolonged drought conditions favour the proliferation, survival and intensification of pest dynamics affecting date palms and fruit trees (including *Ectomyelois ceratoniae*, *Oryctes agamemnon*, *Oligonychus afrasiaticus*, *Ceratitis capitata* and *Virachola livia*), leading to higher infestation rates, reduced yields and declining market quality of agricultural products.

Ecosystem services and environmental functions

- Combined drought and heat stress accelerate soil degradation through salinisation, loss of organic matter and reduced soil moisture retention.
- Alteration of the oasis microclimate, linked to vegetation decline and canopy loss, weakens the ecosystem's capacity to buffer extreme temperatures.
- Flood events, though infrequent, can locally erode soils and damage vegetation in low-lying oasis plots.
- The expansion of halophytic vegetation under conditions of salinisation and water stress can alter ecosystem structure and functions, while increasing secondary risks such as fire hazards during dry periods.
- Sand and dust storms contribute to aeolian erosion, loss of topsoil and vegetation cover, and progressive land degradation, reinforcing desertification processes in and around oasis systems.

Local economy and livelihoods

- Climate impacts on agricultural productivity directly affect household incomes derived from date production and associated value chains.
- Heat extremes reduce labour productivity and increase occupational health risks, particularly during peak agricultural seasons.
- Flood damage, when it occurs, generates short-term economic losses through destruction of crops, infrastructure and equipment.
- Sand and dust storms can generate additional economic losses through crop damage, increased maintenance costs for infrastructure and reduced working conditions during high wind and dust events.

Social dynamics and demography

- Recurrent climate stresses increase pressure on smallholder households, contributing to livelihood insecurity.
- Youth outmigration is reported as a response to declining agricultural viability and limited economic opportunities within oasis systems.
- Climate-related pressures contribute to the progressive abandonment of agricultural plots and, in some cases, accelerate demographic decline in smaller oasis settlements.
- Loss of traditional knowledge is indirectly reinforced as younger generations disengage from oasis-based livelihoods under increasing climatic constraints.
- Increasing pressure on scarce water resources heightens tensions among water users and creates additional challenges for the equitable management and allocation of irrigation water.

Climate impact chains and systemic risks

Building on the assessment of climate hazards, vulnerability and exposure, this section synthesises how these elements interact to form climate impact chains and generate systemic risks affecting oasis systems in the Governorate of Tozeur. Climate impact chains describe the sequences through which climate-related hazards translate into impacts across interconnected natural and human systems, potentially amplifying risks through feedbacks and cascading effects. In oasis socio-ecological systems, these interactions are rarely linear. A single climate hazard may affect multiple dimensions simultaneously, while impacts occurring in one domain (water resources, agriculture, ecosystems or livelihoods) can generate secondary effects in other domains, creating reinforcing feedback loops that progressively increase vulnerability and associated risks.

Key climate impact chains affecting oasis systems

- Drought and heat → water resources → agrosystems and livelihoods

Prolonged droughts and increasing heat stress affect oasis systems primarily through their impacts on water resources. Reduced groundwater recharge combined with higher evapotranspiration increases pressure on already overexploited aquifers. This, in turn, constrains water availability for irrigation, affecting date palm productivity, associated crop strata and livestock systems. As agricultural outputs decline or become more variable, household incomes and employment opportunities linked to oasis agriculture are affected, reinforcing socio-economic stress at local level. This impact chain is particularly pronounced in delegations identified as highly vulnerable and highly exposed, such as Tozeur and Nefta.

- Heat extremes + reduced rainfall → ecosystem degradation → loss of regulating services

Extreme temperatures and chronic water stress contribute to ecosystem degradation within and around oasis systems. Soil salinisation, vegetation stress and declining tree cover weaken the capacity of oasis ecosystems to regulate microclimates, protect soils and sustain biodiversity. The loss of these regulating ecosystem services reduces the buffering role of oases against climatic extremes, increasing sensitivity to subsequent heat and drought events and reinforcing a feedback loop of degradation. Progressive ecosystem degradation also contributes to increasing plot abandonment, which in turn favours pest proliferation, increases fire hazards and reduces maintenance of irrigation infrastructure, further weakening the resilience of oasis systems.

- Climate stress → agricultural viability → social dynamics

Climate impacts on water and agricultural systems affect the long-term viability of oasis-based livelihoods. Reduced productivity, higher production costs and increased labour constraints under extreme heat conditions undermine the attractiveness of agriculture, particularly for younger generations. Over time, this dynamic contributes to shifts in labour allocation, youth outmigration and erosion of traditional knowledge related to oasis management, which further weakens adaptive capacity and increases vulnerability through lack of maintenance of existing oasis ecosystems, degradation and abandonment.

- Climate change and groundwater overexploitation → salinisation process → agricultural degradation and system viability

Salinisation constitutes a primary impact pathway affecting oasis systems in Tozeur. Increasing temperatures and evapotranspiration, combined with reduced effective rainfall and limited leaching, favour salt accumulation in soils, while groundwater overextraction increases the risk of saline intrusion, particularly near the Chitt el Djerid. These processes lead to declining soil fertility, reduced crop yields and increasing constraints on agricultural systems. They also favour the proliferation of stress-tolerant vegetation, including halophytes, contributing to further agro-ecosystem degradation. This dynamic constrains crop selection and requires more intensive water application and soil management, ultimately reducing the resilience of traditional oasis systems.

Systemic risks and cascading effects

The interaction of these impact chains gives rise to systemic risks, where impacts in one domain propagate across others. In the Tozeur context, water scarcity acts as a central risk amplifier, linking climatic hazards to agricultural performance, ecosystem health and socio-economic stability. As multiple systems are simultaneously affected, the cumulative effects may exceed the capacity of individual actors or institutions to respond, increasing the likelihood of cascading failures.

Systemic risks are further heightened by the spatial concentration of exposed systems and activities within arid zones, limiting opportunities for spatial avoidance or diversification. Under higher-emissions scenarios, the concurrence of extreme heat, water scarcity and ecosystem stress increases the potential for non-linear impacts and thresholds, particularly in the most exposed and vulnerable delegations.

Understanding climate impact chains and systemic risks provides a basis for identifying leverage points for adaptation. In oasis systems, interventions targeting water efficiency, ecosystem integrity and institutional coordination have the potential to interrupt key impact chains and reduce cascading risks, if they include the broader socio-economic development pattern encouraged in the region (mass tourism, development of intensive new palm plantations), all depending on the same water resources.

This analysis thus highlights the importance of integrated approaches that address interconnected systems rather than isolated impacts.

Evidence-based adaptation pathways

Limits of sectoral/incremental responses

The analysis of climate hazards, vulnerability, exposure and climate impact chains demonstrates that the risks affecting oasis systems in the Governorate of Tozeur are systemic and interconnected, rather than confined to a single sector. In this context, responses that focus exclusively on agricultural productivity or hydraulic infrastructure are insufficient to address the full range of climate risks identified.

Sector-specific interventions, such as improvements in irrigation efficiency or the introduction of climate-resilient crop varieties, can reduce sensitivity in the short term, but they do not address underlying structural constraints. These include the limited renewability of groundwater resources, the degradation of ecosystem functions that support microclimatic regulation, and the socio-economic dependencies of local livelihoods on climate-sensitive activities. They also overlook the growing pressure exerted by non-agricultural water uses and by the expansion of modern and informal plantations, which compete directly with traditional oases for increasingly scarce groundwater resources. As shown in the vulnerability and exposure assessment, pressures on water resources, ecosystems and agrosystems evolve simultaneously and reinforce one another.

A critical dimension of this systemic pressure is the expansion of modern and informal oasis systems, which increasingly rely on private and often weakly regulated groundwater abstraction. While precise quantification of their total extent and share of groundwater withdrawals remains constrained by available data at governorate level, qualitative evidence from vulnerability assessments and stakeholder consultations consistently indicates growing pressure on aquifers driven by these developments. This expansion operates outside or at the margins of existing water governance frameworks and directly competes with traditional oases for access to already overexploited groundwater resources.

In a context characterized by structurally limited recharge, high evapotranspiration and increasing irrigation demand, these additional withdrawals exacerbate groundwater depletion and salinization risks, further undermining the long-term viability of traditional oasis systems. This dynamic highlights a key limitation of sectoral adaptation responses: improving efficiency or productivity within traditional oases alone is insufficient if external pressures on shared water resources remain unaddressed.

This also introduces a critical rebound risk for adaptation investments, particularly those that reduce the cost of water extraction, such as solar-powered irrigation systems. Without appropriate governance mechanisms, gains in energy efficiency may translate into increased water abstraction rather than resource conservation. Addressing this risk requires strengthening territorial water governance, including the establishment and enforcement of abstraction rules, monitoring systems, and institutional coordination mechanisms capable of regulating total groundwater use. In response, the proposed intervention integrates explicit safeguards linking technical adaptation measures with governance reforms. Investments in solar-powered irrigation will be conditional on the installation of volumetric metering systems, the application of enforceable abstraction quotas aligned with sustainable yield assessments, and monitoring protocols ensuring that energy savings do not result in increased water extraction. These measures will be supported by strengthened institutional oversight and coordination among relevant actors, including the CRDA and national technical agencies.

Incremental responses are also further constrained by the high level of climatic uncertainty affecting oasis systems. Rising temperatures, increasing frequency of extreme heat events and persistent drought conditions introduce non-linear risks and potential thresholds. Under such conditions, adaptations designed to optimize current systems may become ineffective or maladaptive over time if they do not account for long-term resource limits and cross-sectoral interactions.

Taken together, these findings indicate that isolated agricultural or hydraulic solutions cannot, on their own, ensure the long-term resilience of oasis systems. Addressing climate risk in Tozeur therefore requires approaches that go beyond sectoral optimization and engage with the broader socio-ecological system.

Rationale for a multi-sectoral and ecosystem-based approach

Given the systemic nature of climate risks in oasis environments, a multi-sectoral and ecosystem-based approach provides a more robust foundation for adaptation. Such an approach recognizes the interdependence between water management, agricultural production, ecosystem integrity and local livelihoods, and seeks to strengthen resilience across these dimensions simultaneously.

Integrated management of water/agriculture/ecosystem interactions is essential in a context where groundwater scarcity is a central risk amplifier. By combining water efficiency measures with ecosystem-based actions, adaptation interventions can help sustain regulating ecosystem services that buffer climatic extremes.

Diversification of local economic activities also plays a critical role in reducing vulnerability. Reducing reliance on climate-sensitive agricultural income sources can enhance household resilience and provide alternative livelihood options under increasing climate stress. At the same time, strengthening local adaptive capacities, including technical skills, collective organization and access to information, supports more flexible and responsive decision-making in the face of uncertainty.

Finally, effective adaptation in oasis systems requires territorial governance mechanisms that operate across sectors and administrative boundaries. Coordinated planning, inclusive institutions and stakeholder engagement are necessary to manage shared resources, balance competing uses and avoid maladaptive outcomes. Together, these elements provide the rationale for an integrated, ecosystem-based adaptation pathway, and prepare the analytical foundation for the project's Theory of Change and component structure.

Project area and intervention focus

Building on the geographical screening and vulnerability assessment described above, the project will be implemented in 29 traditional oases located across five delegations of the Governorate of Tozeur (Figure 11 and Figure 12). These 29 traditional oases are home to approximately 7,500 farms, representing about 40% of the governorate's oasis farms, while producing approximately 75% of its total date production.

Figure 11: Administrative map of Tunisia showing governorates and delegations

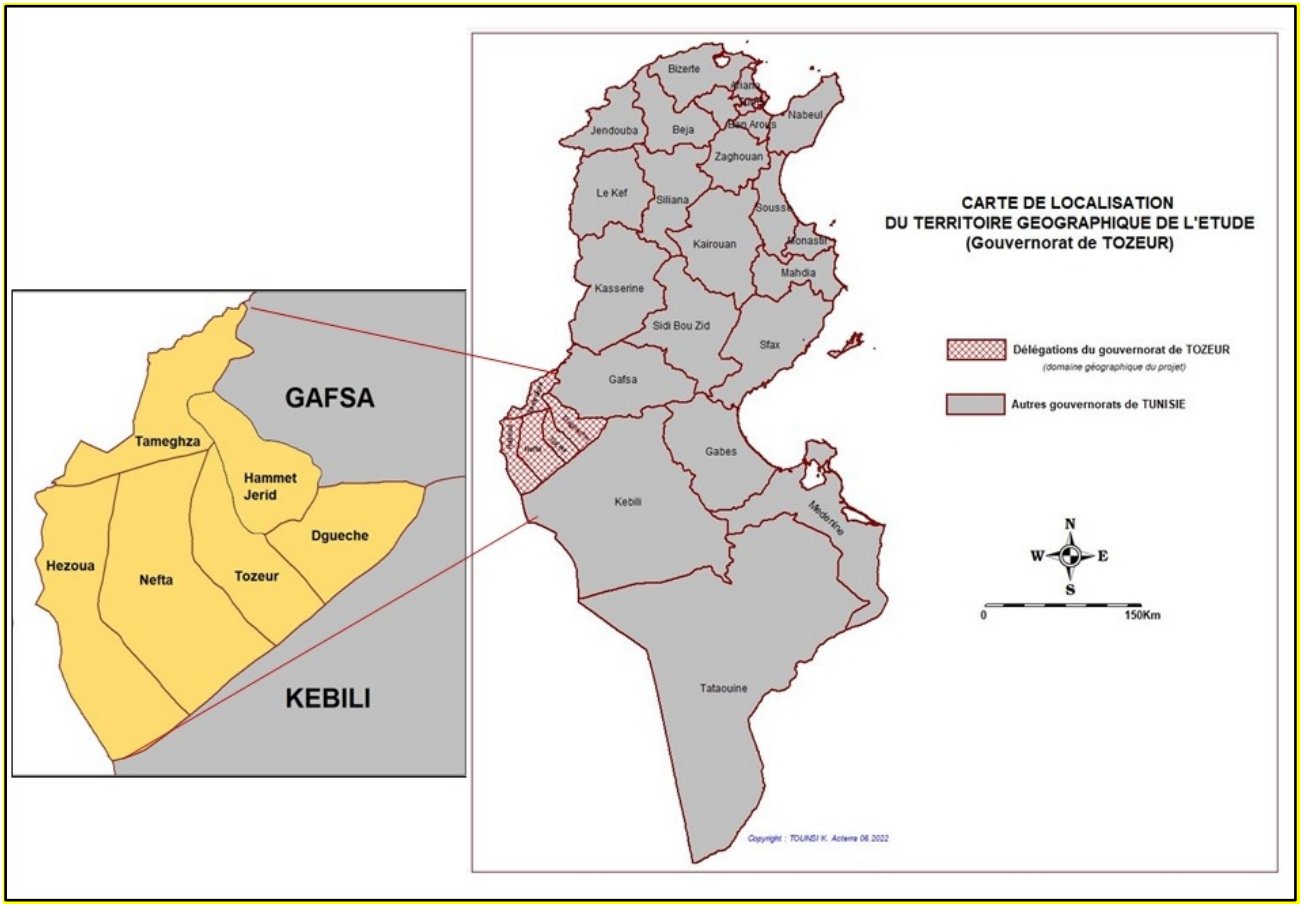
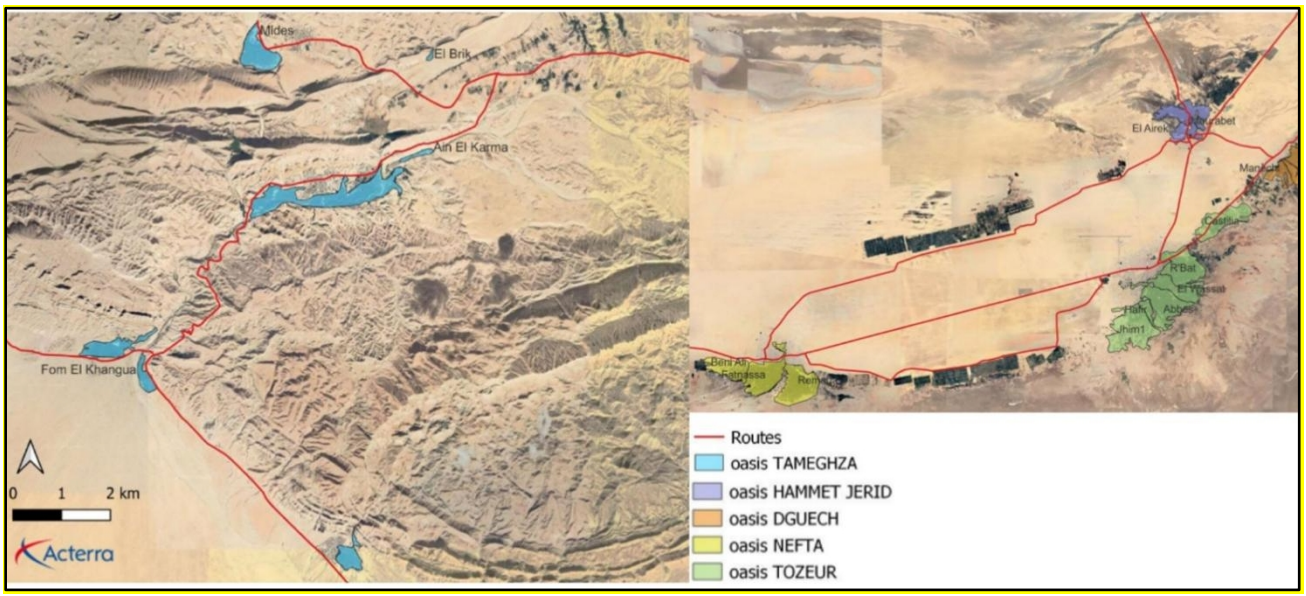


Figure 12: Aerial view of the oases of the Governorate of Tozeur[79]



The 29 targeted traditional oases, cover a total area of approximately 3,400 ha. Individual oases have been prioritized for certain activities based on their respective biophysical and socioeconomic contexts, as well as their climate risk profiles.

Project direct beneficiaries will comprise approximately 3,800 smallholder farmers, representing around 50% of all farmers in the 29 traditional oases, and participants to income-generating activities and enterprise development (target is 370 individuals), totalling 4,170 direct beneficiaries. The project will indirectly confer adaptation benefits to ~55,000 vulnerable people, this being 50% of the total population of the five delegations within the Governorate of Tozeur.

Table 7 below shows the spread of traditional oases between the five delegations, as well as the average size of oasis per delegation, and the size of each individual oasis. Oases that are less than 10 hectares (ha) in size are indicated in red; those between 10 and 50 ha in orange; between 50 and 150 ha in yellow; between 150 and 300 ha in light green; and those oases larger than 300 ha in extent are shown in dark green.

Within the five target delegations, there are three oases larger than 300 ha; four between 150 and 300 ha; seven between 10 and 50 ha; 12 sized between 50 and 150 ha; and three oases that are less than 3 ha in extent, as represented in Figure 13 below.

Table 7: Overview of the project area's geography, demographics, and beneficiaries[80]

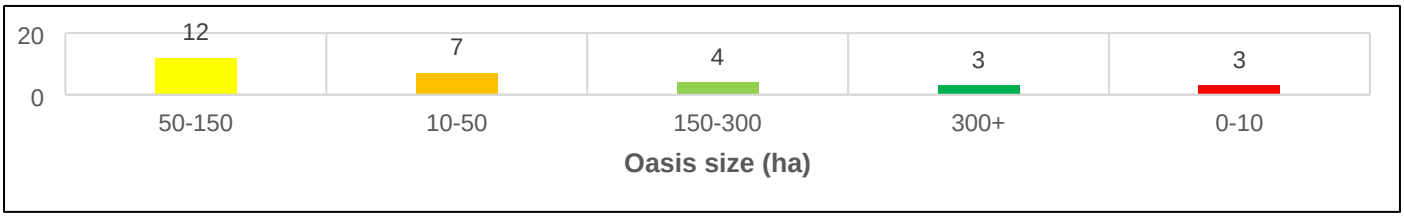
Delegation	Traditional oasis	Size (ha)	Direct beneficiaries (traditional oasis farmers only)	Total population
Nefta 4 oases 215 ha average	Remada	352	905	22,575
	Fatnassa	280		
	Beni Ali	210		
	Ras El Ain	20		
Tamerza 6 oases 47 ha average	Ain El Karma	88	461	6,631
	Tamaghza	87		
	Fom Elkhanga	48		
	Mides	29		
	Chebika	25		
	El Brik	3		
Degache 10 oases	Sabaa Abar	337	1306	22,809
	Mahassen	145		

[79] Acterra Consulting. (2022). Report on enhancing nature-based solutions for oasis ecosystems and agrosystems adaptation in the Governorate of Tozeur. (Unpublished).
[80] The oases highlighted in blue were visited during the various preparatory missions for the project.

Delegation	Traditional oasis	Size (ha)	Direct beneficiaries (traditional oasis farmers only)	Total population
86 ha average	Ain Torba	94		
	Ain Rebah	62		
	Bouhlel	60		
	El Manechi	55		
	Ouled Hmida	50		
	Zaouiat Al Arab	45		
	Dghoumes Mountain	9		
	Tazarit Mountain	6		
El Hamma el Jerid 3 oases 114 ha average	El Erg	123	392	7,104
	Ennamlet	120		
	Mouhareb	100		
Tozeur 6 oases 178 ha average	Ouassat	304	738	50,744
	Rabbat	291		
	Abbes	273		
	Hafir	84		
	Castilia	74		
	Jhim	43		
29 oases 117 ha average	Grand totals	3,417 ha	3,800[81]	109,863

Legend: 0-10 ha | 10-50 ha | 50-150 ha | 150-300 ha | 300+ ha

Figure 13: Summary of oasis extent per delegation



Building on the analysis of climate risks and socio-economic conditions, it is essential to examine the underlying structural factors that drive vulnerability and shape adaptation needs in oasis systems.

Root causes of climate adaptation needs in the traditional oases of Tozeur Governorate

The traditional oases of the Governorate of Tozeur constitute highly climate-sensitive socio-ecological systems whose functioning depends on a fragile balance between groundwater availability, ecosystem integrity and sustained human management. As demonstrated in the previous sections, climate change is acting as a structural risk multiplier, exacerbating long-standing environmental and socio-economic pressures and increasing the likelihood of systemic degradation.

1.Intensifying climatic stress in an arid environment

Located in one of Tunisia's most arid regions, the Governorate of Tozeur is experiencing rising temperatures, more frequent and intense heatwaves, prolonged dry spells and increasing evapotranspiration. These climatic changes increase irrigation requirements, reduce agricultural productivity, accelerate ecosystem degradation and place oasis systems, already operating close to their ecological limits, under growing stress.

2.Structural and worsening water scarcity

Water scarcity is the principal driver of climate vulnerability in the traditional oases. The progressive disappearance of natural springs has led to near-total dependence on deep groundwater abstraction, while climate change is increasing irrigation demand and exacerbating pressure on already stressed aquifers.

[81] Total producers, including modern oases, is 11,000 in Tozeur Governorate and 7,600 in the 29 traditional oases

Existing water governance arrangements have struggled to keep pace with increasing pressure on groundwater resources. Although groundwater abstraction is regulated under Tunisia's Water Code, implementation is constrained by limited monitoring capacity, the absence of systematic volumetric metering and insufficient operational resources for the responsible authorities, reducing the effectiveness of abstraction control and sustainable groundwater management.

3.Degradation of ecosystem structure and agrobiodiversity

Traditional oasis systems depend on the integrity of their three-tier cropping structure, agrobiodiversity and soil functions to maintain favourable microclimatic conditions and agricultural productivity. Chronic water shortages, salinization, ageing palm groves, declining agrobiodiversity and increasing plot abandonment are progressively degrading these ecosystem functions, reducing the capacity of oasis systems to buffer climatic extremes and sustain productive and ecological functions.

4.Climate-sensitive livelihoods, socio-economic fragility, and gendered vulnerabilities

Livelihoods in the traditional oases remain highly dependent on date production and related activities, making households particularly sensitive to climate variability and extremes. Declining agricultural productivity, increasing irrigation and energy costs, and reduced profitability undermine household resilience and weaken the economic viability of oasis-based livelihoods. As climate pressures intensify, these socio-economic vulnerabilities increase the need for adaptation while reducing the capacity of households to invest in climate-resilient practices and livelihood diversification. Existing gender inequalities further constrain the adaptive capacity of women, who face more limited access to productive resources, finance and economic opportunities.

5.Erosion of the broader oasis socio-economic ecosystem

Traditional oases support a diversified local economy that extends beyond agriculture to processing, handicrafts, livestock, eco-tourism and community institutions. Climate-induced declines in agricultural production progressively weaken these interconnected sectors. Reduced agricultural output limits the availability of raw materials for processing and handicrafts, while environmental degradation reduces the attractiveness of oasis landscapes for eco-tourism. Declining economic returns also reduce incentives to maintain collective infrastructure and cultural practices that underpin the social cohesion of oasis communities. As opportunities for economic diversification diminish, households become increasingly dependent on climate-sensitive primary production, further increasing systemic vulnerability.

This progressive weakening of the diversified oasis economy and its social institutions constitute a root cause of adaptation need, as it reduces livelihood resilience, undermines collective management capacity and erodes the socio-cultural foundations necessary for long-term climate adaptation.

Problem statement

These climate hazards interact with structurally fragile hydrological systems, accelerating groundwater depletion, salinization processes, soil degradation and the erosion of agrobiodiversity. As water availability becomes increasingly constrained, agricultural production systems, ecosystem functions and local livelihoods are simultaneously affected, creating reinforcing feedback loops that progressively increase the vulnerability of oasis socio-ecological systems.

The combined effect extends beyond declining agricultural productivity and increasing irrigation deficits. Reduced ecosystem integrity, lower agricultural profitability and growing pressure on natural resources contribute to livelihood insecurity, land abandonment, weakening adaptive capacities and increased socio-economic vulnerability among approximately 3,800 smallholder farming households across 29 traditional oases.

Without targeted climate adaptation, these socio-ecological systems face progressive loss of resilience and long-term livelihood insecurity.

Despite the availability of technically viable solutions, multiple financial, technical, institutional, and social barriers continue to limit the effective implementation of adaptation measures in oasis systems.

Main barriers to adaptation

Despite the existence of technical knowledge, pilot initiatives and national adaptation planning efforts, structural barriers significantly constrain autonomous and scaled adaptation in the traditional oases.

1. Financial barriers

Climate-resilient investments (such as irrigation modernization, rehabilitation of distribution networks, renewable energy for pumping, ecosystem restoration and diversification of production systems) require high upfront capital investments. For most smallholders and Agricultural Development Groups (GDAs), these costs exceed available financial capacity. High electricity costs, accumulated debts and limited revenue diversification further constrain reinvestment in adaptation.

Access to finance remains limited due to perceived risk, fragmented land tenure, small plot sizes and weak collateralization capacity. Delays in public subsidies create additional liquidity constraints. As a result, even when technically viable solutions are known, farmers and local organizations are unable to implement them at scale.

2. Technical barriers

Limited access to water-efficient technologies, modern irrigation systems and integrated pest management tools constrains the adoption of climate-adaptive agricultural practices. While research institutions have demonstrated improved irrigation scheduling, integrated phytosanitary management and diversification options, these innovations have not been disseminated or adopted at sufficient scale.

Extension services remain understaffed and under-resourced, reducing their ability to provide continuous advisory support on climate-adaptive agriculture, drought-resistant varieties and soil restoration practices. In several oases, infrastructure constraints (e.g., outdated canals, lack of storage basins) further limit the technical feasibility of efficiency improvements.

3. Institutional barriers

Institutional mandates related to water management, agriculture, environmental protection, tourism and local development are distributed across multiple actors. Coordination between governance levels and sectoral institutions remains limited, constraining the implementation of integrated, cross-sectoral adaptation responses at oasis scale.

Although CRDAs and GDAs play central roles in water resources management and irrigation service delivery, both institutions face significant operational constraints. CRDAs are affected by staffing, financial and logistical limitations that reduce their capacity to monitor groundwater abstraction, enforce water regulations and provide technical support for climate-resilient water management. At the local level, many GDAs face governance and organizational weaknesses, including limited financial management capacity, insufficient renewal of leadership, inadequate resources to maintain irrigation infrastructure, and restricted mandates focused primarily on water distribution, limiting their ability to support broader adaptation efforts and ensure equitable water allocation.

As a result, existing adaptation and water management plans are not fully operationalized despite their availability. In several oases, technical authorities have also expressed concern that continued reliance on drilling new deep boreholes is unlikely to provide a durable response to increasing water scarcity, given the rapid decline in productivity observed in several recently drilled wells and the structural stress affecting groundwater resources. This highlights the need to complement supply-side investments with stronger groundwater governance, demand management and improved water-use efficiency.

4. Knowledge barriers

Although traditional oasis systems are built upon long-standing adaptive practices, documentation and systematization of these practices remain limited. Climate risk information, groundwater data, parcel mapping and ecosystem diagnostics are fragmented across institutions and are not systematically translated into operational decision-support tools.

Existing institutional coordination and extension mechanisms are not fully leveraged to disseminate climate information, drought-resistant varieties and ecosystem-based adaptation approaches. This limit informed decision-making at farm and delegation levels.

5. Social barriers

Social dynamics within oasis communities also constrain adaptation. Gender inequalities limit the effective participation of women in decision-making structures, access to finance and ownership of productive assets, despite their significant role in agriculture and artisan value chains.

Land tenure and inheritance dynamics also constrain adaptation in traditional oasis systems. Progressive land fragmentation, joint ownership arrangements and complex inheritance patterns can reduce the economic viability of holdings, discourage long-term investment and complicate the implementation of collective adaptation measures. In some cases, these constraints contribute to the gradual abandonment of agricultural plots, further weakening the maintenance of oasis ecosystems and irrigation infrastructure.

Limited youth engagement, combined with ageing farmer populations and outmigration, weakens collective action and reduces innovation capacity. Risk aversion, low profit margins and uncertainty about market access further discourage experimentation with new climate-resilient practices.

Project Objectives

To address the risks and challenges described under the background and context section, the proposed project employs an overarching objective and three specific objectives as described below.

Goal / Impact-level statement

To contribute to reducing the climate vulnerability of communities and ecosystems in the traditional oases of the Governorate of Tozeur to the adverse effects of climate change.

Project Objective

To strengthen the climate resilience of traditional oasis management systems in the Governorate of Tozeur by enhancing institutional and community capacities, implementing concrete adaptation measures, and improving the generation and use of evidence on climate-adaptive oasis management.

Specific objective 1: to strengthen institutional and technical capacity for oasis management in the public sector and civil society (Component 1).

Specific objective 2: to implement concrete adaptation activities that promote the adoption of climate adaptation and livelihood enhancement measures (Component 2).

Specific objective 3: to improve communication on and the evidence base for good practices in climate adaptive management of traditional oases (Component 3).

Project's Theory of Change

If institutional and community capacities for climate-adaptive oasis management are strengthened, concrete adaptation and livelihood measures are implemented, and evidence on good practices is generated and shared, then the vulnerability of communities in the traditional oases of Tozeur to climate change will be reduced, because oasis management institutions and communities will be better equipped to anticipate climate risks, manage scarce natural resources, diversify livelihoods and sustain adaptation actions over time.

Drivers

- Oasis resilience recognized as a national priority within Tunisia's climate and development strategies
- Existing delegation-level adaptation plans providing an operational entry point
- Presence of organized Agricultural Development Groups (GDAs) and Civil Society Organizations (CSOs) across targeted oases
- Strong socio-cultural and economic importance of oases supporting local ownership
- Recognition of the specific role of women in oases ecosystems functioning and sustainability

Key assumptions

- A1: Climate trends remain within projected ranges used in the project design (temperature increase ≤ +2°C by 2050; precipitation decline within projected ranges of ~8% nationally and ~5% locally)
- A2: Water efficiency interventions (modernized irrigation, soil moisture conservation) achieve at least 20-30% reduction in water losses at plot and network levels
- A3: No significant rebound effect from improved water access or solar pumping (i.e. total groundwater abstraction does not increase beyond sustainable thresholds)
- A4: Groundwater abstraction remains regulated and enforcement capacity of CRDA is maintained or strengthened

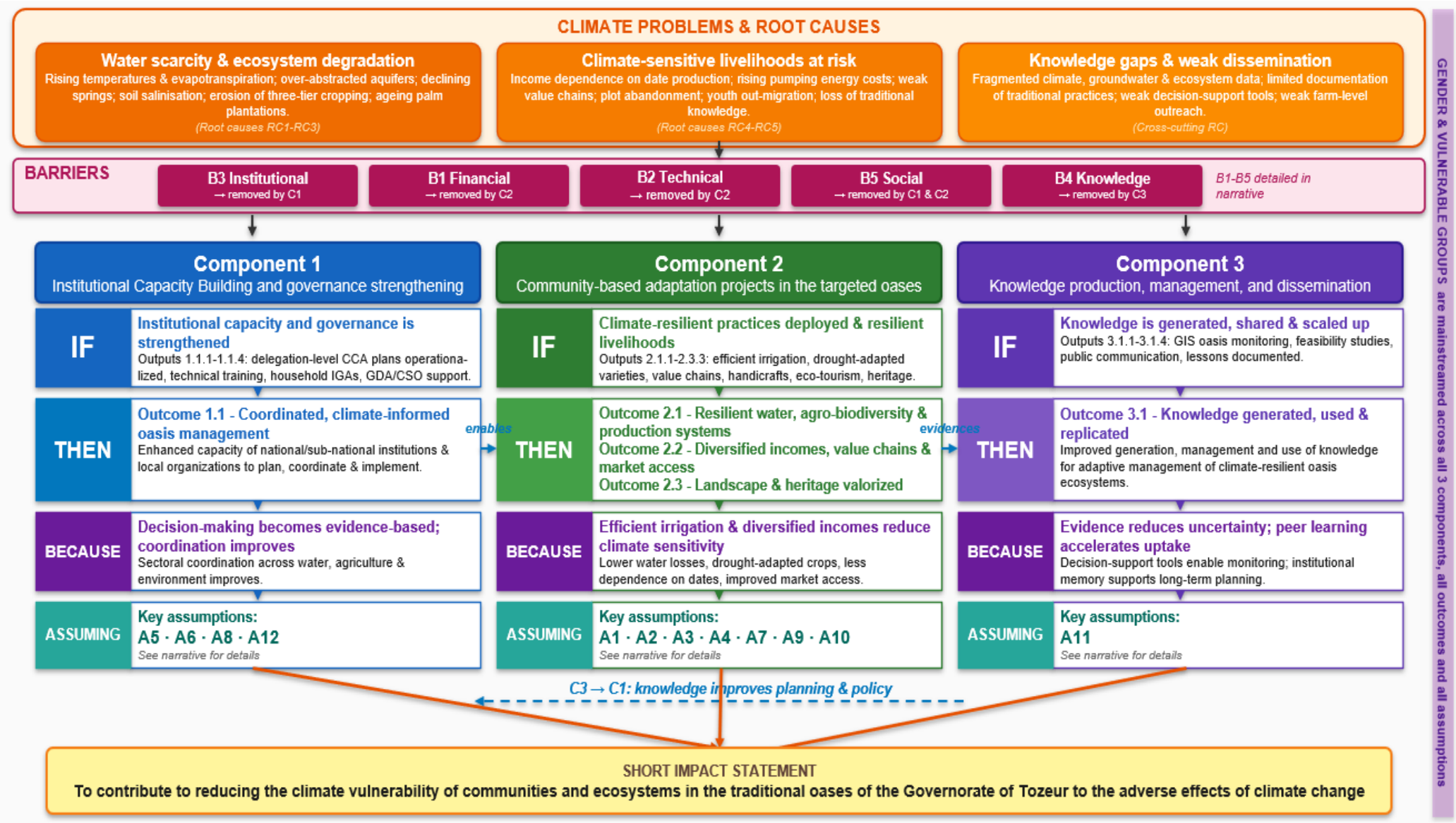
- A5: Government commitment and contribution of national and subnational governmental institutions are sustained throughout project implementation
- A6: No major policy reversals affecting water governance, agricultural policy, or decentralization frameworks
- A7: Land tenure conditions allow beneficiaries (including women and youth) to invest in adaptation measures (secure or sufficiently stable access to land)
- A8: GDAs and local CSOs remain functional and capable of managing water distribution and collective infrastructure
- A9: Adoption rate of climate-resilient practices (irrigation, crop diversification, agroecological practices) reaches a critical threshold (e.g. ≥50% of targeted farmers)
- A10: Market access improvements and value chain interventions generate measurable income diversification (e.g. ≥20% increase in non-date income sources for participating households)
- A11: No major security or social instability affecting project areas and stakeholder engagement
- A12: Stakeholder coordination across sectors (water, agriculture, environment, tourism) is maintained throughout implementation

The project's Theory of Change responds to three interconnected challenges affecting Tozeur's traditional oases: increasing water scarcity and ecosystem degradation, growing risks to climate-sensitive livelihoods, and fragmented climate and ecosystem knowledge. It addresses the financial, technical, institutional, social and knowledge barriers that prevent effective adaptation through three mutually reinforcing components. Together, these components are expected to reduce climate sensitivity, strengthen ecosystem and livelihood resilience, and sustain adaptation across the 29 targeted traditional oases, subject to the key assumptions identified in the Theory of Change.

The Theory of Change figure as proposed in the diagram below presents the project's causal pathway from the climate-related problem to the intended long-term impact. It begins with the increasing exposure of Tozeur's traditional oases to heat, drought and water scarcity, and shows how these hazards interact with fragile hydrological systems and financial, technical, institutional, knowledge and social barriers to increase ecosystem and livelihood vulnerability. The figure then links these constraints to three mutually reinforcing intervention pathways: strengthened institutions and governance under Component 1; concrete community-based adaptation and livelihood measures under Component 2; and improved evidence, knowledge management and learning under Component 3. The outputs delivered through these components contribute to corresponding institutional, ecological, productive and knowledge outcomes. Together, these outcomes strengthen the capacity of institutions and communities to manage scarce resources, adopt climate-resilient practices, diversify livelihoods and sustain adaptation over time, ultimately reducing the climate vulnerability of communities and ecosystems across the 29 targeted traditional oases. The figure also identifies the principal enabling drivers and the key assumptions on which these causal linkages depend.

Justification of refinements to the project structure and results framework since the endorsed Concept Note are provided in Annex 10

Figure 14: Project's Theory of Change



Project Components and Financing

Table 8 below and overleaf summarizes the proposed project's components, outputs, outcomes, and corresponding budget allocation.

Table 8. Overview of project components, expected outputs, outcomes, and budget

Project Components	Expected Outcomes	Expected Outputs	Amount (US$)
Component 1: Institutional capacity building and governance strengthening	1.1. Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems.	1.1.1. Delegation-level climate change adaptation plans updated, validated and operationalized. 1.1.2. Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems. 1.1.3. Capacities of households strengthened to develop and implement climate-resilient income-generating activities. 1.1.4. Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions.	1,720,978
Component 2: Implementation of community-based adaptation projects in the targeted oases	2.1. Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases. 2.2. Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access. 2.3. Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources.	2.1.1. Climate-resilient irrigation systems established and operational 2.1.2. Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables). 2.1.3. Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level. 2.1.4. Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers. 2.1.5. Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems. 2.1.6. Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels. 2.2.1. Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency. 2.2.2. A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products. 2.2.3. New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products. 2.3.1. Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization. 2.3.2. Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises,	9,998,161

		especially by women and youth. 2.3.3. Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives.	
Component 3: Knowledge production, management, and dissemination	3.1. Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems.	3.1.1. A GIS decision-support tool for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use. 3.1.2. Public communication tools and knowledge products on project results and lessons learned developed and disseminated. 3.1.3. Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication	930,469
Project Execution cost			**1,175,275**
Total Project Cost			**13,824,883**
Project Cycle Management Fee charged by the Implementing Entity			**1,175,115**
Amount of Financing Requested			**14,999,998**

Projected Calendar

Table 9. Milestones and projected calendar for the project

Milestones	Expected Dates
Start of Project Implementation	January 2027
Mid-term Review (MTR) (if planned)	December 2029
Project Closing	December 2031
Terminal Evaluation (TE)	**June 2032**

PART II: PROJECT JUSTIFICATION

A. Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

The proposed project comprises three interrelated components: 1) institutional capacity building; 2) implementation of community-based adaptation projects in the targeted oases; and 3) knowledge production, management, and dissemination. The following section provides detailed narrative descriptions of each output, in line with Adaptation Fund good practices. These descriptions include the listing of detailed activities planned to achieve each output.

COMPONENT 1: INSTITUTIONAL CAPACITY BUILDING AND GOVERNANCE STRENGTHENING

Specific objective 1: Strengthen institutional and technical capacity for oasis management in the public sector and civil society.

Component 1 addresses the systemic institutional, technical, organizational, and facilitation constraints that currently limit effective climate adaptation in traditional oasis systems. In Tozeur, climate change is already intensifying heat stress, evapotranspiration, water scarcity, groundwater pressure, ecosystem degradation, and the economic fragility of oasis-based livelihoods. Traditional oasis systems are increasingly affected by rising temperatures, persistent dry spells, deteriorating water balances, and the cumulative effects of land degradation, salinization, agro-biodiversity erosion, and weakening profitability of climate-sensitive production systems. These pressures interact with fragmented governance arrangements, limited technical capacities, weak operational capacities of local organizations, and insufficient integration of climate risk into territorial planning and public decision-making.

The component responds to major climate change risk and constraints by strengthening the institutional and technical foundations required for climate-resilient oasis management at national, regional, delegation, and local levels. It aims to equip public institutions, community-based organizations, producer groups, civil society actors, and households with the knowledge, tools, planning frameworks, and operational support required to integrate climate change adaptation into oasis governance and management. The component therefore creates the enabling conditions for effective implementation, targeting, ownership, and long-term sustainability of the adaptation investments financed under Component 2.

Component 1 is also designed to reinforce the multi-sectoral nature of adaptation in oasis territories. Climate resilience in traditional oases cannot be achieved through agricultural measures alone. It requires coordinated action across water management, agriculture, agro-biodiversity conservation, local economic development, handicrafts, tourism, employment, and community organization. This component therefore promotes cross-sectoral planning and capacity development, while ensuring that local actors are adequately supported to translate climate information and adaptation priorities into implementable concrete adaptation actions.

Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems.

This outcome ensures that national, regional, and local actors are equipped with the technical knowledge, institutional coordination mechanisms, organizational capacities, and practical tools required to manage oasis ecosystems under increasing climate stress. It strengthens decentralized planning systems, improves cross-sectoral coordination, and enhances the capacity of national, regional and local institutions, as well as local organizations to design, implement, and sustain adaptation interventions that respond to the specific vulnerabilities of traditional oasis territories.

The outcome contributes to improved targeting of adaptation investments, more efficient management of climate-sensitive natural resources, stronger institutional ownership of adaptation agendas, and better continuity of adaptation efforts beyond the life of the project. It also helps address the current disconnect between climate information, local planning, and operational implementation by ensuring that adaptation is embedded in concrete planning instruments, local organizational systems, and implementation support arrangements.

By strengthening both public and community-level capacities, the outcome also addresses a key structural weakness of oasis adaptation: the limited ability of local actors to organize collective action around water, maintenance, service delivery, livelihood diversification, and local project implementation. It therefore provides the governance and capacity backbone required to support resilient natural resource management, ecosystem restoration, and household adaptation.

Output 1.1.1: Delegation-level climate change adaptation plans updated, validated and operationalized.

This output will strengthen decentralized and community-based adaptation planning by updating and operationalizing five delegation-level climate change adaptation plans in Tozeur Governorate. Building on the planning work already initiated in previous years, the revised plans will integrate updated climate projections, vulnerability assessments, territorial diagnostics, and oasis-level information relevant to water stress, ecosystem degradation, salinization, fire risks, pest dynamics, local livelihoods, and socio-economic vulnerability. The plans will provide an operational basis for adaptation planning at delegation level by linking climate diagnostics with budgeted and prioritized intervention packages in the form of pipelines of adaptation interventions to be implemented under component 2, institutional responsibilities, implementation modalities, and financing perspectives. They will also define how priority adaptation investments can be progressively integrated into public investment and planning mechanisms, including regional development planning documents, the annual and multi-year programming of the CRDA, municipal and delegation-level development priorities, and future climate-finance pipelines at regional level.

The plans will identify and prioritize the main climate risks affecting traditional oasis systems, including increasing irrigation deficits, declining water quality, ecosystem degradation, land and parcel abandonment, pest outbreaks, fire risks, and climate-induced livelihood instability. They will define targeted adaptation responses that reflect the different ecological, socio-economic, and institutional realities of the five target delegations. This territorial differentiation is essential because climate vulnerability is not uniform across Tozeur. Adaptation planning must reflect differences in oasis typologies, water access conditions, levels of degradation, organizational capacities, and livelihood structures. The prioritization process will therefore distinguish between measures to be financed directly by the project, measures to be proposed for inclusion in the CRDA's future work programme and public investment planning, and measures that may be packaged for future support from national or international climate-finance sources.

Each adaptation plan will be designed as an operational planning and investment instrument. It will include a climate-risk profile, a diagnosis of priority adaptation constraints, a portfolio of prioritized and costed interventions, indicative roles and responsibilities, and guidance on how the plan can be used for annual programming, institutional coordination, and future climate finance mobilization. For this purpose, each plan will include an indicative investment pipeline, specifying the nature of proposed investments, responsible institutions, potential public financing channels, possible co-financing opportunities, and sequencing over short-, medium- and longer-term horizons. In doing so, the output will ensure that adaptation planning does not remain a purely strategic exercise but becomes a practical basis for implementation under this project and beyond.

The process will be highly participatory and will involve GDAs, municipalities, CRDA services, local communities, civil society actors, private sector actors and other relevant stakeholders in each delegation. This participatory process will ensure that local knowledge is captured, that actual operational constraints are understood, and that the resulting adaptation priorities are technically sound, socially acceptable, and institutionally owned. At baseline, five delegation-level adaptation plans exist or have been initiated, but they are not yet updated against the latest climate-risk evidence, do not systematically include costed and prioritized intervention packages, and are not consistently used as operational investment and coordination tools by delegation-level actors. By project end, the five target delegations will each have one validated and operational adaptation plan, elaborated in a participatory manner and including the specific perspectives of women and the youth, that includes: (i) a climate-risk profile; (ii) prioritized and budgeted adaptation measures; (iii) institutional responsibilities; (iv) implementation and financing perspectives; (v) an indicative investment pipeline linked to public planning and budgeting mechanisms, including the CRDA programme and regional development documents; and (vi) a documented mechanism for use in annual programming and coordination.

<u>Climate adaptation rationale:</u>

Climate risks in oasis systems are highly localized and dynamic, particularly in relation to water

availability, salinity, land degradation, and ecosystem functioning. Without updated and spatially grounded planning tools, adaptation interventions risk being poorly targeted, weakly sequenced, or disconnected from the actual territorial drivers of vulnerability. This output ensures that adaptation planning is evidence-based, territorially differentiated, participatory, and investment-oriented, thereby improving the effectiveness, ownership, and sustainability of climate responses. By embedding validated adaptation priorities into regional public investment mechanisms and future climate-finance pipelines, the output also strengthens the likelihood that priority measures are financed, implemented and maintained beyond the Adaptation Fund project period

Activities:

- Gap analysis of existing adaptation plans and preparation of a revision roadmap.
- Compilation and integration of updated climate and vulnerability evidence.
- Participatory consultations at delegation and oasis level.
- Preparation of draft revised adaptation plans.
- Technical review and inter-institutional validation.
- Final endorsement and operationalization support.
- Preparation and dissemination of a methodological guide.

Output 1.1.2: Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems.

This output focuses on strengthening the technical capacities of national, regional, and local stakeholders to integrate climate adaptation into the governance and management of oasis ecosystems. Adaptation in oasis territories requires the engagement of a wide range of actors whose mandates and interventions affect water use, agricultural production, agro-biodiversity conservation, local development, tourism, handicrafts, employment, and social cohesion. These actors include public planning and technical support institutions, socio-professional organizations, community-based organizations such as GDAs, and private or collective economic actors such as SMSAs[82], GIEs, SMEs, and related service providers.

The output will develop and implement a structured and differentiated capacity-building programme that responds to the distinct roles and needs of these different stakeholder categories. For public institutions, capacity-building will focus on climate-risk integration, cross-sectoral coordination, and the use of adaptation planning and monitoring tools. For technical institutions and support bodies, it will focus on ecosystem-based adaptation, integrated water and agricultural management, and practical tools for supporting climate-resilient oasis systems. Training content will cover key themes such as manifestations and impacts of climate change in oasis ecosystems, adaptive natural resource management, integrated water management, biodiversity-sensitive agricultural practices, phytosanitary management, climate-resilient value chains, and territorial economic diversification. Training approaches will combine formal sessions, practical demonstrations, field-based learning, and operational accompaniment, so that knowledge can be translated into actual institutional and organizational practice.

The output will also support the emergence or strengthening of private and collective service providers able to address functions that exceed the capacities of individual farmers or local GDAs. These functions may include mechanized cleaning, irrigation and drainage maintenance, pollination, collection and sorting of oasis biomass and agricultural products, and processing or valorization services. Support to these private actors (including SMSAs, Economic Interest groups (EIGs)) will help create more sustainable service models that can underpin long-term adaptation in traditional oasis systems.

Climate adaptation rationale:

Adaptation in traditional oasis systems requires technically informed decision-making and effective coordination across multiple institutions and stakeholder groups. Current capacities remain uneven, and climate risks are not yet consistently integrated into planning, service delivery, or everyday management of oasis ecosystems. By strengthening technical knowledge, operational skills, organizational performance, and coordination capacities, this output enables actors to better understand climate risks, apply resilient management practices, and support the uptake and sustainability of adaptation measures over time.

[82] Acronym: Société mutuelle de services agricoles (SMSA).

Activities:

- Training needs assessment and differentiated capacity development planning.
- Development of training modules and practical learning materials.
- Training and capacity-building programme for national and local institutions.
- Organisation of training sessions on oasis ecosystem management.

Output 1.1.3: Capacities of households strengthened to develop and implement climate-resilient income-generating activities.

This output aims to strengthen the adaptive capacity of households by supporting the development of climate-resilient income-generating activities (IGAs). In traditional oasis systems, households remain highly dependent on climate-sensitive agriculture, especially date production and related activities. As climate change reduces productivity, increases irrigation uncertainty, and raises production costs, households with limited diversification options become increasingly vulnerable to income instability, distress coping strategies, and outmigration. This is particularly acute in Tozeur, where unemployment remains high and women face especially severe barriers to stable employment and income generation.

The output will strengthen household capacities to engage in value-adding, diversified, and less climate-sensitive income-generating activities, with particular attention to the valorization of agricultural products and by-products, handicrafts, tourism-related services, and other locally relevant value chains. As such, by focusing on the development of entrepreneurial skills and leadership, this output will build the foundation for implementation of Outputs 2.2.3, 2.31 and 2.3.4 activities under Component 2. The objective is not only to initiate new income opportunities, but to support the development of more resilient livelihood portfolios that reduce dependence on climate-sensitive farm income alone. This will contribute to more stable livelihoods throughout the year, including during periods of reduced agricultural productivity linked to drought, heat stress, and increasing aridity.

Training support will combine three complementary pillars. First, direct beneficiaries will receive technical livelihoods training tailored to the specific type of activity they are developing. Second, they will receive practical business skills training to strengthen their ability to manage finances, make investment decisions, and develop simplified business plans. Third, the output will provide continued follow-up and coaching, allowing field teams and local facilitators to accompany beneficiaries, identify networking possibilities (e.g. with private sector) and implementation challenges, and help strengthen the sustainability of the supported activities. This will include the preparation and dissemination among concerned stakeholders of a community Income-Generating Activities (IGAs) Operational Manual defining: (i) eligible IGA categories; (ii) an exclusion list; (iii) beneficiary and enterprise eligibility criteria; (iv) a transparent selection and scoring process; (v) indicative average support ceilings per IGA category; (vi) simplified mini-logframes for each supported IGA category, including outputs, beneficiaries, expected adaptation benefits and gender/youth targets; (vii) ex-ante benefit assumptions and cost-effectiveness benchmarks per beneficiary or enterprise; and (viii) milestone-based disbursement conditions. This accompaniment dimension is particularly important to ensure that new IGAs do not remain one-off pilot efforts, but become viable and durable adaptation pathways.

Special attention will be given to women and youth, who face specific barriers in access to information, networks, skills development, and economic opportunities, but who also represent a major driver of household resilience and local economic diversification. Training delivery will rely on a combination of specialized public and vocational training institutions and, where needed, private service providers, depending on the relevant value chain and skill area. These may include institutions active in agriculture, handicrafts, tourism, entrepreneurship, and vocational training.

Climate adaptation rationale:

Climate change affects household livelihoods in oasis systems through declining agricultural productivity, greater production uncertainty, increased costs, and reduced profitability of climate-sensitive activities. Households with limited livelihood diversification are particularly exposed to these shocks. By strengthening their capacities to develop and sustain diversified and climate-resilient income-generating activities, this output reduces dependence on vulnerable production systems, spreads risk, and enhances adaptive capacity at household level.

Activities:

- Identification and profiling of target beneficiary households.
- Design of a household training programme on climate-resilient livelihoods.

- Delivery of technical livelihoods training for beneficiaries.
- Delivery of business skills training.
- Preparation of simplified business plans and coaching tools.
- Household monitoring and follow-up support.
- Targeted outreach and support for women and youth.
- Mobilisation of specialized training providers.

Output 1.1.4: Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions.

This output focuses on strengthening the capacities of civil society organizations, GDAs, local community actors, and local implementation support structures to effectively plan, implement, accompany, and monitor climate change adaptation interventions in targeted oases. Local organizations and community-based structures are essential actors in oasis adaptation because they mediate collective action, support local implementation, mobilize beneficiaries, and help sustain interventions over time. However, many of these actors face significant constraints in project planning, community mobilisation, coordination, technical follow-up, monitoring and evaluation, and application of environmental, social, and gender-related procedures.

The output will therefore combine governance strengthening of local actors with continuous technical reinforcement and facilitation support. It will help local organizations and actors identify climate risks, translate local needs into adaptation priorities, prepare project concepts and local action plans, engage communities in participatory processes, and manage implementation in a more effective, accountable, and technically sound manner. It will also reinforce their ability to work with public institutions, local authorities, and project management structures in a coordinated way.

A particular emphasis will be placed on strengthening GDAs across the 29 target oases, including women's GDA. These organizations are central to local resource management and collective service provision, especially in relation to irrigation systems and shared infrastructure, while women's GDA also contribute to the valorization of oasis products and livelihood diversification. However, many GDAs face structural weaknesses, including weak compliance with organizational procedures, high indebtedness linked to pumping costs, limited administrative and technical capacities, and insufficient logistical resources to support farmers in maintaining and improving oasis production systems. The output will therefore include structured diagnostics of GDA functionality, targeted training, participatory work programmes, and support for identifying the technical and logistical resources required to improve climate-resilient service delivery.

For GDAs and local producer organizations, capacity-building will also address technical and organizational functions, including irrigation management and automation (including specialized equipment), maintenance planning, service delivery, administration (including IT equipment), financial management, preparation of business plans, inventory of water needs of farmers and existing agrobiodiversity, and farmer mobilization. The objective is to reinforce private actors' capacities for intervention in their respective oases. For private and semi-collective economic actors, the output will strengthen capacities to provide climate-relevant agricultural and valorization services that improve productivity, sustainability, and local resilience.

A key feature of this output is the provision of sustained technical support to local stakeholders through dedicated experts and field officers operating at national and local levels. These support functions will ensure that local actors are not left to implement climate adaptation activities without adequate accompaniment. Technical support will cover local planning, annual activity programming, beneficiary identification, technical study follow-up, project implementation support, monitoring and evaluation, and implementation of environmental and social safeguards and gender integration measures. Through this approach, the output moves beyond one-off capacity-building and helps establish a functioning local support architecture.

At national level, technical support functions will include expertise in local development, water resources and agriculture, and monitoring and evaluation, including support for safeguards and gender integration. At governorate level, local development and M&E functions will support the preparation of local work plans, operational arrangements with local partners, beneficiary mobilization, and technical supervision of local implementation processes. Together, these support arrangements will improve the quality, consistency, and sustainability of adaptation actions across the target oases.

At baseline, CSOs, GDAs and local actors in the targeted oases have uneven capacities to design

adaptation projects, mobilize beneficiaries, manage implementation, apply safeguards and gender procedures, and report on results; local support functions are also fragmented and insufficient for sustained accompaniment. By project end, local actors engaged by the project will have been mapped and assessed, trained on adaptation planning and project design, and supported through continuous technical accompaniment. The end-state will include: (i) a mapped roster of relevant local actors and their roles; (ii) local adaptation concepts, work plans or implementation support tools prepared with project assistance; (iii) operational coaching records for GDAs and local structures; (iv) field-level support functions deployed at national and governorate levels; and (v) monitoring, safeguards and gender-integration tools applied in local implementation.

Climate adaptation rationale:

Adaptation in oasis systems depends not only on infrastructure and public institutions, but also on the ability of local organizations and actors to mobilize communities, coordinate action, supervise implementation, and sustain local ownership. Where these capacities are weak, adaptation interventions are less likely to be implemented effectively, maintained over time, or replicated. By strengthening both the organizational capacities of local actors and the technical support functions that accompany them, this output improves the effectiveness, scalability, and long-term sustainability of adaptation interventions.

Activities:

- Mapping and assessment of civil society organizations and local actors active in target oases.
- Capacity-building on adaptation planning and project design.
- Support to community mobilisation and participatory planning processes.
- Technical and organizational coaching of GDAs and local structures.
- Capacity-building for private agricultural actors.
- Technical assistance for implementation management and follow-up.
- Support for shared-use equipment planning and deployment.
- Recruitment and deployment of capacity building experts, specialised technical experts and field officers.
- Strengthening of monitoring and evaluation, safeguards, and gender integration capacities.
- Strengthening linkages between local organizations and public institutions.

COMPONENT 2: IMPLEMENTATION OF COMMUNITY-BASED ADAPTATION PROJECTS IN THE TARGETED AREAS

Specific objective 2: Implement concrete adaptation activities that promote the adoption of climate adaptation and livelihood enhancement measures.

Component 2 constitutes the project's main investment window for concrete adaptation in the targeted traditional oases. It translates the enabling conditions established under Component 1 into tangible field-level measures that reduce climate vulnerability, strengthen resource efficiency, and improve the resilience of oasis-dependent livelihoods. The component responds directly to the major climate pressures affecting traditional oases in Tozeur Governorate, including rising temperatures, increasing evapotranspiration, intensified dry spells and drought conditions, groundwater stress, degradation of oasis ecosystems, increasing pest (including wild boars, which are becoming a huge problem in certain zones) and disease pressures, fire risk, and declining livelihood security.

The component combines water-related adaptation investments, strengthening of local agro-biodiversity, adoption of climate-resilient agricultural technologies and practices, to achieve climate-resilient soil health and sustainable land management practices adopted in traditional oases, fire-risk reduction, integrated plant disease management, improved organic waste management, profitability enhancement, value-chain support, market access, and livelihood diversification. It is designed to reduce both the biophysical sensitivity of oasis production systems and the socio-economic vulnerability of households, producer organizations, women, youth, and local enterprises that depend on them.

Component 2 is the main vehicle for delivering direct adaptation benefits to vulnerable oasis populations, in particular women and youth. It supports concrete investments in irrigation, production systems, value addition, local enterprise development, handicrafts, eco-tourism, cultural heritage, and community-based economic diversification. It also demonstrates scalable models that can be replicated in other traditional oases in Tozeur Governorate and beyond, provided that the necessary institutional, technical, environmental, and social safeguards are maintained.

Outputs 2.2.3, 2.3.1 and 2.3.2 include support to small-scale income-generating activities, micro-enterprises and collective initiatives that will be selected during implementation. These activities are treated as partially unidentified sub-projects (USPs) for safeguards purposes because the specific beneficiaries, exact micro-enterprise proposals and some final sites will be confirmed only after outreach, training, business-readiness assessment and safeguards screening. They are however not fully unidentified sub-projects: the eligible sectors, geographic scope, beneficiary groups, indicative budgets, implementation partners, expected outputs and exclusion criteria are defined in the project document and will be further detailed in a Community IGA Operational Manual before.

The use of this modality is justified because the project targets women, youth and vulnerable households whose viable adaptation options cannot be fully pre-selected at proposal stage without excluding locally relevant initiatives. Selection during implementation allows support to be matched to beneficiary capacity, market conditions, local raw material availability, climate-resilience relevance, and social inclusion needs. The benefit of this approach is that it enables locally led adaptation while maintaining a controlled operational envelope. The increased safeguards risk will be managed through mandatory eligibility criteria, an exclusion list, environmental and social screening, consultation, technical review, milestone-based disbursement, monitoring and grievance redress procedures, all described in the ESMP.

All supported sub-projects must contribute directly to adaptation by reducing household dependence on climate-sensitive primary agricultural income, increasing value added from existing oasis products or by-products, reducing pressure on scarce water resources, strengthening women's and youth economic resilience, or improving climate-resilient local services linked to oasis landscapes and cultural assets. No sub-project will be financed unless it has passed environmental and social screening, complies with national and UNDP standards, and has an approved mitigation plan proportionate to its risk level.

Prior to launch of community-based income-generating activities under Outcomes 2.2 and 2.3, the project will prepare a Community Income-Generating Activities (IGAs) Operational Manual (under Output 1.1.3). Support will be released in tranches linked to verified milestones such as completion of training, validation of business plans, procurement readiness, installation of equipment, certification progress, and evidence of initial commercialization. Across Outputs 2.2.3, 2.3.1 and 2.3.2, the project will support approximately 370 direct IGA beneficiaries.

Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases.

This outcome aims to strengthen the ecological and productive resilience of traditional oasis systems by addressing the core climate-sensitive dimensions of water, agro-biodiversity, and agricultural production. It responds to the fact that water scarcity is the central driver of climate vulnerability in Tozeur's oases, while declining agro-biodiversity, reduced soil fertility, weak technological upgrading, and increasing fire and phytosanitary risks due to the lack of appropriate organic waste management capacities further reduce resilience. The outcome supports an integrated adaptation model in which improved water management, resilient crop systems through sustainable land management and climate-resilient agricultural practices, strengthened local agro-biodiversity, and modernized agricultural practices act together to stabilize oasis productivity under increasing climate stress.

The outcome is designed to improve the functioning of oasis agro-ecosystems by restoring minimum levels of irrigation reliability where water access has become critical, improving the efficiency of water conveyance and use, diversifying the genetic base of production systems, and demonstrating practical adaptation technologies at farm level. It also strengthens local preparedness for climate-amplified fire risks and introduces preventive and integrated plant disease management systems that reduce climate-related production losses.

The outcome includes six outputs that target distinct but interrelated constraints: irrigation reliability and efficiency; multiplication and dissemination of resilient local varieties; rapid response to oasis fires; demonstration of climate-resilient technologies and practices; integrated plant disease management; and organized organic waste management and valorization. Together, these investments aim to reduce irrigation deficits, stabilize production, enhance ecosystem integrity, reduce avoidable losses, and create more robust conditions for long-term oasis management.

Output 2.1.1: Climate-resilient irrigation systems established and operational

This output will address one of the most urgent adaptation priorities in the traditional oases: the

restoration and improvement of water access and irrigation performance in highly vulnerable sites. Interventions will focus on targeted oasis contexts where water supply is declining or infrastructure is degraded. The output will rehabilitate and optimize source water capture (especially in Tamerza, Midès, Fom El Khanga, and Dghoumes) and conveyance systems where possible, develop replacement shallow boreholes where existing sources are no longer reliable, and improve irrigation distribution infrastructure to reduce losses and increase water use efficiency.

The output is intended to restore a minimum level of water security in selected oases while improving the efficiency with which water is transported and used, thereby helping reduce irrigation water intensity by approximately 20% in targeted oasis systems while maintaining and improving minimum irrigation service reliability under increasing drought and heat stress. Field observations and stakeholder consultations have confirmed declining borehole yields, damaged distribution systems, and persistent losses in irrigation conveyance, all of which increase climate vulnerability and undermine agricultural viability. By securing more reliable and efficient irrigation systems in selected high-priority oases, the output will directly reduce exposure to drought and water scarcity and support the viability of associated production systems.

The output will be led by the CRDA of Tozeur, in association with the Centre Technique des Dattes (CTD), and in coordination with relevant local organizations. Investments will be designed to remain compatible with existing water governance arrangements and to avoid increasing unsustainable water abstraction. The emphasis is on improving reliability, reducing losses, and increasing efficiency in climate-stressed systems, rather than expanding water demand.

Climate adaptation rationale:

Water scarcity is the primary biophysical constraint in oasis systems and is being intensified by climate change through rising temperatures, increasing evapotranspiration, and growing irrigation deficits. In several target oases, the decline of water sources or failure of existing infrastructure is already undermining production and accelerating abandonment risk. Improving irrigation access and reducing conveyance losses is therefore a direct adaptation measure that reduces climate sensitivity and helps maintain the basic functioning of traditional oasis systems under increasing climatic stress.

Planned activities:

- Source water capture and improvement of the irrigation network in Tamerza
- Construction and equipment of replacement shallow boreholes
- Installation and optimization of irrigation infrastructure

Output 2.1.2: Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).

This output is designed to strengthen ecological resilience in traditional oasis systems by conserving, multiplying, and disseminating local varieties with high adaptive value under drought and heat stress. Agro-biodiversity is a key buffer against climate variability in oasis ecosystems, particularly where production systems are increasingly exposed to rising temperatures, water scarcity, salinity, pest pressure, and declining soil fertility. The output will support drought-tolerant date palm varieties, fruit trees, vegetables, fodder crops, date palm pollinators, and local seed systems.

The intervention will strengthen the traditional three-tier oasis production model, which constitutes the most important Nature-based Solution (NbS) for adaptation in this landscape, by supporting crop diversification and reducing dependency on a narrow range of climate-sensitive cultivars like the predominant deglet-nour date variety. This is particularly important in systems where monoculture or the dominance of a limited number of commercial varieties increases systemic vulnerability to climate shocks. By improving farmers' access to adapted plant material, the output will help restore part of the agrobiodiversity and resilience that has been eroded over time.

The output includes both conservation and productive dimensions. Building on CRRAO extensive work on date palm and associated fruit trees and plant varieties, this output will support the preservation of rare and endangered local varieties, establish varietal collections and demonstration plots, multiply resilient plant material through nurseries, in vitro multiplication and other propagation methods, and promote soil fertility enhancement practices that improve water retention and crop performance through sustainable land-management practices, the reduction of the use of pesticides and the protection of natural pollinators. It will also support the acquisition and distribution of date palm male pollinators and offshoots adapted to new and future climate conditions, the creation of a local seed bank, and technical

follow-up to farmers.

Implementation will be led by the *Centre Régional de Recherche Agricole dans les domaines oasiens* (CRRAO), with involvement of relevant technical partners and beneficiary farmers.

Climate adaptation rationale:

Reduced agro-biodiversity increases systemic climate vulnerability by narrowing the adaptive range of oasis production systems. In contrast, diversified and locally adapted varieties improve resilience to drought, heat, salinity, and pest pressure. In oasis systems, agro-biodiversity is not only a conservation objective; it is a practical adaptation asset that supports microclimate regulation, production stability, and long-term ecosystem functioning. Strengthening access to climate-resilient local varieties is therefore a direct adaptation measure.

Activities:

- Identification, propagation, and distribution of climate-resilient local varieties
- Establishment of varietal collections and demonstration plots
- Creation of pilot farms for the selection and multiplication of male date palms
- Support to crop diversification and soil fertility enhancement
- Creation of a local seed bank and farmer follow-up

Output 2.1.3: Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level.

This output addresses the growing climate-related risk of fire in traditional oasis systems. Rising temperatures, more frequent heatwaves, dry biomass accumulation, plot abandonment, and fragile ecosystem conditions increase the probability and severity of fire events. Fires in oasis ecosystems can rapidly destroy vegetation cover, productive assets, irrigation infrastructure, and agro-biodiversity, while also threatening surrounding communities and local livelihoods. The scale of the phenomenon is already significant: according to official data from the Civil Protection Directorate of Tozeur, 119 fires were recorded between 1 January and 25 May 2026, resulting in the loss of 4,598 palm trees.

The intervention will establish local response capacities that can act rapidly in high-risk or remote oasis areas. It will combine decentralized response capacities at local level with at least one stronger rapid-response hub in a high-risk delegation. It will also strengthen community-level prevention, preparedness and early-warning arrangements, including community fire-prevention plans, first-responder training and simulation exercises with local communities. The purpose is to reduce fire damage, limit production losses, and improve preparedness in oases where access by formal emergency services may be delayed or constrained.

The output will be implemented with the *Direction Régionale de la Protection Civile*. It will help bridge the gap between formal emergency services and the reality of dispersed oasis sites, some of which are difficult to access rapidly. By equipping local actors and improving response logistics, while strengthening community-based prevention and early response systems, the intervention is expected to reduce both the frequency of uncontrolled fire spread and the severity of resulting damage.

Climate adaptation rationale:

Climate change increases the frequency and intensity of heat extremes and contributes to drier biomass conditions, thereby increasing the probability and severity of fire events in oasis systems. These fires can rapidly destroy vegetation cover, infrastructure, and productive assets, undermining both ecosystem resilience and household livelihoods. Strengthening local and decentralized fire response capacity is therefore a direct adaptation measure that reduces climate-related loss and damage. By combining public emergency-response capacity with community-based prevention plans, early-warning procedures, trained first responders and practical simulation exercises, the output also strengthens the adaptive capacity of oasis communities to anticipate, prevent and respond to climate-amplified fire risks.

Activities:

- Establishment of fire risk maps across the 5 delegations
- Strengthening logistical intervention capacities at the Regional Directorate of Civil Protection in Tozeur
- Establishment of local fire response units within GDAs
- Organisation of community drills and early-warning procedures at oasis level
- Creation of a decentralized rapid response hub in a high-risk delegation

Output 2.1.4: Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers.

This output will establish and support pilot oasis plots demonstrating integrated packages of climate-resilient agricultural technologies and practices. At least five pilot parcels will be developed, covering a total area of approximately 100 hectares, with around 20 hectares per delegation. These pilot sites will introduce a package of resilient good agricultural practices aiming to demonstrate the combine effects of these climate change adaptation interventions. This will include: improvement of water efficiency at oasis level (water-saving irrigation systems, on-farm water storage, rehabilitation of water network, reorganisation of water tours, etc.; Improvement of soil fertility through sustainable land management practices (including organic matter and compost amendments, erosion control, soil cover crops, green manure, mulching); improvement of farmers' efficiency through crop planning, diversification, and mechanization, with the objective to demonstrate how a full package of adaptation options can transform currently vulnerable oasis systems into climate-resilient and sustainable systems

Pilot sites will be constituted of blocks of private plots selected based on the work conducted in 1.1.1, on a farmer voluntary basis. The objective is to constitute approximately 20ha blocks to enable restored ecosystem services and introduced practices to demonstrate their effects and relevance, while also improving efficiency of the interventions.

The 100-ha pilot footprint is designed as a catalytic demonstration phase, not as the final scale of impact. Each pilot site will serve as a delegation-level replication hub, allowing farmers, GDAs, SMSAs and extension services to observe, test and adapt the promoted practices under real oasis conditions. The project will therefore measure results not only through the 100 ha directly equipped, but also through wider adoption beyond the pilot plots, including the number of non-pilot farmers trained, the number of farmers adopting at least one demonstrated practice, and the additional hectares where these practices are applied.

The function of the pilot sites is both demonstrative and transformative, and involve volunteer farmers who will directly participate into the pilot experience. They are intended to show that, under increasing climate stress, traditional practices alone may no longer be sufficient, and that carefully selected technological and agronomic improvements can reduce vulnerability and stabilize production. The pilots will combine practical adaptation technologies with farmer learning, allowing producers to observe, test, and adapt practices under real oasis conditions. Replication will be supported through farmer field schools, demonstration days, peer-to-peer exchanges, practical technical guides, and CTD/CRDA advisory support. The demonstrated package will also be modular, allowing farmers to adopt individual practices progressively, such as improved irrigation scheduling, on-farm water storage, organic matter amendments and work on soil fertility, mechanized pollination, crop diversification, or improved cultural calendars, according to their needs and investment capacity

The pilot approach also creates a basis for farmer-to-farmer learning, extension, and wider uptake. By integrating water efficiency, agro-biodiversity, improved cultural practices, mechanization, and disease management within the same demonstration sites, the output will provide visible and coherent adaptation models for traditional oasis agriculture. Implementation will be led by the *Centre Technique des Dattes* (CTD).

Climate adaptation rationale:

Traditional oasis production systems are increasingly exposed to heat, water scarcity, pest pressure, and labour constraints. Under these conditions, the adoption of improved agricultural technologies and management practices is necessary to reduce water demand, improve efficiency, stabilize production, and maintain the viability of oasis farming. Demonstration through pilot plots is particularly important because it allows adaptation options to be tested, adapted, and visibly validated under local conditions. The adaptation value of this output lies in its catalytic function. While the pilots will directly improve resilience on approximately 100 ha, their main purpose is to reduce technical, financial and behavioural barriers to wider adoption across the traditional oasis system.

Activities:

- Implementation of pilot parcels with integrated climate-resilient packages
- Introduction of climate-resilient water-saving technologies
- Support to diversification, mechanization, and improved cultural systems
- Demonstration and farmer training for scaling
- Development of replication protocols and scaling arrangements

Output 2.1.5: Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems.

This output addresses the increasing phytosanitary vulnerability of oasis agriculture under climate change. The intervention will combine broad phytosanitary assessment across targeted oases, preventive treatment support for common diseases affecting date palms and fruit trees, and more intensive integrated plant disease management in the pilot oases supported under Output 2.1.4. Measures will include biological, physical, biotechnique, chemical, and reasoned control approaches adapted to local conditions and consistent with organic production standards where relevant. The intervention will specifically target phytosanitary risks amplified by climate change, including emerging pests and diseases, climate-stress-related weakening of palms and fruit trees, and pest dynamics favoured by rising temperatures, drought stress and altered humidity conditions.

The output recognizes that climate change is increasing disease and pest pressure and that untreated phytosanitary risks can directly reduce productivity, weaken palms and fruit trees, and increase the vulnerability of already stressed oasis systems. Rising temperatures, heatwaves, drought stress, and changing humidity patterns may alter pest cycles and increase the emergence or spread of diseases affecting date palms and associated fruit species.

The output therefore combines surveillance, prevention, treatment support, technical guidance, and farmer capacity building in order to improve productivity stability and reduce climate-induced losses. It will contribute to the development of more systematic plant health management in traditional oases and to the integration of climate-informed phytosanitary practices into agricultural extension services. It will also provide a practical basis for scaling integrated disease management approaches beyond pilot sites. Implementation will be led by the *Centre Technique des Dattes* (CTD).

Climate adaptation rationale:

Rising temperatures and changing climatic conditions increase the prevalence and severity of plant diseases and pest outbreaks, thereby reducing yields and adding stress to already fragile oasis production systems. Integrated disease management is a key adaptation measure because it helps stabilize production, reduce avoidable losses, and strengthen the resilience of date palms and associated crops under changing climatic conditions. By focusing on climate-amplified and emerging phytosanitary risks, the output directly addresses one of the pathways through which climate change undermines oasis productivity and long-term ecosystem resilience.

Activities:

- Phytosanitary assessment across targeted oases
- Provision of preventive equipment, inputs, and capacity support
- Implementation of integrated plant disease management in pilot oases
- Preparation of technical guidance and integration into agricultural extension services

Output 2.1.6: Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels.

This output aims to transform oasis biomass and organic waste from a source of risk into a source of resilience and value. Accumulated biomass contributes to increased fire risk, disease spread, poor ecosystem hygiene, and reduced productive potential, while also representing an underused resource. Under climate change, this risk is amplified by more frequent heatwaves, prolonged dry periods and drier biomass conditions, which increase the probability and severity of oasis fires. The intervention will establish a more organized organic waste management and valorization mechanism operating at governorate level and translated into practical functions at delegation and oasis levels.

The output combines preventive cleaning campaigns, logistical strengthening of SMSAs and GDAs, composting infrastructure, and support to a private-sector or service-provider system for collection, sorting, valorization, and commercialization of oasis organic waste. It is directly connected to both fire risk reduction and improved soil management, and it responds to the need for more sustainable and economically viable solutions than isolated cleaning campaigns. Compost will be promoted as a core adaptation input, not only as a valorized product, because it can improve soil organic matter, fertility, water retention and resilience under drought and salinization stress

The output will be implemented under the leadership of the Regional Council and the CRDA of Tozeur, in coordination with GDAs, SMSAs, municipalities, and relevant private or community-based service providers. It will support the creation of a functioning system that reduces risks, improves ecosystem

health, and converts organic residues into useful products such as compost or other valorized materials. An economic feasibility study will be carried out to assess mobilizable biomass flows, collection and processing costs, potential commercial outlets, governance options and the expected profitability of the waste management and composting model.

Climate adaptation rationale:

Poorly managed oasis biomass and waste increase climate vulnerability by raising fire risk, facilitating disease transmission, and limiting the health and productive potential of oasis ecosystems. These risks are intensified by heatwaves and prolonged drought, which dry out accumulated biomass and accelerate soil degradation. At the same time, organic waste can be converted into compost or other valorized products that improve soil fertility and water retention, thereby helping maintain productive capacity under increasing drought and salinisation stress. Organized waste management is therefore an adaptation measure that reduces climate-related risks while strengthening ecosystem functioning and resource efficiency. In this context, compost is a major drought-adaptation asset because it helps restore soil structure, retain moisture and reduce sensitivity to water stress.

Activities:

- Pilot cleaning campaigns in selected oases
- Strengthening the logistical capacities of SMSAs and GDAs
- Economic feasibility study for biomass collection, composting and waste valorization
- Establishment of composting facilities in Tamerza
- Development of a private-sector waste valorization system

Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access.

This outcome addresses the socio-economic dimension of climate vulnerability in oasis systems. Climate change is not only reducing agricultural productivity, but also undermining profitability, increasing production costs, weakening commercialization, and narrowing livelihood options. In Tozeur's traditional oases, reduced water availability, rising energy costs, production losses, weak value-chain organization, and limited product valorization combine to reduce household resilience and increase the risk of plot abandonment and livelihood insecurity.

The outcome aims to improve economic resilience by reducing key production costs, strengthening commercialization mechanisms, improving value addition, and supporting new climate-resilient income-generating activities. The intervention logic is that lower energy and production costs improve farm profitability and price competitiveness; better structured value chains and market access increase producers' bargaining power and product value; and diversified income-generating activities create additional jobs and reduce household dependence on climate-sensitive date production alone. It recognizes that adaptation requires more than technical improvements in agricultural production; households and producer organizations must also be able to generate stable and improved returns from climate-constrained production systems.

The outcome links resilience to economic viability. Households, GDAs, SMSAs, and small enterprises are more likely to maintain adaptive practices when production systems remain profitable and when diversification opportunities exist. The outcome therefore supports three complementary outputs: reduction of irrigation energy costs through photovoltaic systems, establishment of a regional market for oasis products, and development of new income-generating activities based on improved valorization and commercialization of agricultural products and by-products.

Output 2.2.1: Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency.

This output aims to improve the economic viability of oasis production systems by reducing the high cost of electricity used for collective irrigation pumping. Electricity costs for pumping are a major constraint to profitability in oasis ecosystems. Several GDAs face unpaid electricity bills, threatening continued access to electricity and therefore the survival of the irrigation systems they manage. The proposed response is the installation of photovoltaic systems on collective and community wells used for irrigation in targeted traditional oases.

The intervention is explicitly framed as cost reduction rather than water expansion. To avoid maladaptation risks, particularly the well-documented rebound risk associated with solar-powered pumping where lower energy costs can incentivize increased abstraction, PV systems will be installed

only on collective/community wells managed by GDAs, and not on individual private wells. These collective wells already operate under established “tour d’eau” arrangements, with predefined pumping schedules, irrigation turns, and water distribution calendars by parcel. The introduction of photovoltaic energy will not modify these allocation rules, pumping entitlements, or irrigation calendars. PV investment will therefore be conditional on enforceable safeguards: installation of volumetric meters on all PV-powered wells; confirmation of abstraction quotas before disbursement; maintenance of existing “tour d’eau” schedules; CRDA oversight; third-party verification of water abstraction data; and periodic public reporting through GDA/CRDA channels. These conditions are intended to ensure that reduced energy costs improve GDA financial viability and irrigation service continuity without increasing groundwater abstraction.

The output will therefore help reduce operating costs, secure access to energy for irrigation, and improve the financial position of farmers and GDAs without authorizing or encouraging increased water abstraction.

To preserve adaptation integrity, investment will be conditional on safeguards, including installation of volumetric metering on all PV-powered wells, enforceable abstraction quotas tied to sustainable yield assessments, monitoring protocols linking energy savings to water savings and no increased extraction, and institutional oversight by CRDA with enforcement capacity. To avoid institutional fragmentation, roles and accountability will be clarified from the outset, distinguishing technical energy responsibilities, under ANME/STEG guidance, from water-resource management and abstraction control responsibilities, led by CRDA in coordination with GDAs. Implementation will involve the Tozeur Regional Council, the CRDA of Tozeur, the National Agency for Energy Management (ANME), the Tunisian Company for Electricity and Gas (STEG), and other relevant technical partners.

In addition to its primary adaptation benefits, the output will generate measurable mitigation co-benefits. By replacing part of this grid electricity from STEG with solar photovoltaic pumping, the project will reduce electricity costs for GDAs and farmers while avoiding associated greenhouse gas emissions. These avoided emissions can be estimated by multiplying the annual quantity of grid electricity displaced by the relevant Tunisian grid emission factor, indicatively around 0.45 tCO_2e/MWh, to be confirmed during detailed feasibility studies. This co-benefit will be reported separately from the project’s adaptation benefits, as an environmental co-benefits.

Climate adaptation rationale:

Irrigation pumping is indispensable in oasis systems but increasingly costly under conditions of water scarcity and climate stress. High energy costs reduce profitability, limit reinvestment capacity, and can contribute to institutional fragility among GDAs. By reducing operating costs through solar energy, the output strengthens the economic resilience of oasis production systems while helping sustain access to climate-critical irrigation services. The adaptation rationale depends on strict safeguards ensuring that energy savings do not lead to increased water abstraction.

Activities:

- Feasibility studies and option assessment
- Identification of direct beneficiaries and eligible collective wells
- Installation of photovoltaic systems on collective pumping stations
- Monitoring, technical assistance, and compliance oversight

Output 2.2.2: A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products.

This output will establish a physical regional market and exhibition space for oasis products in Tozeur in order to strengthen commercialization channels and improve the valorization of agricultural production, especially dates. The intervention will include support for the construction and physical development of the market, development of exhibition spaces for agricultural products, and operational support for equipment related to refrigeration, labeling, packaging, sorting, and grading.

The objective is to address current weaknesses in commercialization and fragmented market access by creating a more structured and visible platform for oasis products. Producers currently face limited bargaining power, weak aggregation systems, and insufficient access to value-adding infrastructure. These constraints reduce the economic return generated from production and make households more vulnerable to climate-related yield and quality losses. A physical market is justified because the binding constraint identified locally is not only lack of market information or promotion, but the absence of a

shared aggregation, quality control, cold-storage, sorting and presentation facility where small producers can collectively access buyers under more transparent conditions. Alternative measures such as mobile sales, certification support or aggregator subsidies would be insufficient if producers continue to sell individually, often on-tree or through intermediaries, without access to post-harvest infrastructure and collective bargaining mechanisms.

By improving post-harvest handling, product presentation, aggregation capacity, and commercialization infrastructure, the market is expected to improve product value, reduce losses, and create better commercial conditions for producers and local enterprises. The intervention has a strong adaptation relevance insofar as it improves the economic returns generated from climate-constrained production systems. This is particularly important because higher temperatures, water stress and pest pressure are expected to increase quality-related losses and reduce the share of production that can be sold at premium prices; the market will therefore prioritize climate-sensitive post-harvest losses through cold storage, sorting, grading and rapid commercialization. During implementation, the project will establish a baseline of current post-harvest and quality losses and track the share of losses reduced through market services, so that the climate-attributable adaptation benefit can be demonstrated rather than assumed.

To prevent elite capture or displacement of benefits toward traders, the market will operate under a governance arrangement that includes representation of small producers, GDAs, women's groups and relevant public authorities. Access rules, fee structures, allocation of stalls/storage space, and quality-grading services will be defined transparently, with preferential or reserved access for small producers and producer organizations. The market will also publish periodic information on prices, volumes and users served, allowing the project to verify that increased value is retained by producers rather than captured mainly by intermediaries.

To address sustainability risks observed in comparable market and artisanal infrastructure initiatives, the project will define a post-project operating and financing model before construction is finalized. This will include a designated management entity, an annual operating budget, fee-based revenue streams from stalls, storage, grading, packaging, events and service use, and clear responsibility for maintenance and reinvestment. Public support will focus on initial establishment and governance, while recurrent costs will be progressively covered through market revenues and service fees, with affordability safeguards for small producers.

Implementation will be led by the Tozeur Regional Council, in collaboration with the Regional Trade Directorate in Tozeur.

Climate adaptation rationale:

Climate change is placing increasing pressure on oasis production systems, making it more important for farmers to derive greater value from each unit of production rather than relying on volume expansion. Weak commercialization channels reduce profitability and limit the capacity of households and local organizations to cope with climate shocks. Strengthening marketing infrastructure and product valorization therefore contributes to economic resilience and supports more adaptive livelihood systems.

Activities:

- Support to the construction and physical development of the regional market
- Development of exhibition spaces for agricultural products
- Operational equipment for product valorization and commercialization

Output 2.2.3: New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products.

This output will support the creation and operationalization of new climate-resilient income-generating activities linked to the transformation, commercialization, certification, and direct sale of agricultural products and by-products from oasis systems. It will support entrepreneurship, specifically for women and youth, linked to the valorization of local date varieties, including less commercially valued varieties, as well as other agricultural products, including processing, conservation, packaging, conditioning, and market access support. It will also include support to certification and labeling, the participation of women and youth entrepreneurs in fairs and commercial events, and support for reaching international markets (e.g. boom in the market for date-based energy bars, protein bars and energy balls).

The output is intended to move beyond primary production and support greater value addition at local

level, thereby helping protect household income against climate-related yield shock years and reduced agricultural productivity. It targets small enterprises and family-based initiatives that can diversify incomes while remaining connected to oasis production systems. This includes activities related to date products, agricultural products, cereals, aromatic and medicinal plants, and other products and by-products that can generate value without increasing pressure on water resources, many of which being already produced and tested at small scale (e.g. 'coffee' from date stones, date sugar, date sirup, etc.).

Eligible sub-projects under this output will be limited to small-scale agricultural product and by-product valorisation, including date processing, packaging, labelling, grading, storage, direct sales, certification support, and small processing of locally relevant agricultural, aromatic or medicinal products. Eligible beneficiaries may include individual entrepreneurs, family enterprises, women/youth-led micro-enterprises, cooperatives, SMSAs, GIEs or small collective groups. Each sub-project will require a simplified business plan, climate-resilience justification, estimated beneficiary benefits, safeguards screening, confirmation of compliance with food safety and hygiene standards, and evidence that it will not increase unsustainable water abstraction or generate unmanaged waste/pollution.

Under this output, the project will support approximately 75 direct IGA beneficiaries, either individually or through collective initiatives, across the targeted traditional oases. The indicative investment envelope will be USD 3,000 per individual IGA beneficiary, subject to a ceiling to be defined in the Community IGA Operational Manual. All supported IGAs will be selected through a transparent mechanism defined in the Operational Manual, including eligibility criteria, exclusion list, gender and youth targeting, climate-resilience relevance, market viability assessment, national technical standards, environmental and social safeguards screening, ex-ante benefit assumptions, and milestone-based disbursement. At least 80% of supported beneficiaries will be women and youth. Implementation will be led by *Espace Entreprendre à Tozeur*, under the Ministry of Vocational Training and Employment, in partnership with local NGOs selected according to their expertise.

Climate adaptation rationale:

The approach is particularly relevant in a climate adaptation context because it reduces dependence on raw commodity sales and enables households to generate more stable income from agricultural products that are already under climate pressure. As climate change reduces the stability and profitability of primary agricultural production, households need stronger opportunities for value addition, product transformation, and diversified commercialization. Activities based on processing and by-product valorization reduce sensitivity to raw production shocks and increase the economic return generated from limited natural resources. This makes local value addition an important adaptation strategy, especially for women and youth.

Activities:

- Support to entrepreneurship in agricultural product and by-product value chains
- Support to certification and labeling of agricultural products
- Improvement of direct sales systems and online commercialization
- Provision of equipment for packaging, labeling, grading, and conditioning
- Support to women and youth participation in fairs and sales events

Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources.

This outcome aims to diversify climate-resilient employment opportunities by valorising landscape functions, local knowledge, handicrafts, cultural assets, and eco-tourism potential associated with oasis systems. It shifts part of the adaptation response toward economic activities that depend less directly on irrigation-intensive agricultural production and that make better use of oasis by-products, cultural identity, local services, and landscape values.

The outcome responds to the fact that climate change is progressively undermining the profitability and stability of primary agriculture in traditional oases. Diversified employment opportunities are therefore needed to reduce household sensitivity to drought, heat, water scarcity, and production losses. At the same time, the outcome recognizes that local know-how, cultural heritage, by-products from oasis ecosystems, and landscape functions are adaptive assets that can generate income while reinforcing community identity and collective resilience.

The outcome includes three outputs: support to handicraft-based livelihoods based on oasis by-products; enhancement of touristic attractiveness through climate-resilient cultural and eco-tourism

services and infrastructure; and documentation and valorization of intangible heritage and traditional knowledge through cultural events and local initiatives. Together, these outputs seek to diversify local economies, especially for women and youth, while reinforcing the cultural and landscape value of traditional oases.

Output 2.3.1: Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.

This output supports handicraft-based livelihoods linked to oasis by-products, with particular focus on women and youth. It will support individual and small collective income-generating projects in four priority handicraft value chains: basketry, palm wood products, oils and cosmetic products, and traditional weaving and artisanal garment-making. These activities are connected to local know-how, underused oasis materials, and market opportunities that can generate income while reducing dependence on climate-sensitive agricultural production.

Support is foreseen both at collective level, through strengthened logistical capacities of the Direction Régionale de l'Artisanat de Tozeur, and at individual level, through direct support to selected artisans and entrepreneurs. The collective support dimension includes operational training equipment for different product chains and strengthened capacity to organize fairs and exhibitions. This will improve the institutional basis for skills development, product improvement, and commercialization.

Eligible sub-projects under this output will be limited to four priority handicraft value chains: basketry, palm wood transformation, oils and cosmetics, and traditional weaving/artisanal garment-making. Support may include small equipment, tools, inputs, design support, quality improvement, certification, product development, aggregation of raw materials, and market access. All sub-projects must demonstrate sustainable sourcing of oasis by-products, safe working conditions, absence of child labour, fair inclusion of women and youth, and viable market access. Activities involving hazardous chemicals, unsustainable biomass extraction, unsafe machinery, unmanaged wastewater, or labour exploitation will be excluded.

The output is designed to convert underused oasis materials and inherited skills into more resilient and marketable economic opportunities. Implementation will be led by the *Direction Régionale de l'Artisanat de Tozeur*, in partnership with a local NGO.

Climate adaptation rationale:

This output reduces household dependence on date production, which is highly exposed to heat, drought, water scarcity, salinisation, and yield shocks, while generating additional income without increasing pressure on scarce irrigation water resources. Handicraft-based activities using oasis by-products are comparatively less climate-sensitive than primary agricultural production and can generate income throughout the year, including between harvest seasons.

By supporting women and youth in palm-based crafts, weaving, basketry, cosmetics, and related value chains, the output diversifies livelihoods without increasing pressure on scarce water resources. It also strengthens gender-responsive resilience, as women's income can improve household capacity to absorb climate shocks, including through spending on food, health, and children's education.

Activities:

- Strengthening the logistical capacities of the regional handicraft administration for training
- Strengthening capacities for organization of fairs and exhibitions
- Selection and individual support to women and youth entrepreneurs

Output 2.3.2: Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth.

This output will strengthen the touristic attractiveness of targeted oasis areas through rehabilitation and valorization of selected cultural and eco-tourism sites, combined with support to local tourism-related entrepreneurship, in particular through agrotourism inside the oases. The intervention will cover selected sites across the delegations of Nafta, Tozeur, Dégache, Tamerza and El Hamma, including cultural circuits, old city areas, oasis attractions, artisanal sales areas, and service sites.

The intervention combines collective investments in site enhancement with individual support to service enterprises in accommodation, restoration, leisure, museum-related functions, and related tourism services. The purpose is to ensure that territorial improvements translate into tangible livelihood

opportunities for local communities, particularly women and youth.

Eligible sub-projects under this output will be limited to small-scale cultural, eco-tourism and agrotourism services and enterprises linked to targeted oasis sites and circuits. These may include guided visits, interpretation services, small hospitality services, artisanal sales areas, community-based agrotourism, local food services, cultural circuits, museum-related services, or rehabilitation of minor visitor facilities. No activity will be financed where it would affect physical cultural heritage without prior heritage screening, community consultation, chance-find procedures and approval from the competent cultural authorities. Activities will also be screened for tourism carrying capacity, water use, wastewater, waste management, biodiversity impacts, access restrictions, economic displacement and community consent.

The output is intended to create more climate-resilient and diversified local income opportunities by leveraging the heritage and landscape value of oasis systems, while also improving the attractiveness and functionality of selected sites. It connects territorial rehabilitation with livelihood adaptation and contributes to reducing excessive dependence on irrigation-intensive agriculture. Implementation will be led by the Direction Régionale du Tourisme, in partnership with a local NGO.

Climate adaptation rationale:

Eco-tourism and cultural tourism can provide important complementary income streams in oasis systems, reducing overdependence on climate-sensitive agriculture. When designed carefully, such activities can generate employment while also supporting the maintenance and valorization of oasis landscapes and heritage. This output contributes to adaptation by broadening livelihood options, especially in contexts where agricultural profitability is declining under climate stress.

Activities:

- Valorization and safeguards-compliant rehabilitation of selected tourist attraction sites
- Support to entrepreneurship in tourism services and infrastructure

Output 2.3.3: Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives.

This output aims to document, preserve, and actively valorize the intangible heritage and traditional knowledge associated with oasis communities. It will focus on the transmission and practical use of traditional knowledge relevant to oasis resilience, including water management practices, agrobiodiversity, palm maintenance, local processing, handicrafts, food preservation, and collective practices linked to oasis stewardship. It will support community-based cultural initiatives, knowledge-sharing events and limited shared equipment. The output seeks to maintain and reactivate the cultural dimension of oasis resilience. In practice, this means not only documenting knowledge and traditions, but also creating living spaces and recurring events through which they remain socially relevant, visible, and economically connected to local initiative. The focus will be on measurable adaptation-relevant functions: number of knowledge holders involved, youth and women trained, traditional practices documented, community events delivered, and local initiatives linked to oasis preservation.

The output contributes to adaptation by reinforcing the social and cultural fabric that underpins long-term community resilience. It recognizes that traditional knowledge, cultural practices, and collective identity are not peripheral to adaptation; they are part of the social foundations required for sustained local action in response to climate stress. Unlike Output 2.3.2, which focuses on tourism services, site attractiveness and income-generating enterprises, this output focuses on safeguarding and transmitting intangible knowledge and community practices that support adaptive capacity. Implementation will be led by the Direction Régionale de la Culture, in partnership with a local NGO.

Climate adaptation rationale:

Traditional knowledge and intangible heritage form part of the adaptive capacity of oasis communities. Their erosion weakens community cohesion, reduces intergenerational transmission of locally adapted practices, and diminishes the socio-cultural value of oasis systems. Supporting cultural events and knowledge valorization contributes to adaptation by helping preserve the social foundations that sustain collective action, territorial identity, and locally grounded resilience strategies.

Activities:

- Support for community knowledge-transmission and cultural resilience activities
- Support for annual oasis knowledge and resilience events

- Organization of cultural exchange and adaptation knowledge-sharing events

COMPONENT 3: KNOWLEDGE PRODUCTION, MANAGEMENT, AND DISSEMINATION

Specific objective 3: Improve communication and the evidence base for good practices in climate adaptive management of traditional oases.

Component 3 provides the evidence, knowledge, and dissemination architecture required to sustain and scale climate adaptation in the traditional oases of Tozeur. Its role is not only to communicate project achievements, but to generate structured evidence, support adaptive management, and convert implementation experience into usable knowledge for institutions, local actors, and future programmes. In the revised project logic, this component follows directly from Components 1 and 2: once institutional capacities are strengthened and concrete adaptation investments are implemented, the project must produce, organize, and disseminate knowledge that can improve decision-making and support replication in other oasis systems. This logic is explicitly reflected in the revised description document, which positions Component 3 around knowledge generation, management, and use for adaptive management of climate-resilient oasis ecosystems

Component 3 will also function as a policy-uptake and reporting infrastructure for climate adaptation beyond the project itself. By systematizing evidence from implementation, monitoring climate-resilient oasis management practices, and documenting adaptation results, the component will generate usable inputs for Tunisia's NDC 3.0 implementation, the National Adaptation Plan process, future Adaptation Communications under the UNFCCC, and Adaptation Fund Results Tracker reporting. This will ensure that project knowledge is not limited to communication and visibility, but translated into national adaptation planning, international reporting, and evidence-based replication of oasis resilience measures across Tunisia.

Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems.

This outcome aims to ensure that climate-relevant evidence generated by the project is systematically captured, organized, and used to support adaptive management of oasis ecosystems. It responds to a core weakness in current oasis governance: data and technical knowledge are fragmented, not sufficiently operationalized, and rarely translated into practical decision-support tools for territorial planning, ecosystem management, or replication. The outcome therefore seeks to establish a robust evidence base that supports climate-informed management of traditional oases and strengthens the ability of institutions and local actors to adjust interventions over time.

The outcome is structured around three complementary outputs. First, it establishes a GIS decision-support tool capable of generating spatialized evidence on oasis status and use. Second, it develops public communication tools and knowledge products that translate project results into accessible formats. Third, it documents and disseminates lessons learned and good practices in a systematic way so that adaptation experience can be shared and replicated. Together, these outputs ensure that the project leaves behind not only assets and capacities, but also a durable body of evidence and practical guidance for future adaptation action.

Climate adaptation rationale:

Climate adaptation in oasis systems depends on the ability of institutions and communities to understand evolving risks, monitor ecosystem conditions, identify effective responses, and adapt management decisions accordingly. Without reliable and accessible evidence, adaptation planning remains generic, reactive, and less effective. In a context of increasing water stress, ecosystem degradation, fire risk, and socio-economic pressure, knowledge systems are therefore not ancillary: they are part of the adaptation response itself. Component 3 supports adaptation by strengthening evidence-based planning, improving the use of climate and ecosystem information, and ensuring that lessons generated by the project can inform replication and scaling in other oasis contexts

Output 3.1.1: A GIS decision-support tool for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use.

This output will establish and operationalize a GIS-based mapping and monitoring system for the traditional oases of Tozeur. The system will generate spatialized information on oasis ecosystems and track key indicators related to ecosystem status (including drought, water stress, exposure to fires), resource use, and land management dynamics. Its purpose is to provide a structured and operational evidence base that can support climate adaptation planning, territorial prioritization, monitoring of

change, and more informed management of traditional oasis systems. It will support concrete decisions such as prioritizing oases and plots for irrigation rehabilitation, fire-prevention measures, cleaning campaigns, biodiversity/agrobiodiversity restoration, pilot investments, drainage interventions, and follow-up of abandoned or degraded parcels. The system will be hosted, managed and maintained, for the project duration and beyond, by CRRAO. The output is conceived as a core knowledge infrastructure for the project, directly supporting the planning and adaptive management functions under Components 1 and 2.

The system is expected to capture information that is directly relevant to adaptation decision-making, including the physical status of oasis plots, land use dynamics, ecosystem condition, and other indicators linked to vulnerability and management performance. By making such information spatially explicit and operational, the output will strengthen the technical basis for targeting interventions, identifying degraded or vulnerable areas, and monitoring the effects of adaptation investments over time. It will also provide the mapping and diagnostic basis referred to in Component 1 for the updating of delegation-level adaptation plans. Mechanisms for updating, hosting and utilising knowledge will also be developed. Primary users will include CRRAO, CRDA, the Regional Council, municipalities, delegations, GDAs/SMSAs and relevant technical services. The tool is expected to shift practices from ad hoc or demand-driven interventions toward evidence-based prioritization, periodic monitoring, coordinated planning and more transparent allocation of adaptation investments.

Climate adaptation rationale:

Traditional oases are climate-sensitive socio-ecological systems whose vulnerability varies significantly across sites, plots, and resource conditions. Adaptation planning and management therefore require location-specific, spatially explicit information rather than generic assessments. A GIS mapping and monitoring system is a direct adaptation support tool because it allows institutions to identify where climate risks and ecosystem degradation are most acute, to prioritize interventions more effectively, and to monitor whether adaptation actions are improving resilience. Without such a system, decision-making is less targeted and more vulnerable to inefficiency or maladaptation.

Activities:

- Design and establishment of the GIS mapping and monitoring system
- Identification and integration of key indicators of ecosystem status and use
- Data collection, structuring, and spatialization
- Operationalization and user support

Output 3.1.2: Public communication tools and knowledge products on project results and lessons learned developed and disseminated.

This output will translate project experience, results, and lessons learned into public communication tools and knowledge products that can be used by a broad range of stakeholders. In the revised project logic, once evidence is generated and analytical foundations are in place, the next step is to make that knowledge accessible and actionable. This output therefore focuses on packaging technical and operational knowledge into formats suited to communication, outreach, and public dissemination. The source document identifies examples such as a project website, guides on good adaptation practices in traditional oases, printed communication materials, videos, and beneficiary testimonials.

The output is designed to increase the visibility, usability, and practical reach of project knowledge. It will support dissemination toward different stakeholder groups, including public institutions, local actors, producers, development partners, and the wider public. It also plays a strategic role in making adaptation results more legible and transferable, especially where experience from the project can inform broader climate adaptation efforts in oasis systems.

Climate adaptation rationale:

Adaptation benefits are amplified when technical and practical knowledge is communicated beyond the immediate circle of implementers. In traditional oases, the uptake of climate-resilient practices depends not only on technical capacity but also on awareness, social learning, and access to understandable information. Public communication tools and knowledge products help bridge the gap between project experience and wider adoption. They therefore support adaptation by increasing awareness of climate risks and responses and by making proven approaches more accessible to different users.

Activities:

- Development of a project website and digital communication channels
- Preparation of guides on good adaptation practices in traditional oases
- Production of printed materials, videos, and beneficiary testimonials
- Dissemination of communication and knowledge products

Output 3.1.3: Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.

This output focuses on the systematic documentation, sharing, and dissemination of lessons learned and climate adaptation good practices emerging from the project. It represents the final step in the internal logic of Component 3: after evidence is generated, feasibility is assessed, and communication products are developed, the project must ensure that knowledge is consolidated and circulated in a structured way to support replication. The source document identifies conferences, exchange visits, and similar mechanisms as the core instruments for this output. The output will also ensure that lessons are translated into practical tools, administrative guidance and planning inputs that can be used by technical services and local authorities.

The output is intended to support horizontal learning across actors and territories and to ensure that project experience can inform future interventions in Tozeur and beyond. It will create spaces and processes through which stakeholders can engage directly with project lessons, compare practices, and identify pathways for replication in other traditional oasis contexts. Replication will not be assumed to occur spontaneously: the project will provide targeted accompaniment, training and technical support to services, municipalities, GDAs, SMSAs and other actors wishing to adopt or adapt tested practices. This makes the output central to the scaling ambition of the project.

Climate adaptation rationale:

Adaptation in oasis systems is context-specific, but many practical lessons can be transferred when they are well documented and shared through credible peer-learning mechanisms. Without systematic documentation and dissemination, valuable project experience often remains localized and difficult to replicate. This output addresses that gap by creating a structured pathway from implementation to replication. It contributes to adaptation by accelerating learning, reducing duplication of effort, and making climate-resilient practices more available for uptake in other oasis systems. It will also support the integration of relevant practices into regional development documents, delegation-level planning tools and administrative work programmes, thereby strengthening sustainability beyond the project.

Activities:

- Systematic documentation of lessons learned and good practices

Project experience will be systematically captured and organized to identify lessons learned, effective approaches, and conditions for success or failure. This documentation will cover both technical and organizational dimensions of climate adaptation in oasis systems. It will produce concise, user-oriented replication notes, technical briefs and operational guidance for use by administrations, technical services and local organizations, providing the substantive basis for dissemination and replication.

- Organization of conferences and knowledge-sharing events

Conferences and similar events will be organized to present project results, discuss emerging lessons, and facilitate exchange among stakeholders. These events will create formal spaces for dissemination and dialogue and will help position the project as a source of adaptation knowledge for other contexts. They will include dedicated sessions on how to integrate tested practices into regional and local development planning, public investment programming and sectoral workplans.

- Organization of exchange visits and peer-learning processes
- Training and accompaniment for replication by technical services and local actors
- Dissemination of replication-oriented knowledge

B. Describe how the project provides 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 will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

The proposed project will generate significant economic, social and environmental benefits for vulnerable populations in the Governorate of Tozeur, while strengthening the long-term resilience of traditional oasis socio-ecological systems. The project will directly benefit at least 4,170 individuals, primarily smallholder farmers and their families involved in income-generating activities and enterprises, across 29 targeted traditional oases, and indirectly benefit approximately 55,000 people[83] through improved ecosystem services, strengthened local economies, and enhanced institutional capacity. A particular focus is placed on vulnerable groups, including women, youth, and economically marginalized households, who face disproportionate exposure to climate risks and structural barriers to adaptation.

Economic benefits

The project will generate substantial economic benefits by improving the productivity, stability, and profitability of oasis-based livelihoods under increasing climate stress. Investments in climate-resilient irrigation systems, agricultural practices, and value chains will contribute to stabilizing production systems and reducing climate-related losses. In particular, the introduction of photovoltaic systems for irrigation is expected to reduce energy costs for supported GDAs by at least 20%, while maintaining strict control over water abstraction to avoid unsustainable resource use.

At the household and enterprise level, the project will support at least 600 households and enterprises through climate-resilient livelihood and value-chain interventions, with at least 50% of beneficiaries being women and youth. By the end of the project, at least 500 households or enterprises are expected to report increased or stabilized income as a result of these interventions. In addition, at least 250 new or strengthened enterprises linked to agricultural products and by-products will be supported, contributing to local economic diversification and value addition.

These interventions will enhance the economic viability of oasis systems by increasing the value derived from existing production rather than expanding resource use. Improved commercialization channels, including the establishment of a regional market for oasis products, will further strengthen local economies and reduce vulnerability to climate-induced income fluctuations. The direct economic benefits of the project are further analyzed in Section C (cost-effectiveness).

Social benefits

By improving access to climate adaptation services, training, technical support and local implementation mechanisms, the project will strengthen the resilience of approximately 4,170 direct beneficiaries to climate-related stresses, including drought, heat stress, water scarcity and declining agricultural productivity. These interventions will help vulnerable households and communities better cope with climate-related shocks while strengthening their capacity to adapt to changing environmental conditions.

The project will also strengthen institutional and community-level capacities for climate-resilient management. At least 500 institutional staff and local stakeholders will be trained, with at least 40% women, and at least 30 institutions and local organizations will demonstrate improved capacity to plan, coordinate, and implement climate-resilient oasis management. These improvements are expected to enhance the effectiveness of local governance systems, particularly in relation to water management, service delivery, and adaptation planning.

In particular, the project will support the operationalization of five delegation-level adaptation plans, supporting climate-resilient water and land management systems at territorial level. The participatory approach adopted throughout the project will ensure that local communities are actively involved in decision-making processes, thereby strengthening ownership, accountability, and long-term sustainability of adaptation efforts. By supporting collective action and participatory decision-making,

[83] Direct project beneficiaries include the total number of smallholder farmers in the 29 traditional oases of the Governorate of Tozeur. Indirect project beneficiaries comprise 50% of the total population of the five delegations within the Governorate of Tozeur.

the project is expected to strengthen social cohesion, reinforce community ownership of adaptation processes and help maintain the social and economic viability of oasis communities, thereby reducing some of the drivers of outmigration.

In addition, the project will expand access to training, technical support, and economic opportunities, with targeted measures to improve inclusion of women, youth, and other vulnerable groups. By addressing structural barriers to participation and access to resources, the project will contribute to more equitable development outcomes in the targeted oases.

Environmental benefits

The project will generate significant environmental benefits by improving the resilience and functioning of traditional oasis ecosystems. At system level, the project will directly support integrated climate-resilient management on approximately 100 hectares of pilot areas, while all 29 traditional oases (representing approximately 3,400 hectares) will be covered by climate adaptation planning, mapping and monitoring tools, thereby enabling improved management at system level.

These benefits will be achieved through improved water management, strengthened agro-biodiversity, and the adoption of climate-resilient agricultural practices. The project will contribute to reducing pressure on already overexploited groundwater resources through improved irrigation efficiency, rehabilitation of water distribution systems, reduction of water losses and the promotion of more efficient water use practices. These measures will help improve water productivity while supporting the long-term sustainability of oasis production systems under increasing climate stress.

The project will also support the establishment of five local variety collections and one local seed bank, contributing to the conservation and dissemination of drought-adapted plant material. In parallel, all 29 targeted oases will be assessed for phytosanitary risks, and integrated plant disease management measures will be implemented in pilot areas and supported across the wider territory.

Improved organic waste management will further contribute to environmental resilience through preventive cleaning in at least two oases per delegation and the establishment of a composting and valorization mechanism. These interventions will reduce biomass accumulation, lower fire risks, and improve soil fertility and moisture retention.

By strengthening the ecological functioning of oasis systems, the project will contribute to the restoration and conservation of key ecosystem functions, including soil fertility, vegetation cover, agro-biodiversity and microclimate regulation. Improved management of water resources, support for drought-adapted local varieties, integrated plant disease management and organic waste valorization will help reduce ongoing ecosystem degradation, strengthen the resilience of oasis habitats and maintain critical ecosystem services, including water regulation, soil productivity, and microclimate stabilization. The project will also contribute to the protection of downstream ecosystems such as the Chott Djérid Ramsar site.

Benefits for vulnerable groups and gender considerations

The project has been designed to ensure equitable access to benefits for vulnerable groups, particularly women and youth. Beneficiary targeting and activity design will prioritize these groups, with the objective of increasing their participation in climate-resilient livelihood activities and local governance structures.

A gender analysis conducted during project preparation found that women in Tunisia face limited access to land ownership and loans as only about 5% of women farmers nationwide own a land. Therefore, their capacity to respond to climate change and manage their livelihoods independently is significantly constrained. In addition, they carry a double burden, combining agricultural work with household responsibilities, which increases their workload and stress levels. Ongoing drought conditions, along with restrictive government measures, further constrain women activities and make it difficult for them to access markets and sell their produce and by-products. In the traditional oases of Tozeur Governorate, gender-related barriers may make it harder for local communities mainly women and youth to fully take part in and benefit from climate adaptation activities. These risks include limited access for women to training, resources, agricultural inputs, income-generating opportunities, markets and community decision-making processes, as well as social norms that may restrict their participation in public and economic activities. As a result, many women farmers lack the knowledge needed to adjust their agriculture practices, strengthen resilience, and sustain their incomes. This has informed the design of interventions, ensuring that activities respond to the differentiated needs, roles, and constraints of women and men. The project will support at least 370 households in developing climate-resilient income-generating activities, with at least 80% women and youth among lead beneficiaries.

This comprises 100 individuals/enterprises supported in processing agricultural products, 150 artisans supported and 120 touristic enterprises.

Gender considerations will be operationalized through the project's Gender Action Plan (GAP), which will guide implementation and ensure systematic monitoring of gender-disaggregated results. Where barriers to participation are identified, targeted mitigation measures will be implemented to ensure that women and other vulnerable groups can fully benefit from project interventions.

Avoidance of negative impacts and maladaptation

The project has been designed to avoid negative environmental and social impacts and to prevent maladaptation, in full compliance with the Adaptation Fund Environmental and Social Policy and Gender Policy and UNDP Social and Environmental Standards (SES). Particular attention has been given to potential risks associated with water resource management, social inclusion, and environmental sustainability.

Measures to avoid or mitigate negative impacts include strict compliance with national regulatory frameworks, particularly with regard to water abstraction under the Water Code, and the integration of safeguards into the design of infrastructure investments. For instance, photovoltaic systems for irrigation will be implemented as cost-reduction measures without modifying existing water allocation systems ("tour d'eau"). The intervention will include the installation of volumetric metering, the application of abstraction controls, and institutional oversight mechanisms to ensure that energy savings do not result in increased groundwater abstraction.

Environmental and social risks will be managed through the application of the Environmental and Social Management Framework (ESMF), which provide procedures for screening, assessment, mitigation, and monitoring at output level, such that activities that are associated with environmental or social risks do not commence until the risks have been assessed and measures adopted to eliminate or reduce them. An initial environmental and social screening procedure (SESP) has been applied during project preparation, and further activity-level screening will be carried out during implementation to identify and manage risks as they arise as described in the ESMF.

The project will ensure genuine and continuous participation of local communities in project design, implementation and monitoring, building on established approaches such as community-based participatory planning through implementation of the Stakeholder Engagement Plan (SEP) that has been prepared for the project. This will support inclusive decision-making and reduce the risk of exclusion or maladaptation. Project implementation will also be aligned with local development plans and institutional frameworks to ensure coherence and sustainability.

Targeted technical support will be mobilized for sensitive or specialized areas, including gender integration, irrigation management, and fire prevention and response, to ensure that activities are implemented in line with good practices and do not generate unintended negative impacts.

A project-level grievance redress mechanism (GRM), whose Terms of Reference can be found in the ESMF, will be established and made accessible to all stakeholders, including vulnerable groups, to ensure that concerns can be raised and addressed in a timely manner.

The project will not involve involuntary resettlement and is not expected to generate significant adverse environmental impacts. Overall, all project activities will be implemented in a manner that maintains or enhances the adaptive capacity of both beneficiaries and non-beneficiaries, ensuring that the project contributes positively to long-term climate resilience.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project.

The proposed project is cost-effective because it concentrates a USD 15 million Adaptation Fund investment on a clearly delimited and highly climate-vulnerable oasis system, with quantified benefits across water security, agricultural resilience, energy-cost reduction, livelihood diversification, ecosystem maintenance and institutional capacity. The project targets the 29 traditional oases of the five delegations of Tozeur Governorate, covering approximately 3,400 ha and supporting around 7,600 farmers. These traditional oases represent a high-value adaptation priority because they sustain local livelihoods, ecosystem services and date-based production in a region exposed to rising temperatures, declining rainfall, increasing evapotranspiration and growing water stress.

The project will directly benefit 4,170 people, composed of approximately 3,800 smallholder farmers, representing 50% of all farmers in the 29 traditional oases, and 370 individuals participating in income-

generating activities and enterprise development. In addition, the project will indirectly confer adaptation benefits on approximately 55,000 vulnerable people, equivalent to around 50% of the population of the five delegations of Tozeur Governorate. On this basis, the full grant cost is approximately USD 3,597 per direct beneficiary. When indirect beneficiaries are included, the project reaches approximately 59,170 people, corresponding to an indicative cost of USD 254 per person reached. Expressed spatially, the full grant represents approximately USD 4,412 per hectare of traditional oasis landscape covered.

These ratios are reasonable for an integrated adaptation project combining infrastructure, water-efficiency investments, productive assets, technical assistance, institutional capacity building, safeguards, monitoring systems and livelihood support in a fragile arid-zone ecosystem. The project's cost-effectiveness should therefore be assessed not only through individual beneficiary numbers, but also through the protection and climate-resilient management of a productive oasis landscape that supports agriculture, ecosystem services, local employment, cultural heritage and territorial stability.

The project's cost-effectiveness is strengthened by its focus on recurrent and measurable benefits. Under Output 2.1.1, the project will support climate-resilient irrigation and water-management measures in priority oases, while the results framework will track water-use efficiency through a performance-based metric, namely the reduction of irrigation water intensity in targeted oases. This is more cost-effective than a simple asset-delivery approach because it links investment to reduced water pressure and improved irrigation reliability under climate stress.

For agricultural resilience, the project will establish five integrated pilot parcels, one per delegation, covering approximately 100 ha in total, with around 20 ha per delegation. These pilots will demonstrate integrated adaptation packages including improved irrigation, integrated pest management and agrobiodiversity-related practices. Their cost-effectiveness lies in their catalytic function: the direct physical footprint is 100 ha, but the pilots are designed to reduce adoption risk, demonstrate technical packages under local conditions, train farmers and support replication across the wider 3,400 ha traditional oasis system.

The project also generates cost savings through reduced irrigation energy costs. Photovoltaic support to collective irrigation systems will reduce recurrent electricity expenditure, which is a major financial constraint for GDAs and farmers. Consultation records with ANME indicate that equipping 77 wells/boreholes with mini photovoltaic stations could reduce the energy bill by more than 60%, with an indicative return on investment of 5–7 years. The project's more targeted PV investments are therefore expected to deliver recurrent savings while avoiding maladaptation risks through metering, quotas, abstraction controls, CRDA oversight and public reporting.

The livelihood and enterprise-development measures are also cost-effective because they reduce dependence on climate-sensitive primary date production. The project will support 370 IGA and enterprise-development participants, including women and youth, through agricultural product valorisation, oasis by-product processing, handicrafts and tourism-linked services. These activities are lower-water and less directly exposed to yield shocks than primary agricultural production. Their cost-effectiveness should be measured through enterprise survival, increased or stabilized income, market access, and the share of women and youth among beneficiaries, rather than through asset counts alone.

The project also generates avoided-loss benefits that are difficult to monetize ex ante but are central to cost-effectiveness. Fire prevention and rapid response reduce expected damage to palms, crops, irrigation infrastructure and vegetation cover. Organic waste management reduces fire and pest risks while creating opportunities for composting and soil fertility improvement. Integrated pest management reduces crop-quality losses associated with climate-sensitive pests and diseases. These benefits are particularly relevant because field consultations documented severe water stress, declining borehole yields, damaged irrigation infrastructure, pest pressure, fire risks, and increasing maintenance constraints across several oases.

The project is also more cost-effective than narrower alternatives. A water-only infrastructure project would address immediate water constraints but could increase maladaptation risks if not combined with demand management, GDA capacity, metering and livelihood diversification. A livelihood-only project would reduce income sensitivity but would not address the degradation of water systems, soils, productive assets and oasis ecosystems. A knowledge-only intervention would improve planning but would not deliver concrete adaptation benefits. The selected design combines institutional planning, concrete adaptation investments, productive diversification, environmental safeguards and knowledge systems, thereby increasing the durability and scalability of project benefits.

Quantitative cost-effectiveness summary

Table 10: Quantitative cost-effectiveness summary

Project benefit / output	Quantitative basis	Cost-effectiveness indication	Rationale
Overall direct reach	4,170 direct beneficiaries	USD 3,597 per direct beneficiary	Direct beneficiaries include 3,800 farmers and 370 IGA / enterprise participants
Total population reached	4,170 direct + 55,000 indirect beneficiaries	USD 254 per person reached	Captures wider adaptation benefits across the five delegations
Farmers directly supported	3,800 farmers	50% of all farmers in the 29 traditional oases	Concentrates support on a critical mass of smallholders
Indirect adaptation benefits	55,000 vulnerable people	50% of population of the five delegations	Benefits derive from more resilient water, production, ecosystem and livelihood systems
Landscape coverage	Approx. 3,400 ha of traditional oases	USD 4,412 per ha	Protects an entire traditional oasis landscape rather than isolated plots
Demonstration pilots	5 pilots of 20 ha each; 100 ha total	Catalytic demonstration investment	Tests and demonstrates integrated adaptation packages for wider replication
IGA / enterprise development	370 participants	Output-level cost to be tracked during implementation	Reduces dependence on climate-sensitive agricultural income
Irrigation energy savings	PV-supported collective pumping systems	Energy bill reduction potential above 60% based on ANME consultation	Reduces recurrent irrigation costs and improves GDA financial viability
Water-use efficiency	Reduction in irrigation water intensity in targeted oases	Performance-based adaptation metric	Shifts assessment from infrastructure count to water-efficiency outcome
Fire, waste and pest-risk reduction	Fire response, organic waste management, IPM	Avoided-loss benefits to be monitored	Reduces damage to crops, palms, infrastructure and oasis ecosystem functions

A residual limitation is that some avoided-loss benefits cannot yet be monetized with sufficient reliability, including avoided crop loss, avoided fire damage, reduced plot abandonment, reduced enterprise failure, and avoided degradation of oasis ecosystem services. These benefits will therefore be tracked through the project M&E system using practical indicators such as water-metering data, irrigation water intensity, STEG bills, GDA financial records, enterprise survival rates, farmer adoption surveys, fire incident logs, pest incidence records and GIS-based oasis monitoring. This will allow the project to report cost-effectiveness progressively using both ex ante ratios and implementation-period evidence. We can also add avoided emigration of the youth, improved health and education thanks to increased and more stable revenues for families, and increased overall economic activity in the region, among other longer-term benefits that cannot be monetized at this stage.

D. Describe how the project is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

Given the ecological, economic and social importance of oasis ecosystems in the development of Tunisia's southern governorates, and the marked degradation of their ecological and socio-economic functions, particularly in traditional oases, several national and regional studies, strategies and action plans have identified the preservation and sustainable development of oasis ecosystems as a strategic priority. The proposed project is directly consistent with these priorities, as it aims to strengthen the climate resilience of traditional oases in the Governorate of Tozeur through improved water management, rehabilitation of oasis ecosystems, preservation of biodiversity, livelihood diversification, and strengthened local governance.

Among the most relevant strategic documents, the **Regional Development Plan for Southern Tunisia 2015-2035**[84], prepared by the Ministry of Development, Investment and International Cooperation in cooperation with the Japan International Cooperation Agency (JICA), provides a strategic orientation framework for future five-year regional development plans, programmes and projects in the six southern governorates. In its diagnosis and strategic priorities, the Plan highlights the ecological importance of oases and states that "three-layer agriculture and oasis biodiversity must be conserved through the rehabilitation of facilities and the promotion of collective activities." It also recognizes oases as ecosystems of high economic and heritage value, noting the natural beauty of the Sahara, oasis culture, archaeological heritage and tourism potential of southern Tunisia. The Plan further identifies date production and commercialization as a promising economic sector, stresses the need for integrated and sustainable water management, including the introduction and promotion of water-saving irrigation for more efficient use of groundwater, and calls for the development of alternative tourism, including community-based tourism, ecological tourism and oasis agri-tourism. The proposed project is fully aligned with these priorities through its focus on rehabilitating traditional oasis systems, supporting collective local action, improving water-use efficiency, strengthening the resilience of oasis agriculture and promoting diversified climate-resilient livelihoods.

The project is also closely aligned with the **Strategy and Action Plan for the Sustainable Development of Oases in Tunisia 2015-2024**, prepared in the context of the GEF/World Bank project on the sustainable management of oasis ecosystems in Tunisia[85]. This strategy identifies nine priority axes of intervention: (i) improving oasis governance and involving all stakeholders in strategy implementation; (ii) protecting, integrating and economizing the use of water resources in oases; (iii) rehabilitating and preserving plant and animal biodiversity in oasis ecosystems; (iv) protecting the environment of agricultural and urban oasis areas and improving living conditions; (v) managing and preserving agricultural land, combating desertification and promoting sustainable planning of oasis urban areas; (vi) restoring productivity and maintaining viable and ecological farming systems from a sustainable development perspective; (vii) creating and consolidating income-generating activities and promoting the social and solidarity economy; (viii) rehabilitating and consolidating the heritage, landscape, socio-cultural and tourism values of oases; and (ix) adapting oases to climate change and managing risks. The proposed project contributes directly to these axes by combining ecosystem rehabilitation, water efficiency, biodiversity conservation, improved oasis governance, sustainable productive systems, income diversification and climate risk reduction.

The project is consistent with Tunisia's **Nationally Determined Contribution (NDC3, 2025)**[86] under the Paris Agreement. The NDC identifies adaptation as a national priority and promotes integrated action across agriculture, water resources, ecosystems and biodiversity, and livelihoods. The proposed project contributes directly to several adaptation strategic objectives of the NDC, including promoting climate-resilient and environmentally sustainable agriculture, ensuring sustainable and equitable access to water resources, strengthening the resilience of ecosystems and the goods and services they provide, and supporting resilient regional development, livelihood diversification and the inclusion of women and vulnerable groups. The project also supports the NDC's complementary objectives related to climate risk-informed planning, participatory and gender-responsive adaptation processes, implementation of adaptation plans, and strengthened governance of climate risks and natural resources. Through its integrated approach to water management, oasis ecosystem management, livelihood diversification and local governance, the project contributes directly to the implementation of Tunisia's adaptation agenda.

The project is also consistent with the priorities emerging from **Tunisia's National Adaptation Plan (NAP) process**, which was undergoing final validation in 2025. The NAP identifies water resources, agriculture and food security, ecosystems and biodiversity, and vulnerable livelihoods as key adaptation priorities, while emphasizing territorial approaches, social inclusion, gender equality, strengthened governance and institutional capacity development. Through its integrated approach to climate-resilient water management, oasis ecosystem resilience, livelihood diversification and local capacity strengthening, the project contributes directly to these emerging national adaptation priorities.

The project is further aligned with the **Date Sector Development Strategy 2024-2035**, initiated in 2024 by decision of the Minister of Agriculture, Water Resources and Fisheries following difficulties in date

[84] Available at: https://openjicareport.jica.go.jp/pdf/12246765.pdf
[85] Projet « gestion durable des écosystèmes oasiens en Tunisie, GDEO (2015-2019)
[86] https://unfccc.int/sites/default/files/NDC/2022-08/CDN - Updated -english version.pdfhttps://unfccc.int/sites/default/files/2026-04/Document%20CDN3.0%20-version%20Finale.pdf

commercialization and declining profitability for oasis farmers and producers. Finalized in 2025 through consultation with multiple actors and sectors, the strategy aims to ensure the sustainable development of Tunisian oases through the valorization of the date sector as a flagship product of these ecosystems. Its priorities are structured around three strategic axes. The first axis focuses on improving the efficiency of oasis ecosystems and developing the date value chain *(*including agricultural extension, training and good practices, mechanization, value chain strengthening, product quality, certification and market development, and capacity building of producer organizations*)*. The second axis focuses on the sustainable development of oasis ecosystems and strengthening resilience to climate change *(*including improved water governance and management, use of non-conventional water resources, soil fertility improvement, biodiversity conservation, preservation of three-layer systems, and diversification of livelihoods such as ecotourism and cultural activities*)*. The third axis focuses on improving governance and ensuring the sustainable management of oasis ecosystems *(*including the development of monitoring and evaluation systems, improved data and information on climate vulnerability, and institutional strengthening of governance and support structures*)*. The proposed project is fully aligned with these three strategic axes, as it directly contributes to improving the efficiency and sustainability of oasis production systems, strengthening climate resilience through integrated water, soil and biodiversity management, and reinforcing governance, institutional capacities and knowledge systems. As such, the project operationalizes the key priorities identified in the national strategy and translates them into concrete adaptation actions in the traditional oases of Tozeur.

This project also forms part of UNDP Tunisia's new water portfolio, which is now in an advanced stage of development. Within this framework, the Tozeur adaptation project will stand as one of the flagship initiatives demonstrating integrated, climate-resilient water and ecosystem management.

Together, these strategies confirm that the proposed project operationalizes already identified national and regional priorities for the sustainable development and climate resilience of Tunisian oases. Its focus on the traditional oases of Tozeur is therefore fully consistent with Tunisia's sustainable development, climate adaptation, agricultural, water management, biodiversity and regional development objectives.

In addition to the strategies presented above, the proposed project is also fully consistent with Tunisia's broader policy and strategic framework for sustainable development, climate change adaptation and environmental governance.

The table below summarises the alignment with key national frameworks.

Table 11: Project's alignment with key national frameworks

Policy / Strategy	Key elements	Project alignment
Tunisia Country Strategy 2026-2031[87]	Priority 3 focuses on enhancing regional integration and inclusive development, with objectives to improve equitable access to services, human capital development and sustainable employment, particularly in underserved regions such as the southern oases.	The project contributes directly to reducing regional disparities by strengthening access to climate-resilient livelihoods, capacity building and sustainable economic opportunities in the Governorate of Tozeur.
Fourth National Communication (UNFCCC) (2024)[88]	Provides a clear roadmap for the country's climate action plan from 2022 to 2030. The most relevant aspects are: i) the assessment of vulnerability to climate change impacts and the effectiveness of implemented and yet to be adopted adaptation measures; ii) the overview, and assessment of additional needs in terms of research, awareness, information, and capacity building; and iii) the identified additional needs in terms of governance, funding, and technology transfer.	The project addresses identified needs related to adaptation, institutional capacity, knowledge generation and climate risk management.
National Ecological Transition Strategy[89] **(2024)**	Promotes cross-sectoral and territorial governance, climate resilience, and low-carbon development pathways.	The project operationalizes integrated, cross-sectoral adaptation approaches and strengthens institutional and local resilience capacities.
Development Plan 2023-2025[90]	Recognizes the need for an economic transition in the context of climate change, including adaptation,	The project supports climate-resilient regional development, strengthens sustainable natural resource management in vulnerable areas such

[87] https://www.ebrd.com/content/dam/ebrd_dxp/assets/pdfs/country-strategies/tunisia/tunisia-country-strategy-2026-31.pdf
[88] https://unfccc.int/sites/default/files/resource/Tunisia-4th%20National%20Communication.pdf
[89] National Ecological Transition strategy [Online]. Available: https://climate-laws.org/documents/national-ecological-transition-strategy_97ce
[90] Development Plan 2023-2025 - The Ministry of Economy and Planning [Online]. Available: http://www.mdici.gov.tn/plan-2023-2025-vision-tunisie-2035/

	accelerated transition pathways and sustainable management of natural resources.	as Tozeur, and contributes to adaptation and resilience objectives identified in the plan.
Water 2050 Strategy (2022)[91]	Essential planning tool, enabling Tunisia to ensure its socio-economic development, and to secure the availability and access of its population to water resources by 2050.	The project directly contributes to the objectives of the EAU 2050 Strategy by promoting more efficient, climate-resilient and sustainable water management in traditional oasis systems.
Strategy for Carbon Neutrality and Climate Resilience 2050 (SNBRCC, 2022)[92]	Provides a long-term vision for low-carbon and climate-resilient development. The adaptation objectives and targets identified include vulnerable ecosystems, including oasis systems. It prioritizes integrated resilience pathways across sectors.	The project contributes directly to strengthening the resilience of oasis socio-ecological systems and may generate mitigation co-benefits through improved land management and reduced ecosystem degradation (including wildfire).
Tunisian Constitution (2022)[93]	Refers to the environment, climate, and natural resources in several of its articles. Key aspects established by the Constitution are: i) environmental rights and duties; ii) the principles of sustainable development, intergenerational equity, and non-regression; iii) the right to environmental information and education; iv) the principles of participation, prevention, and the precaution; and v) the polluter pays principle, the principle of repairing environmental damage, and the right of access to justice in environmental matters.	The project operationalizes these principles through participatory governance, sustainable resource management, protection of ecosystems and promotion of social equity, including gender and intergenerational considerations.
Sustainable Development Goals (SDG) Voluntary National Review (2021)[94]	Aligns national development priorities with the 2030 Agenda and confirms national commitment to SDG implementation.	The project contributes to SDGs 2 (food security), 5 (gender equality), 6 (water), 13 (climate action) and 15 (ecosystems), particularly in climate-vulnerable regions.
National Drought Plan (2020)[95]	Focuses on drought risk management, sustainable water use, soil conservation and resilience-building measures. Its objectives include sustainable water use, soil conservation, and resilience-building measures to combat the impacts of drought on Tunisia's ecosystems and communities.	The project contributes to drought adaptation through improved water efficiency, ecosystem restoration and promotion of drought-resilient agricultural practices.
Agricultural Land Management Strategy (2017)	The strategy has five main objectives: i) protecting and regenerating soils; ii) combating soil erosion; iii) using sustainable soil and water management to protect and add value to agricultural land; iv) using runoff and increasing surface, soil and deep-water storage; v) contributing to biodiversity conservation and promoting sustainable environmental management for climate change adaptation.	The project supports soil restoration, sustainable irrigation practices and climate-resilient agricultural systems in oasis environments.
Paris Agreement (ratified 2016)[96]	Global framework for climate mitigation and adaptation under the UNFCCC.	The project contributes to national adaptation efforts and strengthens resilience of vulnerable ecosystems in line with Tunisia's international commitments.

E. Describe how the project 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.

Compliance with the Adaptation Fund Environmental and Social Policy

[91] https://www.onagri.nat.tn/uploads/secteur-eau/1.pdf

[92] https://unfccc.int/sites/default/files/resource/Strat%C3%A9gie%20de%20d%C3%A9veloppement%20neutre%20en%20carbone%20et%20r%C3%A9silient%20-%20Tunisie.pdf

[93] The Tunisian Constitution of 2022. [Online]. Available: http://www.iort.gov.tn/WD120AWP/WD120Awp.exe/CTX_6992-61-uRDFGRXncA/ConstitutionNew/SYNC_-726695577

[94] Voluntary National Report on the implementation of sustainable development goals in Tunisia 2021 [Online]. Available: https://hlpf.un.org/sites/default/files/vnrs/2021/279442021_VNR_Report_Tunisia.pdf

[95] Tunisia - National Drought Plan, 2020 [Online] Available: https://www.unccd.int/sites/default/files/country_profile_documents/Drought_Management_Plan_Tunisia_Final.pdf

[96] Tunisia Ratification of Paris agreement on 10 Feb 2017. [Online]. Available : https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en

The proposed project is aligned with the requirements of the Adaptation Fund Environmental and Social Policy (ESP) and UNDP SES (see Part II: K). The Implementing Entity (UNDP), in coordination with the UGPO-CC and relevant national partners, will ensure that all project activities are screened, designed, implemented and monitored in accordance with the ESP and its Environmental and Social Principles.

An Environmental and Social Management Framework (ESMF) has been prepared (Annex 5) to guide the screening, assessment, mitigation and monitoring of environmental and social risks throughout project implementation. Given that the exact location and technical specifications of certain activities will be finalized during implementation, the ESMF provides the procedures, screening tools and institutional arrangements required to ensure compliance with national regulations, the Adaptation Fund Environmental and Social Policy and UNDP SES.

Environmental and social screening has been conducted during project preparation utilizing the UNDP SESP template, resulting in an overall moderate risk classification. The ESMF will guide the preparation and refinement of site-specific Environmental and Social Management Plans (ESMPs), where required, once detailed technical designs and locations are confirmed.

National technical standards and USP compliance

The project will comply with all relevant Tunisian national technical standards, regulatory procedures, and sector-specific requirements applicable to its activities. These include standards related to:

- environmental impact assessment and environmental protection
- water resource management and groundwater abstraction
- construction and land use planning
- agricultural production and phytosanitary control
- food safety, processing and commercialization
- waste management and environmental hygiene
- energy systems (photovoltaic installations)
- occupational health and safety

Compliance will be ensured through:

- application of national regulatory procedures and technical validation processes
- involvement of competent national institutions (e.g. CRDA, ANPE, ANME, technical agencies)
- integration of technical standards into design specifications, procurement and supervision
- monitoring through the ESMP and project M&E system

For all activities requiring regulatory approval, the project will follow national procedures, including screening, preparation of required documentation, submission to competent authorities, and obtaining the necessary authorizations prior to implementation.

For Outputs 2.2.3, 2.3.1 and 2.3.2, compliance with national technical standards will be verified at sub-project screening stage before approval and disbursement. The ESMP will include a USP screening form covering, as applicable: environmental assessment requirements; food hygiene and product safety standards for agricultural processing; labour and occupational health and safety requirements; child labour prohibition; standards applicable to cosmetic/oil production; construction and rehabilitation permits for small tourism infrastructure; cultural heritage requirements; waste and wastewater management requirements; water-use authorizations where relevant; and municipal or sectoral operating permits. Each sub-project file will document the applicable standards, required authorizations, responsible authority, evidence of compliance, mitigation measures and monitoring requirements.

Environmental impact assessment and regulatory procedures

In accordance with Tunisian legislation, particularly Decree No. 91-362 of 13 March 1991, as amended by Decree No. 2005-1991, all project activities will be screened to determine whether environmental assessment is required.

Infrastructure-related activities (e.g. irrigation systems, boreholes, market construction, composting facilities) will be subject to environmental screening.

Where required, Environmental Impact Assessments (EIAs) or simplified environmental assessments will be prepared and submitted to the Agence Nationale de Protection de l'Environnement (ANPE) for validation.

These assessments will consider potential direct, indirect and cumulative impacts, as well as measures to avoid, minimize or mitigate risks, in line with the Adaptation Fund ESP and UNDP SES.

Infrastructure activities such as boreholes, the regional market construction, the composting facilities, the rapid-response fire hub and tourism and heritage rehabilitation that may trigger national EIA requirements under Decree 91-362 (as amended) will be screened by ANPE to determine the need for EIA studies once the activities have been designed. The required assessments will be conducted and approvals obtained prior to commencing implementation. The time required for environmental screening and clearance procedures will be factored into implementation planning to avoid delays (to be detailed during inception phase).

Summary of applicable national technical standards and compliance

Table 12: National technical standards and project alignment

Project activity area	Applicable national standards / legal framework	Compliance steps and requirements	Responsible authority
Boreholes and irrigation infrastructure (Output 2.1.1)	Law No. 75-16 of 31 March 1975 (Water Code)	Authorization request → validation by competent authorities → supervised implementation → compliance with water abstraction regulations and monitoring requirements	CRDA / CTD
Photovoltaic systems for irrigation (Output 2.2.1)	ANME/STEG technical guidelines for photovoltaic installations	Feasibility study → technical validation → installation according to standards → connection and safety verification → monitoring	ANME / STEG
Construction of infrastructure (market, composting facilities, irrigation works)	Law No. 94-122 of 28 November 1994 (Urban Planning Code)	Design validation → building permit → construction supervision → compliance with safety and planning regulations	Municipalities / regional authorities
Environmental impact assessment (all relevant outputs)	Decree No. 91-362 (1991), amended 2005	Screening → determination of EIA requirement → preparation of EIA (if required) → submission → environmental clearance	ANPE
Agricultural production and climate-resilient practices (Outputs 2.1.2, 2.1.4)	National agricultural technical frameworks; CTD and CRRAO guidelines (if any)	Validation of technical practices → training → supervised implementation → compliance with national recommendations	CRDA / CTD / CRRAO
Plant health and phytosanitary management (Output 2.1.5)	National phytosanitary regulations	Use of approved inputs → compliance with plant protection regulations → training and monitoring	CTD
Organic waste management and composting (Output 2.1.6)	Law No. 96-41 of 10 June 1996 on waste management	Technical and economic feasibility study → Validation of system → training → implementation under environmental standards → monitoring of impacts	Regional Council and CRDA
Food processing, packaging and commercialization (Outputs 2.2.2, 2.2.3)	Law No. 2019-25 on food safety; Law No. 99-30 on organic agriculture (if applicable)	Compliance with hygiene standards → registration/licensing where required → application of labeling and quality standards → possible certification	Regional Council and Regional Trade administration
Market infrastructure (Output 2.2.2)	Urban planning and public infrastructure regulations (Law No. 94-122)	Construction permit → compliance with infrastructure and hygiene standards → monitoring	Regional Council and local authorities
Occupational health and safety (all components)	National labour and safety regulations (Labour Code: Law 66-27 and Decree No. 68-328	Application of safety procedures → supervision of works → training of workers	Relevant authorities / contractors
Gender equality and inclusive participation (all components)	Government Decree No. 2016-626 on Equal Opportunities for Women and Men (2016)	Integration of gender considerations in planning and implementation → inclusive beneficiary targeting → monitoring of gender-disaggregated results → application of gender-responsive procedures	UGPO-CC

Compliance related to agricultural production and supported value chains

The project includes support to agricultural production, processing, and commercialization, which requires compliance with national technical standards.

- Agricultural practices will follow national technical guidance and phytosanitary regulations.
- Processing, packaging and storage activities will comply with Law No. 2019-25 on food safety,

including hygiene, traceability and product handling requirements.
- Supported enterprises and producer groups will comply with applicable registration, licensing, and operational requirements.
- Where relevant, certification schemes such as organic agriculture will follow Law No. 99-30 of 1999.

It should be noted that supported activities are expected to remain small- to medium-scale, and detailed compliance requirements will be defined during implementation depending on the value chains and markets targeted.

Land use, planning and tenure considerations

Project activities involving infrastructure and land-based interventions will comply with the Urban Planning Code (Law No. 94-122 of 1994) and relevant local planning regulations.

- Site selection will be conducted in coordination with local authorities.
- Required land use and construction permits will be obtained prior to implementation.
- No involuntary resettlement is expected under the project.
- Land tenure and authorization procedures will be verified for each intervention site.

Environmental and social risk management and institutional capacity

Environmental and social risks identified during project preparation will be managed through the ESMF, which includes procedures for screening, assessment, mitigation and monitoring of risks, in addition to institutional responsibilities.

UNDP and national implementing partners have the institutional capacity to ensure compliance with both national technical standards, the Adaptation Fund ESP and UNDP SES. Sectoral institutions such as CRDA, CTD, CRRAO and ANME will ensure technical compliance in their respective domains.

F. Describe if there is duplication of project with other funding sources, if any.

A number of ongoing and completed projects in Tunisia, particularly in the southern regions and the Governorate of Tozeur, address climate change adaptation, natural resource management and rural livelihoods. These initiatives have been systematically reviewed during project design to assess potential risks of duplication and identify complementarities.

Overall, the analysis confirms that there is no significant risk of duplication with existing or planned interventions. The proposed project targets traditional oasis systems and the most climate-vulnerable and socio-economically marginalised populations, which are not comprehensively covered by other programmes. At the same time, strong complementarities exist, particularly with infrastructure, value chain and capacity-building initiatives.

The project will ensure continued coordination with relevant stakeholders (ministries, donors, implementing agencies) during implementation, including information sharing, alignment of beneficiary targeting and participation in local coordination mechanisms, in order to avoid duplication and maximise synergies. The Project Management Unit will work in close coordination with relevant national and governorate-level institutions, through Memoranda of Understanding (MoUs) to be established at project start. These institutions will be responsible for executing selected outputs, particularly under Component 2. They include CRDA Tozeur, CRRAO, the Civil Protection Directorate, the Centre Technique des Dattes (CTD), the Tozeur Regional Council, the Ministry of Vocational Training and Employment, the Direction Régionale de l'Artisanat of Tozeur, the Direction Régionale du Tourisme of Tozeur, and the Direction Régionale de la Culture of Tozeur. All these institutions were consulted during the project preparation phase. Detailed discussions were held to ensure that the project's expected results, investments, and activities are aligned with each institution's mandate, technical capacity, work programme, operational priorities, and strategic objectives.

The table below details the potential synergies and risks of duplication with recent and ongoing projects.

Table 13: Analysis of potential duplication and complementarities

Project	Summary	Geographic scope	Duplication risk	Complementarity and synergies
Hydraulic Infrastructure in Southern Oases (Projet d'amélioration de	Large-scale investment in irrigation infrastructure,	37 oases across southern Tunisia, including	**Low:** focuses on large-scale infrastructure, not community-	Strong complementarity: the proposed project builds on infrastructure investments by promoting efficient water use,

l'infrastructure hydraulique des oasis du Sud tunisien) - EBRD[97] (2024-2028)	including rehabilitation of networks, drilling and water management systems	Tozeur	level adaptation	community-based management and climate-resilient practices
Rural Development Project in Tozeur (Projet de développement rural dans le Gouvernorat de Tozeur) - EU/AICS[98] (2018-2026)	Agricultural productivity and livelihood improvements in irrigated perimeters, including water management and livestock production	Tozeur: Hazoua and Tamerza (Dhafria) (mainly modern oases)	**Low:** targets modern oases and different beneficiary groups	Complementary in geographic and thematic terms: the proposed project focuses on traditional oases, while lessons learned (e.g. water management, agricultural practices) will be capitalised
ADAPT Programme (Appui au Développement durable dans le secteur de l'Agriculture et de la Pêche artisanale) - EU/AICS/WFP (2020-2028)	National programme supporting private sector investment, value chains and agricultural development	National	**Low:** targets enterprises with higher technical capacity	Complementary: the proposed project strengthens capacities of vulnerable groups (women, youth), enabling them to later access investment opportunities such as ADAPT
AF Climate changes adaptation project in oasis zones (Projet d'adaptation au changement climatique dans les zones oasiennes (PACC-ZO) - AF (2015-2022)	Restoration of traditional water systems (khettara) and drought adaptation in Moroccan oases	Morocco	**None.** Different country	Complementary: provides relevant technical and institutional lessons for oasis adaptation under similar climatic conditions
GEF Oasis Ecosystem Management Project (Projet de Gestion Durable des Ecosystèmes Oasiens - GDEO) - World Bank (2015-2019)	Pilot interventions on water management, biodiversity, soil restoration, and livelihood diversification in oasis systems	Pilot oases in Tozeur (Tamerza, Chebika, Midès) and other governorates	**None.** (completed project)	Strong complementarity: the project builds directly on tested approaches and lessons learned, scaling up successful practices to a larger number of traditional oases
Towards climate-resilient agriculture and livelihoods in Southern Tunisia – GCF/FAO[99] (under preparation)	Water infrastructure (cisterns, wells and boreholes), watershed management and flood risk reduction in southern Tunisia	Includes parts of Tozeur (e.g. Tamerza)	**Low:** limited overlap in scope and target beneficiaries.	Complementary: focuses on infrastructure and watershed level; the proposed project focuses on ecosystem-based and community-level adaptation. Coordination mechanisms will ensure no duplication of beneficiaries or investments
Integrated Rural Development in Hazoua and Tamerza - Italian Cooperation (2018-N/A)	Participatory development, anti-silting measures, agricultural productivity and income diversification	Hazoua and Tamerza (mainly non-traditional oases)	**Low:** limited overlap with traditional oasis systems	Complementary: provides useful lessons on local development and livelihood diversification applicable to the project

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

Knowledge management and learning are central components of the proposed project and are fully integrated under Component 3: Knowledge production, management, and dissemination. This component is designed not only to communicate project results, but to systematically generate, structure, and disseminate evidence and lessons learned to support adaptive management, replication and scaling of climate-resilient practices in traditional oasis systems.

The specific objective of this component is to improve communication and strengthen the evidence base for good practices in climate-adaptive management of traditional oases. In line with the Adaptation Fund's Results-Based Management framework, the project will systematically capture, analyse and

[97] Acronym: European Bank for Reconstruction and Development (EBRD).
[98] Acronym: Italian Agency for Development Cooperation (AICS).
[99] Acronym: Green Climate Fund (GCF); Food and Agriculture Organization (FAO).

disseminate knowledge generated during implementation. This includes documenting both successful practices and implementation challenges in order to inform ongoing decision-making and future adaptation interventions.

The knowledge management approach is based on three core principles: (i) systematic evidence generation, through tools such as the GIS-based monitoring system and technical feasibility studies; (ii) adaptive management, whereby project implementation is continuously informed by monitoring data, feedback from beneficiaries and lessons learned; and (iii) structured dissemination and replication, ensuring that knowledge generated is translated into actionable formats for a wide range of stakeholders.

Under Outcome 3.1, the project will establish a robust knowledge system for climate-resilient oasis management. This includes: (i) the development of a GIS decision-support tool to generate spatialized data on ecosystem status and resource use; (ii) the production of technical and economic knowledge (e.g. on integrated organic waste management); (iii) the development of communication tools and knowledge products; and (iv) the systematic documentation and dissemination of lessons learned and good practices.

A range of knowledge products and dissemination tools will be developed to ensure wide accessibility and uptake. These include:

- a project website and digital communication channels providing open access to project data, results and tools;
- practical guides on climate-resilient practices in traditional oases;
- policy briefs and technical notes for decision-makers;
- audio-visual materials (videos, photos, beneficiary testimonials);
- knowledge-sharing events such as conferences and workshops;
- exchange visits and peer-learning processes between oasis stakeholders.

These tools will support both knowledge sharing and broader awareness of climate risks and adaptation solutions in oasis systems.

The primary target groups for knowledge dissemination include national and local institutions (e.g. ministries, technical agencies), local authorities, producer organisations (GDAs, SMSAs), farmers and community members, as well as development partners and practitioners working on oasis ecosystems in Tunisia and beyond.

By embedding knowledge generation and learning within project implementation, the proposed project will contribute to building a durable evidence base for climate adaptation in oasis systems. It will also ensure that lessons learned are effectively shared and used to inform future policies, programmes and investments, thereby maximising the project's long-term impact beyond its immediate geographic scope.

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

The proposed project has been developed through an iterative, inclusive and gender-responsive consultative process involving national institutions, regional and local authorities, technical services, research institutions, civil society organizations, community-based organizations, private and family-based enterprises, and representatives of vulnerable groups in the traditional oases of the Governorate of Tozeur. The consultation process was designed to ensure compliance with the Adaptation Fund Environmental and Social Policy and Gender Policy, and to ensure that the concerns, priorities and knowledge of directly affected communities were reflected in the project design.

The consultation process built on earlier work undertaken during the concept note preparation phase, between May and November 2022, when community-level consultations were conducted across the 29 traditional oases of Tozeur. These consultations allowed the project to prioritise the needs of individual oases and select appropriate locations for each intervention, as well as to ground-truth secondary data and generate new primary data to inform project design. During the co-development workshops conducted in September 2022, a structured and participatory approach was applied, organised around four main steps: (i) an introduction phase to clarify climate change concepts, present the vulnerability

assessment results and situate the exercise within the national oasis strategy; (ii) an analysis phase focusing on climate risks, impact chains and sectoral vulnerabilities, including social and gender dimensions; (iii) a preparation phase aimed at identifying and structuring potential adaptation measures in alignment with strategic priorities; and (iv) a project development phase, during which participants contributed to detailing proposed interventions, including their objectives, expected results and scope. This process enabled participants to validate the analysis and actively contribute to the identification and preliminary design of adaptation interventions.

To further refine the project design, an additional field consultation package was carried out in September 2023 across the five target delegations of the Governorate of Tozeur. This phase included 2 workshops as well as 2 focus group discussions (FGDs) per delegations (total 10) with key stakeholders, including smallholder farmers and rural women, who are the main target groups of the project. These consultations helped gather additional data and feedback to strengthen the funding proposal and confirm the relevance of the proposed activities, including in relation to livelihoods, climate change impacts, and gender-differentiated vulnerabilities. The findings contributed to refining the project design, including adjustments to the logframe and prioritisation of community-level adaptation interventions. They also highlighted key needs among beneficiaries, notably for strengthened technical capacities in climate-resilient oasis agriculture, improved irrigation and resource management infrastructure, diversification and strengthening of climate-sensitive livelihoods (including for women), and enhanced capacities of local community-based organisations and institutions to deliver climate-adaptive services and solutions in the Tozeur region.

Annex 13 includes a figure summarizing the consultation timeline for the concept note preparation phase.

Following the transfer of the project from WFP to UNDP as Implementing Entity, the project preparation process was substantially updated. This transition required a full technical review of the WFP-drafted proposal to ensure alignment with UNDP standards, the Adaptation Fund requirements, UNDP Social and Environmental Standards, and gender-responsive programming. Additional consultations were therefore organized by the Ministry of Environment, through UGPO-CC, with UNDP support, to validate and refine the updated project design, particularly the community adaptation sub-projects under Component 2.

Five main rounds of additional consultations were undertaken during the full proposal preparation phase:

First, in October 2025, UGPO-CC, with UNDP support, carried out a field mission in Tozeur to initiate consultations with key regional and local stakeholders and identify community-based adaptation projects for the traditional oases. This mission supported the preliminary identification of community project ideas and enabled discussions on their objectives, target areas, implementation modalities and expected beneficiaries.

Second, in December 2025, a follow-up technical mission was carried out to further define the actions and activities of each proposed community sub-project. The mission included field visits in the target delegations and selected oases, technical meetings with key regional administrations, including agriculture, tourism, handicrafts, culture, civil protection and local authorities, and a final restitution meeting with the Governor of Tozeur and the Regional Director of Development. The December mission also provided qualitative inputs used to validate climate vulnerabilities and contextualize project priorities with local observations and practices.

Third, in March 2026, further local and regional consultations were organized to discuss implementation arrangements, roles of GDAs, SMSAs, communes, local councils, agricultural services, women entrepreneurs, youth entrepreneurs and support institutions. These consultations culminated in a regional validation workshop held at the Governorate of Tozeur on 13 March 2026, during which the preliminary project structure, components, activities and institutional arrangements were presented and validated by regional stakeholders.

Fourth, in May 2026, a national validation workshop was organised by the Ministry of the Environment with representatives of the key ministries and national institutions to review and validate the final project document prior to submission.

Finally, in June 2026, a regional validation workshop was held in Tozeur on 1 June 2026 with 93 participants (76 men and 17 women) to validate the final project document. The consultation process used a combination of methods, including regional workshops, bilateral technical meetings, field visits to target oases and project sites, focus group discussions, community-level meetings, consultations

with GDAs and SMSAs, and meetings with women and youth entrepreneurs. Special attention was given to ensuring that consultations were not limited to institutional actors, but also included smallholder farmers, women artisans, youth entrepreneurs, local associations and community representatives whose livelihoods depend directly on oasis ecosystems.

Gender-responsive consultation methods were applied throughout the process. Consultation meetings were held in May 2026 with the two women's GDAs in the delegation of Tamerza, in order to assess this new experience of women's GDAs and to identify the needs and required support to ensure better guidance and greater involvement of women in implementing resilient good practices aimed at improving productivity and profitability in the oasis ecosystems targeted by the project. During the September 2023 consultation phase, five mixed focus group discussions and five women-only focus group discussions were organized across the five delegations containing traditional oases. Women-only consultations were organized to respect cultural norms and create an enabling environment for women to speak freely. Meetings were held at appropriate times and in accessible locations, often through women's associations or local institutions able to reach diverse groups of women. Female facilitators were used where appropriate. These consultations highlighted differentiated gender roles in agriculture, handicrafts and oasis by-product value chains, women's limited control over land management despite inheritance rights, and the need to create enabling conditions for women to choose and expand their livelihood opportunities.

The figure below summarizes the consultation timeline for the full proposal preparation phase.

Figure 15: Consultation timeline for the full proposal preparation phase



The consultations highlighted that local livelihoods are highly dependent on climate-sensitive activities, particularly date farming, livestock, handicrafts and tourism-related services. Participants consistently identified water scarcity and extreme heat as major constraints affecting agricultural productivity and income stability, alongside broader socio-economic pressures contributing to youth migration. Women participants emphasized their role in handicrafts and the processing of oasis by-products, including aromatic and medicinal plants, while also pointing to limited involvement in agricultural land management. Consultations with local entrepreneurs further identified opportunities for value addition through the development of products derived from dates and palm by-products, as well as small-scale tourism and artisanal activities.

The consultations directly informed the project design in several ways. First, they confirmed the need to prioritize water efficiency, irrigation infrastructure, oasis cleaning, drainage and integrated management of oasis waste. Second, they led to the refinement of community adaptation sub-projects in the areas of climate-resilient oasis agriculture, ecosystem management, valorization of oasis products and by-products, tourism, handicrafts and local entrepreneurship. Third, they reinforced the importance of strengthening GDAs, SMSAs and local support structures so that adaptation services can be delivered locally and sustainably. Fourth, they confirmed the need for targeted support to women and youth, particularly through entrepreneurship, skills development, value-chain support and access to productive opportunities.

The tables in Annex 7 summarize (i) the main consultations undertaken during the updated full proposal preparation phase, and (ii) a detailed list of participants.

Overall, the consultative process confirmed strong local demand for a project that combines concrete adaptation investments, institutional capacity strengthening, and livelihood diversification. The process also confirmed that vulnerability is not homogeneous across oasis communities. Smallholder farmers, women, youth, women-headed households, informal workers, artisans, and communities in more isolated or resource-constrained oases face specific constraints in adapting to climate change. This is consistent with the project's vulnerability analysis, which identifies differentiated vulnerabilities across social groups, locations and economic actors.

The breadth of the consultation process is reflected in the extensive field coverage achieved across the Governorate of Tozeur. Field visits were conducted in all five target delegations and covered the vast majority of traditional oases, including all six oases in Tozeur (Ouassat, Rabbat, Abbes, Hafir, Castilia, Jhim), all three oases in El Hamma El Jerid (El Erg, Ennamlet, Mouhareb), all ten oases in Degache (Sabaa Abar, Mahassen, Ain Torba, Ain Rebah, Bouhlel, El Manechi, Ouled Hmida, Zaouiat Al Arab, Dghoumes Mountain, Tazarit Mountain), four of the six oases in Tamerza (Tamerza, Fom Elkhanga, Mides, El Brik), and two of the four oases in Nefta (Beni Ali and Ras El Ain). This extensive coverage ensured that the project design reflects a wide range of local contexts, constraints and priorities across the oasis system.

During implementation, stakeholder engagement will continue through the Project Steering Committee, a regional consultative mechanism, community-level consultations, participatory planning processes for project activities, beneficiary feedback mechanisms, and the project grievance redress mechanism. Adequate measures will be included to facilitate the participation of vulnerable groups, including women, youth and smallholder farmers, through accessible meeting locations, appropriate timing, use of local institutions and associations, gender-sensitive facilitation, and targeted outreach. Feedback received during implementation will inform activity sequencing, beneficiary targeting, risk management, safeguards monitoring and adaptive management.

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

Overall approach

As demonstrated in the climate rationale and vulnerability analysis sections, climate change constitutes a primary driver of increasing risk in traditional oasis systems in the Governorate of Tozeur, acting as a threat multiplier that exacerbates water scarcity, ecosystem degradation and livelihood vulnerability. Current development trajectories are insufficient to address these systemic and climate-driven risks.

The project therefore focuses on the incremental costs required to address climate-specific risks that are not covered under existing development frameworks, and to transition from business-as-usual management to climate-resilient oasis systems. In line with Adaptation Fund requirements, all activities financed under the project are designed to directly reduce climate vulnerability and/or increase adaptive capacity, and can deliver their intended adaptation outcomes independently of other funding sources.

The full cost of adaptation reasoning is presented below by component, comparing:

- a baseline (business-as-usual) scenario, where current development trends continue without targeted adaptation investment;
- a with-project scenario, where Adaptation Fund resources finance the incremental costs required to respond to climate risks.

Component 1: Institutional capacity building and governance strengthening

<u>Baseline scenario (without Adaptation Fund resources)</u>

Under the baseline scenario, institutional frameworks for oasis management remain fragmented and insufficiently adapted to climate risks. Existing planning processes do not systematically integrate climate projections, vulnerability assessments, or spatially differentiated risk analysis. Adaptation remains weakly operational at delegation and local levels.
Public institutions, GDAs, and local actors face: (i) limited capacity to translate climate information into actionable planning and investment decisions; (ii) weak coordination across sectors critical for adaptation (water, agriculture, ecosystems, local economy); (iii) insufficient organizational and operational capacity to implement collective adaptation actions.

As a result, adaptation efforts remain reactive, uncoordinated, and insufficiently targeted, despite the fact that climate risks in oasis systems are highly localized and dynamic. Without targeted support, existing planning and governance systems will not be able to effectively guide or sustain adaptation interventions.

Additionality (with Adaptation Fund resources)

Adaptation Fund resources will finance the incremental costs required to transform governance systems into climate-resilient systems, including:

- development and operationalization of delegation-level adaptation plans integrating climate projections, vulnerability diagnostics, and prioritized investment pipelines;
- strengthening of cross-sectoral coordination mechanisms for climate-resilient oasis management;
- targeted capacity-building of institutions, GDAs, civil society and local actors to integrate climate risk into planning, service delivery and resource management;
- establishment of local technical support and implementation systems to accompany adaptation actions.

These investments go beyond business-as-usual development:

- planning instruments are explicitly climate-informed, spatially differentiated and investment-oriented;
- capacity-building focuses on climate risk management and adaptation implementation, not generic institutional strengthening;
- governance systems are strengthened specifically to enable the effective targeting, implementation and sustainability of adaptation measures under Component 2.

Without these investments, adaptation actions would remain poorly targeted and ineffective, as climate risks in oasis systems require localized, evidence-based and coordinated responses.

These investments represent incremental adaptation costs, as they directly address climate-induced risks and constraints that are not integrated into existing planning and institutional frameworks, and would therefore not be implemented under business-as-usual conditions.

Component 2: Implementation of community-based adaptation projects in the targeted areas

Baseline scenario (without Adaptation Fund resources)

Under business-as-usual conditions, traditional oasis systems will continue to experience increasing climate stress, including: (i) rising temperatures and evapotranspiration; (ii) persistent water scarcity and groundwater pressure; (iii) degradation of agro-ecosystems and loss of biodiversity; (iv) increasing fire risk and phytosanitary pressures; and (vi) declining agricultural productivity and profitability.

These climate-driven impacts are already affecting water availability, ecosystem functioning and livelihoods in Tozeur

Existing responses remain limited, fragmented, and not systematically climate-proofed. Irrigation systems continue to degrade or operate inefficiently, agro-biodiversity continues to erode, and households remain highly dependent on climate-sensitive agricultural production. Economic diversification opportunities remain insufficient, particularly for vulnerable groups.

As a result, climate vulnerability increases, leading to: (i) higher risks of production instability and land abandonment; (ii) declining household incomes; (iii) increased pressure on natural resources; and (iv) reduced resilience of local socio-economic systems.

Additionality (with Adaptation Fund resources)

Adaptation Fund resources will finance direct adaptation investments that reduce both biophysical and socio-economic vulnerability:

(1) Reduction of biophysical vulnerability:

- climate-resilient irrigation systems improving water access reliability and efficiency under increasing drought conditions;
- strengthening of agro-biodiversity through climate-resilient local varieties;
- adoption of climate-resilient agricultural technologies and practices;
- integrated plant disease management addressing climate-driven pest dynamics;
- organic waste management reducing fire risk and ecosystem degradation.

These measures directly address climate drivers (heat, drought, water stress) and reduce the sensitivity

of oasis production systems.

(2) Reduction of economic vulnerability:

- photovoltaic systems reducing irrigation energy costs while maintaining strict safeguards to avoid increased water abstraction;
- strengthening of value chains and market infrastructure to increase value from climate-constrained production systems;
- support to income-generating activities and entrepreneurship, particularly for women and youth;
- diversification into less climate-sensitive activities (processing, handicrafts, eco-tourism).

These measures are justified as adaptation because they: (i) compensate for declining productivity under climate stress; (ii) stabilize incomes despite increasing climate variability; and (iii) reduce dependence on highly climate-sensitive agricultural production.

For example, investments in market infrastructure and value addition are not intended to increase production volumes, but to increase economic returns from limited and climate-constrained production, thereby strengthening resilience.

(3) Avoidance of maladaptation:

Key investments (e.g. irrigation systems, solar pumping) include safeguards ensuring that efficiency gains do not lead to increased water abstraction, and that adaptation benefits are sustainable over time. Overall, Component 2 represents the core adaptation investment, directly reducing climate vulnerability and strengthening the resilience of oasis socio-ecological systems.

These investments constitute incremental adaptation costs as they specifically address climate-induced risks (water scarcity, heat stress, ecosystem degradation, livelihood instability) and would not be implemented under business-as-usual development pathways.

Component 3: Knowledge production, management, and dissemination

Baseline scenario (without Adaptation Fund resources)

Under the baseline scenario:

- data and knowledge on oasis systems remain fragmented and insufficiently operationalized;
- there is no integrated system to monitor ecosystem conditions or climate impacts;
- adaptation planning remains generic and weakly evidence-based;
- lessons from pilot initiatives are not systematically captured or scaled.

As a result, decision-making remains less targeted, and adaptation investments risk being inefficient or maladaptive.

Additionality (with Adaptation Fund resources)

Adaptation Fund resources will finance the incremental knowledge systems required for effective adaptation, including:

- establishment of a GIS decision-support tool providing spatialized data on ecosystem status and vulnerability;
- generation of technical and economic evidence for key adaptation mechanisms;
- development of knowledge products and communication tools;
- systematic documentation and dissemination of lessons learned and good practices.

These investments are essential to adaptation because they: (i) enable climate-informed and spatially targeted decision-making; (ii) support adaptive management in a context of dynamic and localized climate risks; and (iii) facilitate replication and scaling of effective adaptation practices.

Without such systems, adaptation planning would remain generic, inefficient, and potentially maladaptive. These investments represent incremental adaptation costs, as they directly support climate-informed decision-making and adaptive management processes that are not part of business-as-usual knowledge and planning systems.

Across all components, the project demonstrates that: (i) the baseline scenario is insufficient to address the scale and systemic nature of climate risks affecting oasis systems; (ii) Adaptation Fund resources finance incremental costs specifically required to respond to climate change, and not covered under existing development frameworks; (iii) all activities are directly linked to reducing climate vulnerability and/or increasing adaptive capacity; (iv) the project can deliver its outcomes independently, without reliance on co-financing.

Activities that may resemble development interventions (e.g. infrastructure, training, market support) are fully justified as adaptation measures, as they: (i) respond directly to climate-induced constraints; (ii) reduce sensitivity to climate hazards; (iii) or strengthen adaptive capacity in climate-affected systems.

J. Describe how the sustainability of the project outcomes has been taken into account when designing the project.

The sustainability of project outcomes has been a central consideration in the design of the proposed intervention. The project adopts an integrated approach combining institutional strengthening, capacity development, and concrete adaptation investments to ensure that adaptation benefits are sustained beyond the project lifetime and can be replicated and scaled up.

Institutional sustainability

Institutional sustainability is primarily ensured through Component 1, which strengthens the enabling environment for climate-resilient oasis management.

Under Output 1.1.1, the project will update, validate and operationalize delegation-level climate change adaptation plans, transforming them into practical, investment-oriented tools. These plans will integrate climate risk analysis, prioritized and costed interventions, institutional responsibilities and implementation modalities and indicative financing pathways, ensuring that adaptation becomes embedded in decentralized planning systems rather than remaining project-based. Their sustainability will be strengthened by explicitly linking priority actions to public investment and programming mechanisms, including regional development planning documents, the annual and multi-year programme of the CRDA, municipal and delegation-level development priorities, and future regional climate-finance pipelines. This will provide institutions with a structured basis to mobilize human resources, budget allocations and co-financing for continued implementation after project closure, directly supporting the long-term continuity of adaptation efforts. In parallel, Outputs 1.1.2 and 1.1.4 strengthen the technical, organizational and coordination capacities of public institutions, GDAs, civil society organizations and local actors. These outputs address key structural barriers, including fragmented governance, weak coordination and limited integration of climate risk into decision-making. By equipping institutions and local organizations with operational tools, planning capacities and coordination mechanisms, the project ensures that adaptation interventions can be sustained, replicated and scaled through existing institutional systems.

Environmental sustainability

Environmental sustainability is ensured through Component 2, which promotes adaptation approaches aligned with the ecological functioning of oasis systems.

Under Output 2.1.1, investments in climate-resilient irrigation systems are designed to restore water reliability while improving efficiency and reducing losses, without increasing unsustainable water abstraction. This ensures that water-related adaptation measures remain viable under long-term climate stress.

Under Output 2.1.2, the project strengthens agro-biodiversity through the conservation, multiplication and dissemination of climate-resilient local varieties. This reduces systemic vulnerability by enhancing resilience to drought, heat, salinity and pest pressure, while supporting the long-term functioning of the oasis agro-ecosystem.

These interventions contribute to maintaining key ecosystem services, including soil fertility, microclimate regulation and water-use efficiency, and reducing pressure on water resources, which are essential for sustaining adaptation benefits over time.

Social sustainability

Social sustainability is embedded across Components 1 and 2 through participatory approaches, capacity-building and inclusive targeting.

The project builds on extensive stakeholder consultations and ensures continued engagement of communities, GDAs, local organizations and vulnerable groups throughout implementation. Outputs 1.1.3 and 1.1.4 are particularly critical in this regard, as they strengthen the capacities of households, civil society and local actors to participate in, manage and sustain adaptation interventions.

Output 1.1.3 supports households in developing climate-resilient income-generating activities, reducing dependence on climate-sensitive agriculture and enhancing adaptive capacity at household level. Particular attention is given to women and youth, addressing structural barriers to participation and

strengthening their role in local economic systems.

By fostering strong local ownership, building practical skills, and ensuring inclusive participation, the project increases the likelihood that adaptation measures will be maintained and expanded beyond the project duration, contributing to maintaining populations within traditional oasis systems and their cohesion.

Financial sustainability

Financial sustainability is addressed through the project's catalytic design and its contribution to strengthening local economic systems.

The project's investments under Component 2 improve resource efficiency and productivity (e.g. water use, agricultural practices), thereby reducing recurrent costs and increasing the economic viability of oasis-based activities.

In parallel, Outputs 1.1.2 and 1.1.3 support the development of local service providers, value chains and diversified income-generating activities, contributing to more resilient local economies. This includes strengthening the capacities of private and semi-collective actors (e.g. SMSAs, GIEs, SMEs) to deliver climate-relevant services.

By demonstrating viable adaptation models, strengthening institutional frameworks (Component 1) and generating evidence (Component 3), the project creates enabling conditions for future public and private investment, supporting replication and scaling beyond the Adaptation Fund support. More specifically, the delegation-level adaptation plans and GIS evidence base will be used by the CRDA, municipalities, regional technical services and the Regional Council to integrate priority adaptation investments into annual and multi-year public programming, including CRDA work programmes and regional development planning documents. The project will also identify investment-ready measures that can be submitted to future national and international climate-finance windows, while SMSAs, GIEs and SMEs supported under the project will provide a channel for partial private or semi-collective financing of service delivery, maintenance and income-generating activities. The project will also strengthen the capacity of local stakeholders and beneficiaries to access and leverage existing public investment support schemes and financing mechanisms, such as the Agricultural Investment Promotion Agency (APIA), the Energy Transition Fund, the Entrepreneurship and Professional Integration Support Fund, and other relevant national financing facilities. Where applicable, this will enable beneficiaries to access government grants and incentives, helping to sustain project-financed infrastructure and equipment, while supporting the scaling-up and replication of successful adaptation investments beyond the project lifetime.

Technical sustainability and operation & maintenance (O&M)

The project recognizes that sustainability cannot rely solely on GDAs, many of which face weak technical and financial capacities, indebtedness, and high pumping costs. For this reason, all major investments will be subject to a simple asset-specific O&M and handover plan before commissioning. These plans will define the asset owner, operator, maintenance responsibilities, estimated recurrent costs, spare-part needs, servicing frequency, and post-project financing source.

O&M responsibilities will be formalized through MoUs or handover agreements with the relevant institutions, including CRDA Tozeur, municipalities, GDAs, SMSAs/GIEs, CRRAO, CTD and other sectoral directorates as appropriate. GDAs will be responsible only for functions they can realistically perform, such as local operation, fee collection, basic monitoring and reporting of breakdowns. Technical maintenance will be supported by CRDA services, qualified providers, or delegation-level SMSAs/GIEs where relevant.

For photovoltaic pumping and irrigation systems, part of the savings from reduced electricity bills and/or user contributions will be allocated to a ring-fenced O&M reserve. This will finance preventive maintenance and repairs, while avoiding the risk that lower energy costs lead to unmanaged expansion of water abstraction.

Revenue-generating assets, including the regional market and composting/biomass valorization facilities, will require a basic operating and cost-recovery model before handover. This will specify the management entity, user fees or service charges, recurrent costs, maintenance responsibilities, and financial reporting arrangements. Composting facilities will only be scaled where a viable operator, such as an SMSA, GIE, municipality or private/collective service provider, is identified.

The GIS and knowledge platform will be hosted by a mandated institution, preferably CRRAO through its existing digital environment, with clear arrangements for post-Year 5 hosting, data updates, technical

administration and minimum maintenance costs. Designated staff from CRRAO, CRDA and partner institutions will be trained to maintain and use the platform after project closure.

These arrangements will be monitored through annual project reporting and reviewed at mid-term. This ensures that infrastructure, equipment and digital tools are accompanied by clear institutional, financial and technical arrangements for operation beyond Adaptation Fund financing.

Knowledge management, replication and scaling

Component 3 further strengthens sustainability through knowledge generation and dissemination.

The project will produce operational tools, methodological guides and documented lessons learned, including through the adaptation planning processes under Output 1.1.1. These outputs will support replication of climate-resilient oasis management approaches in other regions of Tunisia.

By combining strengthened institutional capacities (Component 1), demonstrated field-level solutions (Component 2), and structured knowledge dissemination (Component 3), the project establishes a strong foundation for scaling up through future investments and climate finance.

Adaptive management and long-term continuity

Finally, sustainability is supported through an adaptive management approach. The project's monitoring and evaluation system will enable continuous learning, feedback and adjustment of interventions during implementation.

While long-term sustainability will depend on continued institutional commitment and availability of financial resources, the project design significantly reduces these risks by embedding adaptation into planning systems, strengthening capacities at all levels, and supporting economically viable and environmentally sustainable adaptation pathways.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		Infrastructure activities under Component 2 will be screened by the environmental authority to determine the need for national approval and any requested studies will be undertaken accordingly.
Access and Equity		There is a risk that certain groups, particularly women, youth, persons with disabilities, remote communities, or marginalized socio-economic groups, may be unintentionally excluded from participating in or benefiting from project activities. The project might not allow stakeholders to communicate their concerns and have them reviewed through rights-compatible complaints redress processes and mechanisms. Therefore, a Stakeholder Engagement Plan (SEP) has been prepared to ensure transparent and inclusive stakeholder engagement in all project activities. During implementation, a Grievance Redress Mechanism (GRM) will be established to provide an effective channel for local communities and affected populations to raise concerns or grievances regarding activities that may adversely impact them.
Marginalized and Vulnerable Groups		To avoid discrimination against marginalized and vulnerable groups, the SEP and GRM will be implemented throughout the project duration.
Human Rights		The draft adaptation plans will undergo a screening process to evaluate potential economic and social impacts, including any discriminatory effects, to ensure that vulnerable populations are not disproportionately affected. Based on the results of this screening, it will be determined whether a Strategic Environmental and Social Assessment (SESA) is required. In addition, the SEP and GRM will be implemented throughout the project duration to ensure inclusive stakeholder engagement.
Gender Equality and Women's Empowerment		Women face several interrelated risks across the project components that may limit their meaningful participation and equitable access to benefits. There is a risk of limited inclusion of women in institutional decision-making processes, training activities, and capacity-building initiatives due to social norms, time constraints, and potential bias in selection mechanisms. Therefore, a Gender Analysis and Action Plan (GAAP) has been developed for the project to ensure that gender equality considerations are integrated into the implementation and monitoring and evaluation of all planned activities.

Core Labour Rights		• Project activities that may expose workers and field staff to occupational health and safety (OHS) risks will incorporate OHS measures, including the use of appropriate personal protective equipment (PPE), safe use of tools and equipment, and adherence to safety protocols. • Other activities such as pilots will be assessed for OHS risks, with mitigation measures including training, safe operating procedures, approved pesticide use, and appropriate PPE. • Infrastructure activities will be screened for OHS risks, with targeted assessments or ESIAs conducted as necessary and OHS plans integrated into ESMPs.
Indigenous Peoples	-	-
Involuntary Resettlement		Infrastructure activities that may result in economic displacement will be screened to identify potential risks. Based on the screening results, a targeted assessment or ESIA will be conducted where necessary. If impacts on livelihoods or land restrictions are anticipated, a Resettlement Action Plan will be prepared and implemented.
Protection of Natural Habitats	-	-
Conservation of Biological Diversity	-	• The project will prioritize the use of native and locally adapted species to support ecosystem resilience and reduce the risk of introducing invasive alien species. • Mechanization of selected field operations and mechanized pollination will undergo biodiversity impact assessments. Based on the findings, best management practices will be implemented to minimize impacts on biodiversity, pollinator habitats, floral diversity, and soil resources. • Equipment provision, preventive treatment inputs, and integrated plant disease management activities will be screened and assessed for potential impacts on biodiversity. Mitigation measures will include targeted and responsible pesticide use, use of approved products only, farmer training, efficient resource use, and environmentally sound management practices.
Climate Change		• Infrastructure activities will be screened to identify potential climate vulnerability risks and a targeted assessment or ESIA will be conducted where necessary. The resulting ESMP will include proper mitigation measures to reduce the identified risks. • The project will ensure that delegation-level climate adaptation plans are based on robust climate, environmental, and socio-economic assessments and developed through participatory and inclusive consultation processes involving local authorities, technical experts, civil society, and vulnerable groups.
Pollution Prevention and Resource Efficiency		• Infrastructure activities will be screened for pollution risks and, where required, supported by targeted assessments or ESIAs, with mitigation measures incorporated into ESMPs • Activities involving demonstration plots, the pilot farm, crop diversification, and soil fertility enhancement will include pesticide toxicity screening and the implementation of safe handling, storage, and application practices.
Public Health		• Infrastructure activities will be screened to identify potential community health and safety risks. Based on the screening results, a targeted assessment or ESIA will be conducted where necessary.
Physical and Cultural Heritage		• The SEP includes measures to safeguard cultural heritage by ensuring that project activities respect traditional knowledge and do not adversely affect local crafts and artisanal practices. • Infrastructure activities will be screened to assess impacts on cultural heritage. Based on the screening results, a targeted assessment or an ESIA will be conducted.
Lands and Soil Conservation		• Infrastructure activities will be screened for pollution risks and, where required, supported by targeted assessments or ESIAs, with mitigation measures incorporated into ESMPs.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project implementation.

1- Implementing Entity

UNDP will serve as the accredited Multilateral Implementing Entity for the project. In this capacity, UNDP will be accountable to the Adaptation Fund Board for overall project oversight, including project cycle management, fiduciary oversight, monitoring and evaluation support, technical backstopping, quality assurance, risk management, and reporting to the Adaptation Fund. UNDP will ensure that the project is implemented in accordance with the policies and procedures of the Adaptation Fund, including requirements related to environmental and social safeguards and gender equality, financial management, procurement, monitoring, reporting, and evaluation.

As the Multilateral Implementing Entity (MIE), UNDP will provide implementation oversight in full compliance with the Adaptation Fund's policies and guidelines and in accordance with UNDP's accountability, transparency, and fiduciary standards. UNDP has the institutional capacity, systems, and dedicated personnel required to oversee project implementation, with clearly defined roles, responsibilities, and internal controls as established under the UNDP Internal Control Framework (ICF) and the Programme and Operations Policies and Procedures (POPP).

UNDP will undertake regular implementation oversight missions to monitor progress, validate results, supervise project delivery, and ensure compliance with agreed standards. Oversight will be exercised through three complementary levels of monitoring:

1. **Strategic oversight** provided by the Resident Representative, supported by the Country Office senior management team, to ensure overall quality control, compliance, and timely project implementation.
2. **Programmatic oversight** provided by the Team Leader and the Programme Associate of the Climate, Environment, Energy and Disaster Risk Reduction Cluster, through regular monitoring of project activities, outputs, progress, and results.
3. **Financial oversight** provided by the Country Office Programme Finance Specialist, who will monitor financial management, budget execution, fiduciary compliance, and financial reporting.

To fulfil its implementation responsibilities UNDP applies a robust oversight framework based on two complementary lines of defence:

- **First line of defence (Tier 1): Country Office Oversight**. The UNDP Country Office is responsible for delivering Adaptation Fund project cycle management services, including project appraisal and start-up, implementation oversight and supervision, project completion, evaluation, and the Project Assurance function in support of the Project Board/Steering Committee. The Resident Representative has overall accountability for ensuring that the project is implemented in a timely manner, achieves its intended results, and complies with all applicable Adaptation Fund and UNDP policy frameworks.
- **Second line of defence (Tier 2): Corporate oversight**. In addition to the oversight exercised by the Country Office, UNDP provides an independent second layer of oversight through its corporate structures. The Regional Bureau for Arab States (RBAS) ensures that the Country Office implements the project in compliance with UNDP policies, procedures, and corporate requirements. The Bureau for Policy and Programme Support (BPPS) provide technical quality assurance, policy guidance, and oversight to ensure compliance with Adaptation Fund requirements and the application of relevant technical standards throughout project implementation.

2- Executing Entities

The endorsement letter submitted by the country's National Designated Authority (NDA) designates the Ministry of Environment as executing entity.

The Ministry of Environment through the National Climate Change Coordination Unit (UGPO-CC), will be responsible for the execution of the project, working in close collaboration with national and local stakeholders. The Ministry of Environment will leverage its expertise and technical resources to execute the project effectively, ensuring that activities are aligned with national priorities and the needs of local communities. The Ministry of Environment, through the UGPO-CC, will closely coordinate project

implementation with relevant ministries, regional authorities, technical institutions, civil society organizations, community-based organizations, and private sector actors involved in the management and development of traditional oasis ecosystems. This coordination will be particularly important given the cross-sectoral nature of the project, which encompasses climate adaptation planning, water and agricultural resource management, oasis ecosystem resilience, livelihood diversification, entrepreneurship, cultural and heritage dimensions, knowledge management, and local community engagement. To this end, the UGPO-CC will nominate a National Project Director, who will provide strategic guidance, ensure alignment with national priorities, facilitate inter-institutional coordination, and help reinforce national ownership of the project.

The Ministry of Environment through the UGPO-CC will be responsible for: a) managing the day-to-day operations of the project, coordinating with various stakeholders, including technical partners, line ministries, and local communities, to execute project activities as outlined in the project document; b) facilitating engagement with relevant stakeholders at national and local levels, ensuring that their inputs and concerns are integrated into the project's execution; c) providing technical expertise in agriculture, water management, and environmental conservation, leveraging its specialized departments and collaborating with technical partners to address project challenges; d) managing the financial resources allocated for project execution, ensuring transparency and accountability in the use of funds, and providing regular financial reports to the MIE; and e) contributing to the project's M&E processes, ensuring that data is collected, analysed, and reported accurately to assess project progress and impact.

To ensure its execution functions, The Ministry of Environment through the UGPO-CC, has requested UNDP's Tunisia Country Office (CO) to provide execution support for the project. This arrangement is based on a risk-informed assessment of the institutional, operational, and fiduciary capacities required to deliver a complex, multi-year Adaptation Fund project. While the Ministry of Environment, UGPO-CC, retains overall strategic leadership, policy direction, technical oversight, and national ownership of the project, UNDP will provide execution support by leveraging its established country presence, robust operational and fiduciary systems, extensive experience in managing complex development portfolios, and capacity to deliver integrated services in procurement, financial management, contract administration, operational coordination, and results-based monitoring. This management arrangement is intended to ensure the efficient, transparent, and timely delivery of project activities and resources while maintaining national ownership, strengthening institutional capacities, and enabling the Ministry to focus on its strategic, technical, and coordination responsibilities throughout the project cycle.

As executing entity providing execution support services, UNDP will maintain a strict segregation between its implementation function (as outlined above) and the execution functions throughout project lifecycle. To ensure the strict independence required by the AF and in accordance with the UNDP Internal Control Framework (ICF), the execution function will be delivered independently from the AF-specific oversight and quality assurance services.

As per its ICF, necessary provisions have been taken to ensure that a proper segregation of functions between staff providing oversight and staff providing execution is in place at the CO level. The provisions involve, but are not limited to:

Role definition of each personnel involved in the project management cycle: Three lines of authority have been identified, and their respective mandates and prerogatives clearly set up as follows:

- First authority – Project Manager: The first authority, referred to herein as the 'project manager,' has the primary responsibility for managing the resources being spent. This authority approves e-procurement requisitions for purchase order (PO) transactions, requests for non-PO payments for non-PO transactions, and requests for prepayments. This authority equates to the 'committing officer' in UNDP Financial Regulation 20.02 (a).
- Second authority – Approving Manager: The second authority, referred to herein as the 'approving manager,' approves POs, non-PO payment vouchers for non-PO transactions, and prepaid vouchers. This authority equates to the 'verifying officer' in financial regulation 20.02 (a).
- Third authority – Disbursing Officer: The third authority, referred to herein as the 'disbursing officer,' authorizes pending disbursements. This authority equates to the 'disbursement officer' in financial regulation 20.02 (b).

Segregation of duties: According to financial regulation 20.02, UNDP strictly applies the segregation of duties principle to implement an appropriate level of checks and balances upon the activities of

individuals, thereby minimizing the risk of error or fraud and helping to detect errors or fraud. As an example of this principle, UNDP is applying the following:

- Assign staff members only one ERP (Quantum) profile that is consistent with their role
- Segregate the buyer function (procurement management) from staff members who receive the provision of goods, services, or works
- Segregate the bank reconciliation function from staff members who are bank signatories
- Segregate the duties between the human resources administrator, the global payroll administrator and the disbursing officer – payroll
- Segregate the duties of the inventory focal point from the individuals responsible for the physical counting of inventories

Authorities, responsibilities, and accountabilities of each role: the ICF is clearly setting the authorities, responsibilities, and accountabilities for each staff involved in the project management cycle. As such, the staff involved in the oversight functions (as outlined above) will not have any prerogative to perform execution support services.

To ensure the effective delivery of implementation support services throughout the project lifecycle, the UNDP Country Office will mobilize its operational units and corporate service functions to provide specialized operational, administrative, fiduciary and quality assurance support in accordance with UNDP rules, regulations and procedures, as well as the requirements of the Adaptation Fund. These services will include:

- Financial and fiduciary management, including the execution of fiduciary and financial management functions required for project implementation, such as payment processing, budget monitoring and financial control, recording and reconciliation of financial transactions, supplier payment management, financial reporting support, cash flow management, and the application of internal controls to ensure transparency, accountability, traceability and compliance in the use of project resources.
- Procurement and contract management, including procurement planning, support to the preparation and finalization of terms of reference, technical specifications and solicitation documents, management of competitive procurement processes, organization of bid evaluations, contract and purchase order issuance, contract administration, and oversight of the acquisition of goods, works and services required for project implementation, in full compliance with UNDP procurement policies and procedures.
- Human resources management, including the recruitment and administrative management of project personnel and consultants, support to vacancy announcements, application screening, organization of selection processes, contract preparation and administration, payroll and benefits processing, performance management support, and compliance with UNDP human resources policies and contractual requirements.
- Administrative and operational support, including the provision of day-to-day administrative services necessary for project implementation, such as the organization of meetings, workshops, training events, consultations and field missions, travel arrangements and related reimbursements, asset management, records management, and other operational services required to ensure the smooth execution of project activities.
- Grant management, where applicable, for grants awarded to civil society organizations (CSOs) and/or governmental organizations. This support will include the preparation and launch of calls for proposals, support to the evaluation and selection of grantees, preparation and administration of grant agreements, management of grant disbursements, fiduciary oversight and verification of the use of funds, technical and financial monitoring of grant implementation, and consolidation of financial and narrative reports and supporting documentation to ensure compliance, accountability and effective oversight of grant-funded activities.

3- Project Management Unit (PMU):

On behalf of the Ministry of Environment, UNDP Country Office will support the Ministry of Environment to establish a dedicated Project Management Unit (PMU) responsible for providing both substantive technical support for project implementation and day-to-day project management. The PMU will serve as the operational hub for project coordination and execution at national and local levels and will ensure, on behalf of the Ministry of Environment, operational coordination, planning, monitoring, reporting, administrative follow-up, and overall management of project's activities.

The Project Management Unit (PMU) will be composed of: (a) a Senior Project Manager, who will

provide overall strategic, technical and operational leadership for the project and be accountable for its effective implementation. The Senior Project Manager will oversee the planning, execution and monitoring of all project activities, ensure the timely delivery of outputs and achievement of project outcomes, manage project risks and adaptive implementation measures, supervise the PMU, coordinate with executing partners and project stakeholders, and ensure effective inter-institutional coordination. The Senior Project Manager will be responsible for the overall management of project resources, and quality assurance, while ensuring full compliance with Adaptation Fund and UNDP requirements policies, procedures, environmental and social safeguards, and fiduciary standards. The Senior Project Manager will also oversee the preparation of annual work plans and budgets, monitor project performance and expenditure, ensure the timely submission of technical and financial reports, support the functioning of the Project Steering Committee, promote knowledge management and lessons learned, and ensure that gender equality, environmental sustainability and stakeholder engagement are systematically integrated throughout project implementation; (b) a Senior Project Associate, who will provide day-to-day operational, administrative, financial and fiduciary support to the project, monitor implementation progress against approved work plans, track budget execution and expenditures, ensure procurement and contract management processes, ensure compliance with Adaptation Fund and UNDP policies and procedures, maintain project records and collect and consolidate project data; (c) a Logistics Assistant, who will facilitate field operations, coordinate missions, workshops and meetings, manage logistical arrangements, support procurement and asset management, and ensure the timely and effective implementation of project activities; (d) a Communication Associate who will support the implementation of the project's communication and visibility strategy, contribute to project results and success stories' documentation, and ensure compliance with UNDP and Adaptation Fund communication and branding requirements; and (e) a Driver, who will provide safe and reliable transportation for project personnel, consultants and official visitors, support field missions across the project intervention areas, ensure the proper maintenance and servicing of project vehicles, maintain vehicle logbooks and related documentation, and contribute to the efficient delivery of project operations.

In addition to the Project Management Unit, the project will benefit from the full-time support of a dedicated team of technical experts to ensure the high-quality design and implementation of project interventions. This team will include a Climate Change and Environment Specialist, who will provide technical leadership for the implementation of community-based adaptation measures, including the sustainable management of oasis ecosystems, biodiversity conservation, ecosystem restoration, integrated natural resource management, environmental sustainability measures, and climate-resilient livelihood interventions. The specialist will also lead the technical implementation of institutional capacity-building and governance strengthening activities, supporting national, regional and local institutions in enhancing coordination, planning, knowledge management and decision-making for climate-resilient oasis management. A Local Development Specialist will support the design and implementation of community-based adaptation investments, with a particular focus on promoting inclusive local socio-economic development, strengthening community participation, and enhancing the resilience and sustainability of local value chains and livelihoods. In addition, two Rural Engineers will provide technical assistance for the planning, design and implementation of climate-resilient livelihood interventions across the 29 targeted oases, ensuring that investments are technically sound, adapted to local conditions, responsive to community needs, and implemented in accordance with the project's technical standards and climate adaptation objectives.

Co-executing Entities:

Additional project partners will be engaged to support effective project execution, particularly under Component 2 which includes concrete adaptation investments and community-level interventions in the targeted oases. Selected government institutions, as detailed in the table below, will receive project funds through Letters of Agreement (LoAs) to co-execute the activities assigned to them.

Civil society organizations (CSOs) and community-based organizations (CBOs), selected through a competitive call for proposals, will receive funding through Low Value Grants (LVGs) to co-execute their respective project activities.

The agreements concluded with both governmental and non-governmental partners will clearly define the scope of work, expected deliverables, budget allocations, reporting requirements, applicable environmental and social safeguards, fiduciary responsibilities, and accountability arrangements for each participating entity.

Table 14: List and roles of co-executing Entities

Co-executing Entities		Role
CRDA	Commissariat Régional au Développement Agricole	Field implementation of agricultural and water-related activities, supporting climate-resilient oasis management, supervising infrastructure works, providing technical assistance to farmers and GDAs, and ensuring coordination with regional stakeholders.
CRRAO	Centre Régional de Recherche Agricole dans les domaines oasiens	Provide scientific and technical expertise on climate-resilient oasis agriculture, support applied research and demonstration activities, validate innovative adaptation practices, and contribute to knowledge generation and dissemination.
CTD	Centre Technique des Dattes	Provide technical support for climate-resilient date palm production, promote improved cultivation and post-harvest practices, strengthen value chains, support quality improvement and dissemination of good agricultural practices adapted to climate change.
CPD	Civil protection Directorate	Support disaster risk reduction and emergency preparedness, strengthen local capacities for climate-related hazard response (heatwaves and extreme weather events), and contribute to fire early warning and contingency planning.
DRA	Direction Régionale de l'Artisanat	Support the development of climate-resilient livelihood diversification through handicrafts, strengthen the capacities of artisans, promote sustainable value chains and income-generating activities, particularly for women and vulnerable groups
DRC	Direction régionale de la Culture	Promote the preservation and valorization of oasis cultural heritage and traditional knowledge, support awareness-raising activities, and contribute to integrating cultural dimensions into climate adaptation and sustainable oasis management
DRT	Direction Régionale du Tourisme	Support the development of sustainable and climate-resilient oasis tourism, promote ecotourism initiatives, strengthen local tourism value chains, and contribute to livelihood diversification linked to oasis ecosystems.
GDA	Groupement de développement Agricole / Agricultural Development Group	Participate in the implementation and operation of community-based adaptation activities, support local water management and irrigation systems, facilitate beneficiary engagement, contribute to the maintenance of infrastructure, and ensure community ownership and sustainability of project interventions

4- National Project Steering Committee

A National Project Steering Committee will be established by decision of the Minister of Environment. It will serve as the project's highest decision-making and strategic guidance body. The Committee will be co-chaired by the Minister of Environment or his/her representative and the resident representative of UNDP Tunisia country office and will include representatives of the key ministries and authorities involved in project implementation, including the Ministry of Environment, Ministry of Economy and Planning, Ministry of Agriculture, Water Resources and Fisheries, Ministry of Tourism and Handicrafts, Ministry of Family, Women, Children and the Elderly, Ministry of Vocational Training and Employment, Ministry of Industry, Mines and Energy, Ministry of Trade and Export Development, Ministry of Cultural Affairs, Ministry of the Interior, and the Governorate of Tozeur. The PMU will act as the secretariat of the Committee. Representatives of community-based organizations and the private sector from the oases of Tozeur Governorate may be invited to participate as observers, as relevant.

The National Project Steering Committee will meet once a year, or as needed, to review and approve annual work plans, review annual and semi-annual implementation progress reports, provide strategic and policy guidance, ensure alignment with sectoral and territorial development priorities, support the mobilization and engagement of relevant sectors, and make recommendations to improve implementation performance and achievement of expected results. The Steering Committee will also review recommendations and proposals submitted by the Regional Project Advisory Committee to ensure that local-level priorities are reflected in national-level project oversight and decision-making.

5- Regional Project Advisory Committee

A Regional Project Advisory Committee will be established at the level of Tozeur Governorate by decision of the Governor of Tozeur. It will provide regional-level coordination and technical guidance,

to support project implementation. The Committee will be chaired by the Governor of Tozeur and will include representatives of relevant regional institutions, including the Regional Development Directorate, the Regional Agricultural Development Office, the Regional Centre for Agricultural Research in Oasis Environments, the Technical Centre for Dates, the Regional Directorate of Tourism, the Regional Directorate of Crafts, the Regional Directorate of Cultural Affairs, Espace Entreprendre, the National Energy Management Agency, the Regional Project Unit, and the five targeted delegations: Tozeur, Dégache, Nafta, El Hamma, and Tamerza.

The Regional Project Advisory Committee will meet twice per year to review regional implementation progress, provide technical inputs to annual work planning, promote synergies with other regional and local development initiatives, and support the implementation of project activities in the sectors concerned. Minutes and recommendations from Regional Project Advisory Committee meetings will be submitted to the National Project Steering Committee for review and consideration.

6- Local coordination and community engagement

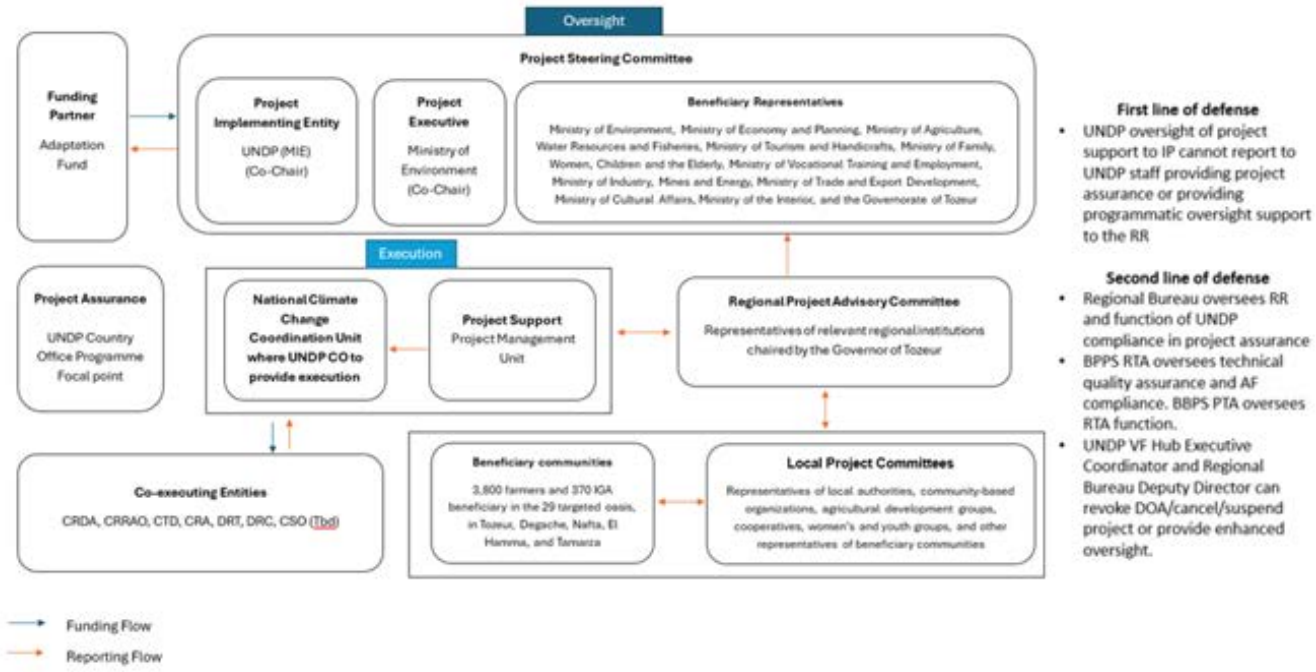
Local coordination mechanisms will be established at delegation and community levels to ensure that project implementation remains participatory, locally grounded, and responsive to the priorities of oasis communities. Local Project Committees will include representatives of local authorities, community-based organizations, agricultural development groups, cooperatives, women's and youth groups, and other representatives of beneficiary communities.

These local mechanisms will support community ownership, participatory planning, beneficiary mobilization, consultation, grievance feedback, and communication between the Regional Project Unit, field facilitators, technical partners, and beneficiaries. They will also help ensure that local knowledge, community priorities, and operational constraints are reflected in the implementation of concrete adaptation activities.

7- Governance structure

The project governance structure presented below establishes the institutional arrangements through which the project will foster collaboration among stakeholders, streamline communication and decision-making processes, ensure compliance with applicable policies and regulations, maintain a clear separation between UNDP's oversight role as the Multilateral Implementing Entity and its project execution functions, and facilitate the efficient allocation and management of resources to achieve the project's objectives.

Table 15: Organigram showing project governance, implementation and execution structures.



B. Describe the measures for financial and project risk management.

Key financial and project risks have been identified during the design phase of the project, building on the initial risk assessment conducted during the first phase of proposal development and updated to reflect the refined project design and implementation arrangements.

In line with Adaptation Fund requirements and UNDP corporate procedures, a comprehensive risk management approach will be applied throughout project implementation. Risks will be systematically monitored, updated and managed through UNDP's internal risk management system (QUANTUM), with formal reviews conducted at least on a semi-annual basis and integrated into Project Progress Reviews (PPRs).

A detailed risk log will be maintained and regularly updated by the Project Management Unit (PMU), under the supervision of UNDP as Implementing Entity. Risk mitigation measures will be operationalized through project components, including institutional capacity building, stakeholder engagement, gender-responsive approaches, and adaptive management mechanisms.

The main risks identified and corresponding mitigation measures are summarized in Table 16 below.

Table 16: Financial and project risk management measures

No	Risk	Type	Probability	Impact	Mitigation measures
1	Non-compliance with Adaptation Fund fiduciary standards	Fiduciary	Low	High	Application of UNDP Programme and Operations Policies and Procedures (POPP); regular financial audits; capacity building of executing entities
2	Misappropriation or misuse of project funds or assets	Financial / Fiduciary	Low	High	Robust financial controls; segregation of duties; regular monitoring and spot checks
3	Financial underutilisation or delays in disbursement	Financial	Medium	Medium	Detailed annual work planning and budgeting; close financial monitoring; adaptive reallocation
4	Economic and market fluctuations affecting implementation costs, profitability of oasis-based livelihoods, and sustainable water management incentives associated with reduced pumping costs	Financial/Economic/Governance	Medium	Medium	Inclusion of contingency margins; phased procurement; prioritisation of local solutions; support to livelihood diversification, value addition, certification and multiple commercialization channels; maintenance of existing "tour d'eau" systems
5	Limited community engagement affecting sustainability	Operational	Medium	High	Implementation of Stakeholder Engagement Plan; participatory planning; awareness-raising
6	Capacity constraints of local institutions	Operational / Institutional	Medium	High	Institutional capacity building; technical assistance; engagement of experienced partners
7	Stakeholder disagreements on site selection or measures	Institutional	Medium	Medium	Transparent criteria-based selection; consultation mechanisms; conflict resolution
8	Weak coordination among implementing institutions	Institutional	Medium	Medium	Project Steering Committee; clear roles; regular coordination meetings
9	Gender inequality limiting participation and benefits	Social	Medium	High	Implementation of Gender Action Plan; gender-sensitive targeting and monitoring
10	Loss of government support or policy changes	Strategic	Low	High	Alignment with national strategies; continuous engagement with government stakeholders
11	Political or institutional instability	Strategic	Low	Medium	Stakeholder diversification; strengthening local ownership; knowledge management
12	Climate variability or localized extreme events causing temporary disruption of field implementation activities and infrastructure works	Environmental / Climate	Medium	High	Climate-resilient design; diversification of measures; flexible scheduling; adaptive implementation planning

13	Prolonged drought and increasing water scarcity affecting irrigation reliability and implementation of oasis adaptation activities	Environmental	High	High	Water-efficient technologies; strengthened water management; irrigation monitoring
14	Climate-sensitive pest and disease outbreaks affecting oasis productivity and planted material survival	Environmental	Medium	Medium	Integrated pest management; farmer training and extension services; monitoring and early response measures; promotion of agro-biodiversity and resilient local varieties
15	Extreme heat, sand and dust storms affecting agricultural productivity, worker health and safety, and operational performance of field activities and photovoltaic systems	Environmental / Climate / Operational	High	High	Climate-adapted work scheduling; occupational health and safety measures; protective equipment; preventive maintenance and cleaning protocols for PV systems; flexible implementation calendars during extreme heat or dust events
16	Progressive salinisation and groundwater stress reducing soil productivity, irrigation efficiency, and long-term viability of oasis production systems	Environmental / Climate	High	High	Promotion of improved drainage, soil organic matter enhancement, salinity-aware irrigation management, climate-resilient local varieties, monitoring of salinity risks, and strengthened groundwater governance measures

In addition, risk management will be embedded in the project's Monitoring and Evaluation (M&E) system. Risks and assumptions will be systematically reviewed during key milestones, including the inception workshop, annual reviews, Mid-Term Review and Terminal Evaluation.

Overall, the combination of strong fiduciary oversight by UNDP, participatory governance mechanisms, and adaptive management approaches is expected to maintain project risks at acceptable levels and ensure successful delivery of project outcomes.

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

An **Environmental and Social Management Framework (ESMF)**, a **Stakeholder Engagement Plan (SEP)**, and a **Gender Analysis and Action Plan (GAAP)** have been completed during the design phase.

Based on the results of additional screening during implementation:

- **A Strategic Environmental and Social Assessment (SESA)** may be undertaken for Output 1.1.1 to evaluate the potential economic, social, and discriminatory impacts of draft climate adaptation plans.
- **Targeted Assessments** or full **Environmental and Social Impact Assessments (ESIAs)** will be carried out for complex moderate-risk infrastructure components, including composting facilities (Output 2.1.6), solar configurations (Output 2.2.1), regional markets (Output 2.2.2), and ecotourism sites (Output 2.3.2).
- Site-specific **Environmental and Social Management Plans (ESMPs)** will be drafted from these assessments, integrating specific Occupational Health and Safety (OHS) plans and Pollution Prevention Plans. If sited near areas used for traditional livelihoods or holding cultural value, the activities will obtain **Free, Prior and Informed Consent (FPIC) from local populations**. Any physical or economic displacement of informal vendors or land users resulting from infrastructure construction will mandate the creation and implementation of a **Resettlement Action Plan (RAP)**.
- **Targeted assessments** for mechanized field operations and mechanized pollination will establish practices to protect ground-nesting pollinators, preserve floral diversity, and ensure the proper hygienic cleaning of machinery to stop the transmission of plant pathogens.
- All field exercises, cleaning campaigns, and construction works will enforce **OHS protocols**, including safety training, the mandatory provision and use of Personal Protective Equipment (PPE), and scheduling field activities to minimize heat stress. Private service providers contracted for waste valorization will also be strictly screened for national labor compliance and

worker rights.

- A **Hydrogeological Assessment** is required prior to drilling replacement shallow boreholes to safeguard local water resources from depletion.
- Interventions involving tourist infrastructure or local crafts will incorporate measures to respect **traditional knowledge systems** and prevent damage to **tangible or intangible heritage**.
- Crop multiplication and diversification activities will strictly prioritize native and locally adapted species to eliminate the risk of **introducing invasive alien species**.
- All **chemical treatments and agricultural inputs** will undergo toxicity screening. The project will ensure only approved pesticides are utilized and enforce safe handling, mixing, storage, and application procedures to prevent environmental contamination.
- A project-level **Grievance Redress Mechanism (GRM)** will be established to provide affected populations with safe, accessible channels to voice complaints.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund

The proposed project will comply with formal guidelines, protocols and toolkits issued by the AF and UNDP, including the Adaptation Fund M&E guidelines and Gender Policy requirements, and the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office in Tunis will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory AF specific M&E requirements will be undertaken in accordance with relevant AF policies.

Proposed project risks and assumptions will be regularly monitored by UNDP, including environmental and social risks and the implementation of associated mitigation measures. Risk assessment and rating is an integral part of the Project Progress Review (PPR). The quality of the project's M&E will also be reviewed and rated as part of the PPR. Appropriate financial parameters will be monitored annually to ensure the cost-effective use of financial resources.

The proposed project will undergo an independent Mid-Term Review at the mid-point of project implementation (after the completion of the second year). The Mid-Term Review will determine progress being made toward the achievement of outcomes and will identify corrective actions if needed. It will: i) focus on the effectiveness, efficiency and timeliness of project implementation; ii) assess project performance with respect to environmental and social risks, including the effectiveness of mitigation measures and any required corrective actions, iii) highlight issues requiring decisions and actions; and iv) document initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for improved implementation during the final half of the project's term.

An independent Terminal Evaluation will take place three months prior to the proposed project's end date in accordance with UNDP guidance. The Terminal Evaluation will focus on the delivery of the project's results as initially planned, and as corrected after the Mid-Term Evaluation, if any such correction took place. The Final Evaluation will assess the impact and sustainability of results, including their contribution to capacity development and the achievement of adaptation benefits, as well as the project's performance in managing environmental and social risks in accordance with the AF Environmental and Social Policy.

An Annual Project Progress Review (PPR) will be prepared to monitor progress made since the project's start and in particular for the previous reporting period. The PPR includes, but is not limited to, reporting on the following:

- progress on the project's objective and outcomes, each with indicators, baseline data and end-of-project targets (cumulative);
- project outputs delivered per project outcome (annual);
- lessons learned/good practice;
- annual Work Plan and expenditure reports;
- project risk and adaptive management, including the status of implementation of any ESMPs, measures taken to avoid, minimize or mitigate risks, and any corrective actions required;
- collection and reporting of sex-disaggregated data, and monitoring of gender-responsive indicators and targets as defined in the project results framework.

Periodic monitoring will be conducted through visits to the intervention sites undertaken by relevant staff from UNDP. Visits will be jointly conducted based on the agreed schedule to assess project progress first hand, including compliance with environmental and social safeguards and gender-responsive implementation. A summary of the M&E costs is provided below.

Table 17: Summary of the M&E costs

M&E item	Amount (US$)	Funding Source
Inception and validation workshops	3,000 per event – (= 6,000)	Project Budget
Project M&E officer / RBM[100] specialist	20,000 per year (=100,000)	IE Fee
Baseline study	30,000	Project Budget
Monitoring missions for Safeguards management framework, gender action plan indicators and grievance mechanism	15,000 per year (=75,000)	IE Fee
Annual PPR preparation support	Covered by PMU	Project Budget
National Gender and Safeguards monitoring Expert	15,600 per year (78,000)	IE Fee
Mid-term evaluation / review	45,000	IE Fee
Final evaluation	55,000	IE Fee
TOTAL M&E	**389,000**	

UNDP, as the Implementing Entity, will utilize its management fee to support the supervision of the M&E function, including quality assurance of reporting, oversight of risk management (including environmental and social safeguards), guidance on compliance with Adaptation Fund policies, and participation in key review processes such as the PPR, Mid-Term Review and Terminal Evaluation.

Routine project monitoring, results-based management, data collection, ESMP and gender monitoring, grievance mechanism monitoring and support to annual reporting are budgeted under project execution costs, within the Adaptation Fund ceiling for execution costs. Independent evaluation and project-cycle oversight functions are covered under the UNDP Implementing Entity fee, in line with Adaptation Fund cost and fee guidance.

E. Include a results framework for the project proposal, including milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund.

The results framework is presented in the table below.

The baseline values and targets indicated in the RF table use the available project design figures. At project start, a baseline survey will be conducted to update and confirm baseline output-level values and targets, especially training participant numbers, income baselines, women/youth participation rates, and current status of assets.

[100] Acronym: Results-based management (RBM).

Table 18: Project's results framework

Results level	AF alignment / core indicator	SMART indicator	Baseline	Mid-term target	End-of-project target	Means of verification	Frequency	Responsible party
Project Objective / Goal: Mainstream cross-sectoral climate change adaptation strategies, training and concrete adaptation projects into the management of traditional oases of the Governorate of Tozeur.	**AF Core Indicator: Number of beneficiaries, direct and indirect**	Number of direct and indirect beneficiaries, disaggregated by sex, age group and delegation	0 project-supported direct beneficiaries	At least 3,800 project participants reached, with sex- and age-disaggregated records; ~25,000 indirect beneficiaries	At least 7,600 direct beneficiaries reached, with sex- and age-disaggregated records; ~55,000 indirect beneficiaries	Beneficiary registry; baseline/endline survey; training records; asset handover records; household survey; MTR and terminal evaluation	Semi-annual aggregation; annual reporting; MTR; final evaluation	PMU / UGPO-CC, UNDP, executing partners
Objective-level indicator	AF impact: increased resiliency at the community, national, and regional levels to climate variability and change.	Number of direct beneficiaries reporting strengthened adaptive capacity to climate change, disaggregated by sex, age group and delegation	0 project-supported beneficiaries reporting strengthened adaptive capacity; baseline adaptive capacity score to be established at inception	At least 2,500 direct beneficiaries report strengthened adaptive capacity, with sex- and age-disaggregated records	At least 5,500 direct beneficiaries report strengthened adaptive capacity, with sex- and age-disaggregated records	Baseline/endline adaptive capacity survey; perception and practice adoption survey; MTR/terminal evaluation; sample verification of adopted practices	Baseline, MTR, final	PMU / M&E specialist, UNDP, CRDA, local survey partner
Objective-level indicator	AF Outcome 2 and Outcome 7: strengthened institutional capacity; policies/plans/regulations promoting resilience	Number of institutions integrating climate risk considerations into formal oasis management frameworks, plans, procedures or investment decisions	0 institutions supported by the project have formally integrated updated climate risk considerations into oasis management frameworks	At least 20 institutions/local organizations have integrated climate risks into plans, procedures or annual workplans	At least 30 institutions/local organizations have integrated climate risks into formal oasis management frameworks, including national, regional, delegation-level and local entities	Validated adaptation plans; institutional workplans; meeting minutes; formal decisions; evidence of budgeted or operationalized measures	Annual	UGPO-CC, CRDA, delegations, municipalities, GDAs/SMSAs, PMU
Objective-level indicator	AF Core Indicator: Natural assets protected or rehabilitated	Area of traditional oasis ecosystems under improved climate-resilient management, including direct pilot implementation and indirect coverage through planning, monitoring and institutional strengthening	0 ha under project-supported improved climate-resilient management	At least 100 ha under direct pilot implementation	At least 100 ha under direct integrated pilot management, and all 29 traditional oases (~3,400 ha) covered by climate adaptation planning, monitoring and management tools	GIS platform; field verification; CTD/CRRAO/CRDA records; project progress reports	Annual	CRDA, CRRAO, CTD, PMU
Objective-level indicator	AF Core Indicator: Increased income, or avoided decrease in income	Number of households or enterprises reporting increased or stabilized income from climate-resilient livelihood activities, disaggregated by sex and age of lead beneficiary	0 project-supported households/enterprises	At least 250 households/enterprises report increased or stabilized income	At least 500 households/enterprises report increased or stabilized income, with at least 50% women/youth among	Baseline/endline income survey; enterprise records; sales records; beneficiary follow-up surveys	Annual; MTR; final	PMU, Espace Entreprendre, local NGOs,

					supported IGA beneficiaries			Regional Directorates
Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems.	AF Outcome 2: strengthened institutional capacity; AF Outcome 7: policies/regulations promoting resilience	Number of institutions and local organizations demonstrating improved capacity to plan, coordinate and implement climate-resilient oasis management	Fragmented institutional capacity; existing plans not fully operationalized	At least 20 institutions/local organizations trained; 5 delegation plans updated in draft	At least 30 institutions/local organizations, including GDAs/SMSAs/CSOs, demonstrate improved capacity; 5 delegation plans validated and operationalized	Capacity assessment reports; pre/post-training tests; validated plans; institutional action plans	Annual	PMU / UGPO-CC, CRDA, municipalities, GDAs
Output 1.1.1: Delegation-level climate change adaptation plans updated, validated and operationalized	AF Output 1.1: risk/vulnerability assessments updated; AF Output 7	Number of delegation-level climate adaptation plans updated, validated and including costed, prioritized, gender-responsive adaptation measures	5 existing plans require updating and operationalization	5 draft updated plans prepared and consulted	5 plans validated and formally operationalized	Final plans; validation workshop reports; endorsement letters; consultation records	Semi-annual until completion	UGPO-CC, CRDA, delegations, municipalities
Output 1.1.2: Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems	AF Output 2.1: staff trained, by gender	Number of institutional staff and local stakeholders trained on climate risk, oasis ecosystem management, water governance, biodiversity and resilient value chains, disaggregated by sex and institution	0 trained under project	At least 250 trained, at least 35% women	At least 500 trained, at least 40% women; at least 80% show improved post-training scores	Training attendance sheets; pre/post-tests; training reports	Semi-annual	PMU, CRDA, CRRAO, CTD, ANME, tourism/culture/artisanat directorates
Output 1.1.3: Capacities of households strengthened to develop and implement climate-resilient IGAs	AF Output 6: diversified livelihoods	Number of households receiving training/coaching to develop climate-resilient income-generating activities, disaggregated by sex and age of lead beneficiary	0 households supported under project	At least 300 households trained/coached; at least 50% women and youth	At least 600 households trained/coached; at least 50% women and youth; at least 70% of supported households have a basic business/adaptation plan	Beneficiary registry; coaching reports; business plans; follow-up surveys	Semi-annual	Espace Entreprendre, local NGOs, PMU
Output 1.1.4: Capacities of civil society organisations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions	AF Output 2.1 Strengthened capacity	Number of CSOs, GDAs, SMSAs or community-based organizations supported to design, implement and manage adaptation initiatives	Organizational capacity weak and uneven	At least 29 organizations assessed and supported	At least 30 GDAs/local organizations and at least 5 SMSA/community service mechanisms supported; at least 10 locally led adaptation proposals prepared	Capacity assessments; coaching reports; organizational plans; project proposal files	Annual	PMU, CRDA, local NGOs
Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and	AF Outcome 4: resilient services/assets; AF Outcome 5: ecosystem resilience	Number of people and hectares benefiting from improved water, agro-biodiversity, fire, phytosanitary,	0 project-supported beneficiaries/assets	At least 2,000 farmers benefiting from improved systems; 100 ha	At least 3,800 participants benefiting; 100 ha pilot area fully operational; targeted	Asset registers; field verification; farmer surveys; CRDA/CTD/CRRAO records	Semi-annual	PMU, CRDA, CTD, CRRAO,

agricultural production systems in targeted traditional oases		waste and climate-resilient agricultural systems		pilot area under implementation	water/fire/IPM[101]/waste assets operational			Civil Protection
Output 2.1.1: Climate-resilient irrigation systems established and operational	AF Output 4: natural assets strengthened	Percentage reduction in irrigation water intensity in targeted oases (% reduction in m^3/ha/year)	Current irrigation water intensity in 29 targeted oases, expressed as m^3/ha/year	At least 10 oases show 20% decrease in water intensity	At least 15 oases show a 20% reduction in irrigation water intensity by project end, while maintaining or improving minimum irrigation service reliability.	Water flow/metering records; field inspections; GDA water distribution logs; CRDA monitoring reports	Annual	CRDA Tozeur, CTD, PMU
Output 2.1.2: Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties	AF Output 5; natural assets protected/rehabilitated	Number of local drought-adapted varieties/collections conserved, multiplied and distributed through project-supported mechanisms	Existing conservation and research capacity, but limited project-supported field adoption	5 local variety collections established; seed bank design completed	5 collections operational; 1 local seed bank operational; drought-adapted date palm, fruit tree, vegetable/fodder varieties distributed and monitored in pilot areas	CRRAO records; seed bank register; nursery/distribution records; field monitoring	Semi-annual	CRRAO, CTD, PMU
Output 2.1.3: Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level	AF Output 4 : resilient infrastructure/services/assets	Number of local/delegation-level fire prevention and response units or hubs equipped and operational	Limited project-supported rapid response capacity	At least 3 local response units trained/equipped	At least 5 delegation-level or local fire response mechanisms operational, including at least 1 decentralized rapid response hub	Civil Protection records; equipment inventories; training reports; incident response logs	Semi-annual; after incidents	Regional Civil Protection, CRDA, GDAs
Output 2.1.4: Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	AF Output 5: natural assets strengthened	Area of pilot parcels implementing integrated climate-resilient agriculture packages; number of farmers adopting at least two promoted practices	0 ha under project pilot packages	At least 50 ha equipped/under implementation; at least 100 farmers trained	At least 100 ha across 5 grouped pilot parcels, one per delegation, operational; at least 300 farmers trained; at least 60% of pilot farmers adopting at least two practices	CTD monitoring; parcel records; farmer adoption surveys; field verification	Semi-annual	CTD, CRDA, GDAs
Output 2.1.5: Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management system	AF Output 5: natural assets strengthened	Number of oases covered by phytosanitary diagnosis and integrated pest/disease management support	No project-supported IPM system	Phytosanitary inventory completed in 5 delegations; IPM launched in pilot oases	29 targeted oases assessed; IPM measures implemented in pilot oases and preventive materials/training provided across targeted oases	CTD phytosanitary reports; IPM treatment records; training records; farmer surveys	Seasonal; annual synthesis	CTD, CRDA
Output 2.1.6: Integrated organic oasis waste management mechanism established at governorate level, and operational at	AF Output 5: natural assets strengthened	Number of oases and service mechanisms covered by organic waste cleaning, collection, composting and valorization systems	Biomass/waste accumulation unmanaged by project	Pilot cleaning campaigns in at least 5 oases; composting site design/launch	Preventive cleaning in at least 2 oases per delegation; one composting/valorization mechanism operational; at least one	Cleaning campaign reports; composting records; waste volumes; service provider records	Semi-annual	Regional Council, CRDA, SMSAs/GDAs, private operator

[101] Acronym: Integrated Pest Management (IPM).

delegation and oasis levels					private/SMSA-based service provider supported			
Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access	AF Outcome 6; core indicator: increased income or avoided decrease in income	Number and percentage of targeted households reporting improved or stabilized climate-resilient income sources, disaggregated by sex and age of lead beneficiary	0 project-supported households	At least 300 households/enterprises supported; at least 50% women/youth for IGA measures	At least 600 households/enterprises supported; at least 50% women/youth; at least 60% report increased or stabilized income relative to baseline	Baseline/endline household income surveys; enterprise records; sales records; beneficiary registry	Annual; MTR; final	PMU, Espace Entreprendre, Regional Council, NGOs
Output 2.2.1: Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	AF Output 6: community livelihood strengthened	Number of collective/community wells or pumping stations equipped with PV/energy efficiency systems and volumetric monitoring; percentage reduction in energy cost for supported GDAs	0 project-supported PV systems; high energy costs and GDA debt risk	Feasibility completed; at least 25% of targeted systems installed; metering protocol operational	All selected collective/community pumping systems installed and monitored; average energy cost reduction of at least 20% for supported GDAs; no increase in abstraction volumes beyond quotas	Feasibility studies; installation reports; STEG bills; water metering records; CRDA monitoring	Quarterly first year after installation; annual	Regional Council, CRDA, ANME, STEG
Output 2.2.2: A regional market for oasis products established, equipped and operational, improving the valorization and commercialisation of date products	AF Output 6: livelihood assets strengthened	Regional market established and operational; number of producers using market services, disaggregated by sex and age	No project-supported regional market	Construction/equipment at least 50% completed	1 regional market operational; at least 300 producers/SMEs use market services annually, with sex-disaggregated records	Works completion certificate; market management records; user registry; sales data	Quarterly during establishment; annual after launch	Regional Council, Ministry of Commerce, PMU
Output 2.2.3: New climate-resilient IGAs developed and operational through improved valorization and commercialisation of agricultural products and by-products	AF Output 6: livelihood assets strengthened	Number of new or strengthened agricultural product/by-product enterprises supported, disaggregated by sex and age of owner/manager	0 project-supported enterprises	At least 70 enterprises/projects supported; at least 80% women/youth	At least 100 enterprises/projects supported; at least 80% women/youth; at least 60% operational 12 months after support	Enterprise registry; equipment records; certification records; sales/fair participation reports	Semi-annual	Espace Entreprendre, local NGO, PMU
Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources	AF Outcome 6; AF Outcome 5; AF Outcome 3	Number of beneficiaries generating income from climate-resilient handicrafts, eco-tourism, cultural heritage and oasis by-product valorization, disaggregated by sex and age	0 project-supported beneficiaries	At least 180 beneficiaries supported; at least 80% women/youth	At least 270 beneficiaries supported; at least 80% women/youth; at least 10 collective/local initiatives operational	Beneficiary registry; enterprise records; tourism/cultural event records; household survey	Semi-annual	Regional Directorates of Artisanship, Tourism, Culture; NGOs; PMU
Output 2.3.1: Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating	AF Output 6: livelihood assets strengthened	Number of women and youth artisans supported in oasis by-product value chains	0 project-supported artisans	At least 100 artisans supported; at least 80% women	At least 150 artisans supported; at least 80% women; at least 4 product lines supported	Artisan registry; equipment handover; training records; sales/fair records	Semi-annual	Regional Directorate of Artisanship, NGO

activities based on oasis by-products valorization								
Output 2.3.2: Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	AF Output 6: livelihood assets strengthened	Number of climate-resilient cultural/eco-tourism sites or service enterprises supported	0 project-supported sites/enterprises	At least 4 sites/services under rehabilitation and 80 enterprises supported	At least 8 sites/services/enterprises operational across targeted delegations; at least 120 enterprise beneficiaries (80%women/youth)	Works records; tourism service registry; visitor/user records; enterprise reports	Semi-annual	Regional Directorate of Tourism, municipalities, NGO
Output 2.3.3: Intangible heritage and traditional knowledge documented, preserved and actively valorized through cultural events and local initiatives	AF Output 3: adaptation and risks reduction awareness activities	Number of cultural events, knowledge products and local initiatives documenting/valorising oasis heritage and adaptation knowledge	0 project-supported initiatives	At least 10 annual/local cultural events supported; documentation methodology completed	At least 20 events over project period; at least 10 knowledge products/documentation outputs; participation sex- and age-disaggregated	Event reports; media outputs; documentation products; attendance lists	Annual	Regional Directorate of Culture, NGO, PMU
Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems	AF Outcome 1: risk/vulnerability information; AF Outcome 3: awareness	Number of institutions and users accessing and applying climate/oasis data, tools, lessons and good practices	Fragmented data; no operational project-supported platform	GIS/monitoring platform prototype operational	GIS/data platform operational; evidence used in 5 delegation plans and annual project adaptive management	Platform analytics; user records; knowledge products; meeting minutes	Semi-annual	CRRAO, PMU, UGPO-CC, CRDA
Output 3.1.1: A GIS decision-support tool for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use	AF Output 1.1: risk/vulnerability assessments updated	GIS and monitoring system operational, covering 29 traditional oases and key indicators of ecosystem status/use	Existing data fragmented and not fully updated	Platform architecture developed; at least 15 oases mapped	29 oases mapped and monitored; annual updates produced	GIS database; maps; monitoring reports; data-sharing protocols	Annual	CRRAO, CRDA, CNCT if involved, PMU
Output 3.1.3: Public communication tools and knowledge products on project results and lessons learned developed and disseminated	AF Output 3: adaptation and risks reduction awareness activities	Number of communication tools/knowledge products produced and disseminated; number of people reached, disaggregated where possible	0 project-supported tools	At least 10 tools/products produced; 2,000 people reached	At least 25 tools/products produced; 10,000 people reached through website, videos, guides, printed materials and events	Website analytics; publication records; media tracking; distribution lists	Semi-annual	PMU, UGPO-CC, communications partners
Output 3.1.4: Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication	AF Output 3: adaptation and risks reduction awareness activities	Number of good practices documented and replication/exchange events conducted	0 project-supported good practice notes/events	At least 5 good practice notes and 3 exchange events	At least 10 good practice notes, 5 exchange missions, and 3 regional/national learning events completed	Event reports; exchange mission reports; good practice briefs; participant lists	Annual	PMU, UNDP, UGPO-CC, CRRAO/CTD

F. Demonstrate how the project aligns with the Results Framework of the Adaptation Fund

The table below presents the alignment between the project's objective and outcomes and the Adaptation Fund Results Framework. Output level alignment is presented in Annex 11.

Table 19: Results Framework Alignment Table

Project Objective(s)	Project Objective Indicator(s)	AF Fund Outcome/Output	AF Fund Outcome/Output Indicator
Objective: Mainstream cross-sectoral climate change adaptation strategies, training and concrete adaptation projects into the management of traditional oases of the Governorate of Tozeur	Number of direct and indirect beneficiaries, disaggregated by sex, age group and delegation	**AF Impact:** Increased resiliency at community, national and regional levels	Number of beneficiaries, direct and indirect
Outcome 1.1 Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems	Number of institutions and local organizations demonstrating improved capacity to plan, coordinate and implement climate-resilient oasis management	**AF Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses **AF Outcome 7:** Improved policies and regulations that promote and enforce resilience measures	**2.1** No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks **7**. Climate change priorities are integrated into national development strategy
Outcome 2.1. **Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases**	Number of people and hectares benefiting from improved water, agro-biodiversity, fire, phytosanitary, waste and climate-resilient agricultural systems	**AF Outcome 4:** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability **AF outcome 5:** Increased ecosystem resilience in response to climate change and variability-induced stress	**4.2** Physical infrastructure improved to withstand climate variability and change **5** Ecosystem services and natural assets maintained or improved
Outcome 2.2. Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access	Number and percentage of targeted households reporting improved or stabilized climate-resilient income sources, disaggregated by sex and age of lead beneficiary	**AF Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	**6.1** % households with increased access to livelihood assets
Outcome 2.3 Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources	Number of beneficiaries generating income from climate-resilient handicrafts, eco-tourism, cultural heritage and oasis by-product valorization, disaggregated by sex and age	**AF Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas **AF Outcome 5:** Increased ecosystem resilience in response to climate change and variability-induced stress **AF Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**6.2** % population with sustained climate-resilient livelihoods **5.** Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress 3.2. Modification in behaviour of targeted population
Outcome 3.1 Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems	Number of institutions and users accessing and applying climate/oasis data, tools, lessons and good practices	**AF Outcome 1:** Reduced exposure at national level to climate-related hazards and threats **AF Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**1**. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis **3.1** % of targeted population aware of climate impacts and responses

G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

Total Budget and Work Plan

PIMS ID		Quantum Business Unit	
Quantum Project ID		Quantum Project Title	
Quantum Award ID		Quantum Award Title	
Implementing Partner			

Quantum Outcome (AF Components)	Quantum Output (AF Outcomes)	Quantum Activity (AF Outputs)	Quantum Responsible Party (UNDP, IP, or Responsible Party)	Quantum Fund ID	Quantum Donor ID	Quantum Budgetary Account Code	Quantum Budget Account Description	2027	2028	2029	2030	2031	Total (USD)	BUDGET NOTES
COMPONENT 1: INSTITUTIONAL CAPACITY BUILDING AND GOVERNANCE STRENGTHENING	*Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems*	*Output 1.1.1: Delegation-level climate change adaptation plans updated, validated and operationalized*	*UGPO-CC (UNDP Direct Project Services Support)*	*62040*	*11602*	*72100*	Contractual Services-Companies	80,000.00	50,000.00	-	-	-	130,000.00	1
			UGPO-CC (UNDP Direct Project Services Support)			*75700*	Training, Workshops and Confer	10,000.00	10,000.00	-	-	-	20,000.00	2
			UGPO-CC (UNDP Direct Project Services Support)			*71600*	Travel	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	12,500.00	3

			UGPO-CC (UNDP Direct Project Support Services Support)			*71400*	Service Contracts-Individuals	12,425.00	12,425.00	12,425.00	12,425.00	12,425.00	62,125.00	4
		Total Output 1.1.1						104,925.00	74,925.00	14,925.00	14,925.00	14,925.00	224,625.00	
		Output 1.1.2: Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*72100*	Contractual Services-Companies	50,000.00	60,000.00	50,000.00	-	-	160,000.00	5
			UGPO-CC (UNDP Direct Project Support Services Support)			*71300*	Local Consultants	42,000.00	42,000.00	42,000.00	42,000.00	42,000.00	210,000.00	6
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	50,000.00	7
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	12,500.00	8

Total Output 1.1.2						104,500.00	114,500.00	104,500.00	54,500.00	54,500.00	432,500.00	
Output 1.1.3: Capacities of households strengthened to develop and implement climate-resilient income-generating activities	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*71200*	International Consultants	25,000.00	25,000.00	25,000.00	25,000.00	20,000.00	120,000.00	9
	UGPO-CC (UNDP Direct Project Support Services Support)			*71300*	Local Consultants	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	150,000.00	10
	UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00	125,000.00	11
	UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	12,500.00	12
Total Output 1.1.3						82,500.00	82,500.00	82,500.00	82,500.00	77,500.00	407,500.00	
Output 1.1.4: Capacities of civil society organizations and	*UGPO-CC (UNDP Direct Project Support Services*	*62040*	*11602*	*71200*	International Consultants	40,000.00	40,000.00	-	-	-	80,000.00	13

		local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions.	*Support)*										
			UGPO-CC (UNDP Direct Project Support Services Support)			*71300*	Local Consultants	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	150,000.00	14
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	12,500.00	15
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	100,000.00	16
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	100,000.00	100,000.00	113,853.00	-	-	313,853.00	17
		Total Output 1.1.4						192,500.00	192,500.00	166,353.00	52,500.00	52,500.00	656,353.00	
	Total Outcome 1.1							484,425.00	464,425.00	368,278.00	204,425.00	199,425.00	1,720,978.00	
Total Component 1								**484,425.00**	**464,425.00**	**368,278.00**	**204,425.00**	**199,425.00**	**1,720,978.00**	

COMPONENT 2: IMPLEMENTATION OF COMMUNITY-BASED ADAPTATION PROJECTS IN THE TARGETED AREAS	*Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases.*	*Output 2.1.1: Climate-resilient irrigation systems established and operational*	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*72100*	Contractual Services-Companies	100,000.00	220,000.00	250,000.00	180,000.00	130,000.00	880,000.00	18
			UNDP			*72600*	Grant	40,000.00	40,000.00	40,000.00	40,000.00	40,000.00	200,000.00	19
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	50,000.00	50,000.00	-	-	100,000.00	20
			UGPO-CC (UNDP Direct Project Support Services Support)			*71300*	Local Consultants	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	150,000.00	21
			UGPO-CC (UNDP Direct Project Support Services Support)			*71400*	Service Contracts-Individuals	75,109.00	75,109.00	75,109.00	75,109.00	75,109.00	375,545.00	22
		Total Output 2.1.1						245,109.00	415,109.00	445,109.00	325,109.00	275,109.00	1,705,545.00	
		Output 2.1.2: Drought-adapted local agro-biodiversity	*UGPO-CC (UNDP Direct Project Support Services*	*62040*	*11602*	*72100*	Contractual Services-Companies	25,000.00	25,000.00	-	-	-	50,000.00	23

		strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).	*Support)*											
			UNDP			*72600*	Grant	40,000.00	40,000.00	40,000.00	40,000.00	-	160,000.00	24
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	60,000.00	50,000.00	50,000.00	50,000.00	-	210,000.00	25
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	30,000.00	50,000.00	50,000.00	50,000.00	-	180,000.00	26
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	-	15,000.00	-	15,000.00	-	30,000.00	27
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	2,000.00	4,000.00	6,000.00	6,000.00	2,000.00	20,000.00	28
		Total Output 2.1.2						157,000.00	184,000.00	146,000.00	161,000.00	2,000.00	650,000.00	
		Output 2.1.3: Logistical and	*UGPO-CC (UNDP Direct Project*	*62040*	*11602*	*72100*	Contractual Services-Companies	24,000.00	24,000.00	-	-	-	48,000.00	29

		technical capacities for rapid response to oasis fires strengthened and operational at delegation level.	*Support Services Support)*											
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	25,000.00	25,000.00	-	-	50,000.00	30
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	-	25,000.00	25,000.00	-	-	50,000.00	31
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	-	-	15,000.00	-	-	15,000.00	32
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	2,500.00	2,500.00	2,500.00	2,500.00	2,000.00	12,000.00	33
		Total Output 2.1.3						26,500.00	76,500.00	67,500.00	2,500.00	2,000.00	175,000.00	
		Output 2.1.4: Climate-resilient agricultural technologi	*UNDP*	*62040*	*11602*	*72600*	Grant	40,000.00	40,000.00	30,000.00	30,000.00	30,000.00	170,000.00	34
			UGPO-CC (UNDP Direct			*72100*	Contractual Services-Companies	30,000.00	20,000.00	-	-	-	50,000.00	35

		es and practices implemented and demonstrated in pilot oases, with increased adoption by farmers.	*Project Support Services Support)*											
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	100,000.00	130,000.00	20,000.00	-	250,000.00	36
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	5,000.00	40,000.00	80,000.00	55,000.00	45,000.00	225,000.00	37
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	-	5,000.00	15,000.00	20,000.00	10,000.00	50,000.00	38
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	5,000.00	5,000.00	2,500.00	2,500.00	5,000.00	20,000.00	39
		Total Output 2.1.4						80,000.00	210,000.00	257,500.00	127,500.00	90,000.00	765,000.00	
		Output 2.1.5: Agriculture productivity in pilot	*UGPO-CC (UNDP Direct Project Support*	*62040*	*11602*	*72100*	Contractual Services-Companies	20,000.00	25,000.00	25,000.00	-	-	70,000.00	40

		oases improved through the implementation of integrated plant disease management systems.	*Services Support)*											
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	20,000.00	5,000.00	-	-	25,000.00	41
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	-	40,000.00	50,000.00	30,000.00	5,000.00	125,000.00	42
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	-	3,000.00	7,000.00	7,000.00	3,000.00	20,000.00	43
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	5,000.00	2,000.00	3,000.00	-	-	10,000.00	44
		Total Output 2.1.5						25,000.00	90,000.00	90,000.00	37,000.00	8,000.00	250,000.00	
		Output 2.1.6: Integrated organic oasis waste manageme	*UGPO-CC (UNDP Direct Project Support Services*	*62040*	*11602*	*72100*	Contractual Services-Companies	100,000.00	180,000.00	180,000.00	70,000.00	20,000.00	550,000.00	45

		nt mechanism established at governorate level, and operational at delegation and oasis levels.	*Support)*											
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	150,000.00	230,000.00	40,000.00	-	420,000.00	46
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	100,000.00	47
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	5,000.00	25,000.00	5,000.00	25,000.00	10,000.00	70,000.00	48
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	5,000.00	5,000.00	5,000.00	15,000.00	20,000.00	50,000.00	49
		Total Output 2.1.6						130,000.00	380,000.00	440,000.00	170,000.00	70,000.00	1,190,000.00	
	Total Outcome 2.1							663,609.00	1,355,609.00	1,446,109.00	823,109.00	447,109.00	4,735,545.00	
	Outcome 2.2: Enhanced	*Output 2.2.1: Economic profitabilit*	*UGPO-CC (UNDP Direct Project*	*62040*	*11602*	*72100*	Contractual Services-Companies	185,000.00	290,000.00	290,000.00	100,000.00	25,000.00	890,000.00	50

	climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access.	*y of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency.*	*Support Services Support)*											
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	700,000.00	600,000.00	-	-	1,300,000.00	51
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	5,000.00	5,000.00	10,000.00	10,000.00	-	30,000.00	52
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	10,000.00	5,000.00	10,000.00	5,000.00	-	30,000.00	53
		Total Output 2.2.1						200,000.00	1,000,000.00	910,000.00	115,000.00	25,000.00	2,250,000.00	
		Output 2.2.2: A regional market for oasis products established, equipped and operational, improving the valorization and commercia	*UNDP*	*62040*	*11602*	*72600*	Grant	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	50,000.00	54
			UGPO-CC (UNDP Direct Project Support Services Support)			*72100*	Contractual Services-Companies	2,500.00	25,000.00	-	-	6,000.00	33,500.00	55
			UGPO-CC (UNDP Direct			*72200*	Equipment and Furniture	-	20,000.00	35,000.00	10,000.00	-	65,000.00	56

		lization of date products	*Project Support Services Support)*											
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	-	-	5,000.00	5,000.00	-	10,000.00	57
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	-	-	5,000.00	10,000.00	5,000.00	20,000.00	58
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	-	-	-	5,000.00	5,000.00	10,000.00	59
		Total Output 2.2.2						12,500.00	55,000.00	55,000.00	40,000.00	26,000.00	188,500.00	
		Output 2.2.3: New climate resilient income-generating activities developed and operational through improved	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*71400*	Service Contracts-Individuals	9,655.00	9,655.00	9,655.00	9,655.00	9,655.00	48,275.00	60
			UNDP			*72600*	Grant	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	225,000.00	61

		valorization and commercialization of agricultural products and by-products	*UGPO-CC (UNDP Direct Project Support Services Support)*			*72100*	Contractual Services-Companies	20,000.00	20,000.00	20,000.00	20,000.00	-	80,000.00	62
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	30,000.00	30,000.00	30,000.00	-	90,000.00	63
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	-	15,000.00	25,000.00	40,000.00	20,000.00	100,000.00	64
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	5,000.00	5,000.00	10,000.00	5,000.00	5,000.00	30,000.00	65
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	5,000.00	5,000.00	-	5,000.00	-	15,000.00	66
		Total Output 2.2.3						84,655.00	129,655.00	139,655.00	154,655.00	79,655.00	588,275.00	

Total Outcome 2.2							297,155.00	1,184,655.00	1,104,655.00	309,655.00	130,655.00	3,026,775.00	
Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources.	*Output 2.3.1: Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization*	*UNDP*	*62040*	*11602*	*72600*	Grant	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	250,000.00	67
		UGPO-CC (UNDP Direct Project Support Services Support)			*71400*	Service Contracts-Individuals	9,655.00	9,655.00	9,655.00	9,655.00	9,655.00	48,275.00	68
		UGPO-CC (UNDP Direct Project Support Services Support)			*72100*	Contractual Services-Companies	35,000.00	30,000.00	35,000.00	20,000.00	16,000.00	136,000.00	69
		UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	30,000.00	30,000.00	30,000.00	-	90,000.00	70
		UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	-	20,000.00	15,000.00	20,000.00	10,000.00	65,000.00	71
		UGPO-CC (UNDP Direct Project Support Services			*75700*	Training, Workshops and Confer	5,000.00	5,000.00	5,000.00	5,000.00	-	20,000.00	72

			Support)										
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	5,000.00	10,000.00	5,000.00	10,000.00	10,000.00	40,000.00	73
		Total Output 2.3.1						104,655.00	154,655.00	149,655.00	144,655.00	95,655.00	649,275.00	
		Output 2.3.2: Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth.	*UNDP*	*62040*	*11602*	*72600*	Grant	20,000.00	150,000.00	190,000.00	80,000.00	20,000.00	460,000.00	74
			UGPO-CC (UNDP Direct Project Support Services Support)			*72100*	Contractual Services-Companies	50,000.00	80,000.00	50,000.00	40,000.00	6,000.00	226,000.00	75
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	-	40,000.00	100,000.00	60,000.00	20,000.00	220,000.00	76
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	5,000.00	15,000.00	20,000.00	20,000.00	10,000.00	70,000.00	77
			UGPO-CC (UNDP Direct Project			*71600*	Travel	6,000.00	6,986.00	8,000.00	8,000.00	8,000.00	36,986.00	78

			Support Services Support)											
		Total Output 2.3.2						81,000.00	291,986.00	368,000.00	208,000.00	64,000.00	1,012,986.00	
		Output 2.3.3: Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives.	*UNDP*	*62040*	*11602*	*72600*	Grant	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	100,000.00	79
			UGPO-CC (UNDP Direct Project Support Services Support)			*72100*	Contractual Services-Companies	50,000.00	42,000.00	50,000.00	50,000.00	35,000.00	227,000.00	80
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	-	35,000.00	35,000.00	30,000.00	-	100,000.00	81
			UGPO-CC (UNDP Direct Project Support Services Support)			*74200*	Audio Visual&Print Prod Costs	6,580.00	15,000.00	15,000.00	10,000.00	5,000.00	51,580.00	82
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	12,000.00	12,000.00	17,000.00	22,000.00	2,000.00	65,000.00	83
			UGPO-CC (UNDP Direct			*71600*	Travel	5,000.00	5,000.00	5,000.00	5,000.00	10,000.00	30,000.00	84

			Project Support Services Support)											
		Total Output 2.3.3						93,580.00	129,000.00	142,000.00	137,000.00	72,000.00	573,580.00	
	Total Outcome 2.3							279,235.00	575,641.00	659,655.00	489,655.00	231,655.00	2,235,841.00	
Total Component 2								**1,239,999.00**	**3,115,905.00**	**3,210,419.00**	**1,622,419.00**	**809,419.00**	**9,998,161.00**	
COMPONENT 3: KNOWLEDGE PRODUCTION, MANAGEMENT, AND DISSEMINATION	*Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems.*	*Output 3.1.1: A GIS decision-support tool for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use.*	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*71200*	International Consultants	32,000.00	32,000.00	-	-	-	64,000.00	85
			UGPO-CC (UNDP Direct Project Support Services Support)			*71300*	Local Consultants	45,000.00	45,000.00	-	-	-	90,000.00	86
			UGPO-CC (UNDP Direct Project Support Services Support)			*71400*	Service Contracts-Individuals	27,101.00	27,101.00	27,101.00	27,101.00	27,101.00	135,505.00	87
			UGPO-CC (UNDP Direct Project Support Services			*71600*	Travel	7,500.00	7,500.00	-	-	-	15,000.00	88

			Support)									
			UNDP		*72600*	Grant	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	60,000.00	89
			UGPO-CC (UNDP Direct Project Support Services Support)		*75700*	Training, Workshops and Confer	3,000.00	3,000.00	-	-	-	6,000.00	90
		Total Output 3.1.1					126,601.00	126,601.00	39,101.00	39,101.00	39,101.00	370,505.00	
		Output 3.1.2: Public communication tools and knowledge products on project results and lessons learned developed and disseminated	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*71600*	Travel	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	15,000.00	91
			UGPO-CC (UNDP Direct Project Support Services Support)	*11602*	*75700*	Training, Workshops and Confer	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	75,000.00	92
			UGPO-CC (UNDP Direct Project Support Services Support)		*74200*	Audio Visual&Print Prod Costs	29,993.00	29,993.00	29,993.00	29,993.00	29,992.00	149,964.00	93
		Total Output 3.1.2					47,993.00	47,993.00	47,993.00	47,993.00	47,992.00	239,964.00	

		Output 3.1.3: Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*71600*	Travel	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	100,000.00	94
			UGPO-CC (UNDP Direct Project Support Services Support)			*75700*	Training, Workshops and Confer	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	100,000.00	95
			UGPO-CC (UNDP Direct Project Support Services Support)			*71300*	Local Consultants	-	30,000.00	30,000.00	30,000.00	30,000.00	120,000.00	96
		Total Output 3.1.3						40,000.00	70,000.00	70,000.00	70,000.00	70,000.00	320,000.00	
	Total Outcome 3.1							214,594.00	244,594.00	157,094.00	157,094.00	157,093.00	930,469.00	
Total Component 3								**214,594.00**	**244,594.00**	**157,094.00**	**157,094.00**	**157,093.00**	**930,469.00**	
Total project Components								1,939,018.00	3,824,924.00	3,735,791.00	1,983,938.00	1,165,937.00	12,649,608.00	
Project Execution Cost (PEC)	*PEC*	*PEC*	*UGPO-CC (UNDP Direct Project Support Services Support)*	*62040*	*11602*	*71400*	Contractual Services - Individ	91,700.00	91,700.00	91,700.00	91,700.00	91,698.00	458,498.00	97A

			UNDP			*71400*	Contractual Services - Individ	5,101.00	5,101.00	5,101.00	5,101.00	5,103.00	25,507.00	97B
			UGPO-CC (UNDP Direct Project Support Services Support)			*71600*	Travel	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	50,000.00	98
			UGPO-CC (UNDP Direct Project Support Services Support)			*72200*	Equipment and Furniture	130,000.00	-	-	-	-	130,000.00	99
			UGPO-CC (UNDP Direct Project Support Services Support)			*72400*	Communic & Audio Visual Equip	50,000.00	-	-	-	-	50,000.00	100
			UGPO-CC (UNDP Direct Project Support Services Support)			*72800*	Information Technology Equipmt	4,800.00	4,800.00	4,800.00	4,800.00	4,800.00	24,000.00	101
			UGPO-CC (UNDP Direct Project Support Services Support)			*72400*	Communic & Audio Visual Equip	11,000.00	3,000.00	3,000.00	3,000.00	3,000.00	23,000.00	102

			UGPO-CC (UNDP Direct Project Support Services Support)			*73100*	Rental & Maintenance-Premises	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	150,000.00	103
			UGPO-CC (UNDP Direct Project Support Services Support)			*72300*	Materials & Goods	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	75,000.00	104
			UGPO-CC (UNDP Direct Project Support Services Support)			*72500*	Supplies	4,991.00	4,991.00	4,991.00	4,991.00	4,995.00	24,959.00	105
			UNDP			*74596*	Services to Projects - General Opex	32,861.00	32,862.00	32,862.00	32,862.00	32,864.00	164,311.00	106
Total Project Execution Cost (PEC)								**385,453.00**	**197,454.00**	**197,454.00**	**197,454.00**	**197,460.00**	**1,175,275.00**	
Total project Components + PEC								**2,324,471.00**	**4,022,378.00**	**3,933,245.00**	**2,181,392.00**	**1,363,397.00**	**13,824,883.00**	
Implementing Entity Fee (8,5 %)								**197,580.00**	**341,902.00**	**334,326.00**	**185,418.00**	**115,889.00**	**1,175,115.00**	
Total Project Grant								**2,522,051.00**	**4,364,280.00**	**4,267,571.00**	**2,366,810.00**	**1,479,286.00**	**14,999,998.00**	

Budget Notes:

	See Budget Note: *(reference as number, not as letter)*
1	Consultancy firm to revise and develop delegation-level adaptation plans for oasis ecosystems, for a total of 130 working days at USD 1,000 per day (Output 1.1.1).
2	Venue and logistical costs for 10 consultation and validation workshops, at USD 2,000 per workshop (Output 1.1.1).
3	Travel costs to support the implementation of capacity-building activities under Output 1.1.1, budgeted at USD 2,500 per year.
4	Full-time Climate Change and Environment Specialist at USD 35,500 per year (USD 177,500 over five years). Under Component 1, USD 62,125 is charged to lead the technical implementation of institutional capacity-building and governance-strengthening activities.
5	Consultancy firm to support capacity-building activities, including the development of training modules and learning materials for oasis ecosystems, for 200 working days at USD 800 per day (Output 1.1.2).
6	- National capacity-building experts for 100 working days at USD 300 per day; - National experts in oasis ecosystem management, agroecology, climate change and water management for 600 working days at USD 300 per day (Output 1.1.2).
7	Venue and logistical costs for 50 training and capacity-building sessions benefiting 29 GDAs, SMSAs, and national and local institutions, at USD 1,000 per session (Output 1.1.2).
8	Travel costs to support the implementation of capacity-building activities under Output 1.1.2, budgeted at USD 2,500 per year.
9	International income-generating activities (IGA) expert for 150 working days at USD 800 per day (Output 1.1.3).
10	National IGA and financial management experts for 500 working days at USD 300 per day (Output 1.1.3).
11	Venue and logistical costs for five workshops per year, one in each delegation (for 5 delegations), at USD 5,000 per workshop (Output 1.1.3).

12	Travel costs to support the implementation of capacity-building activities under Output 1.1.3, budgeted at USD 2,500 per year.
13	International Civil Society Organization (CSO) strengthening and training expert for 100 working days at USD 800 per day (Output 1.1.4).
14	National CSO strengthening and training expert for 500 working days at USD 300 per day (Output 1.1.4).
15	Travel costs to support the implementation of capacity-building activities under Output 1.1.4, budgeted at USD 2,500 per year.
16	Venue and logistical costs for 50 workshops, comprising 10 workshops per delegation across five delegations, at USD 2,000 per workshop (Output 1.1.4).
17	Materials and goods for irrigation automation at GDA level, (may including flow and pressure monitoring equipment, automated valves, basic control devices, and pumping and reservoir control equipment), at USD 10,822.51 per GDA for 29 GDAs, for a total of USD 313,853.
18	- Consultancy firm to conduct technical and feasibility studies for source water capture, improvement of the irrigation network in Tamerza, replacement of shallow boreholes, and installation and optimization of irrigation infrastructure, for 100 working days at USD 800 per day; - Works companies to implement source water capture and irrigation network improvement in Tamerza for 350 working days at USD 800 per day, - Works companies to construct replacement boreholes for 250 working days at USD 800 per day, - Works companies to install and optimize irrigation infrastructure for 400 working days at USD 800 per day.
19	Grant to the Regional Commissariat for Agricultural Development (CRDA) of USD 40,000 per year over five years to support beneficiaries in implementing climate-resilient irrigation systems. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants.
20	Equipment for replacement shallow boreholes, at USD 20,000 per delegation for five delegations, for a total of USD 100,000.
21	National water management and irrigation expert for 100 working days at USD 300 per day over five years (Output 2.1.1).

22	- Full-time Climate Change and Environment Specialist at USD 35,500 per year (USD 177,500 over five years). Under component 2, USD 97,625 is charged to provide technical support for community-based adaptation interventions, including sustainable oasis ecosystem management, biodiversity conservation, ecosystem restoration, natural resource management, environmental sustainability measures and climate-resilient livelihood activities; - Full-time Local Development Specialist at USD 30,420 per year (USD 152,100 over five years). Under component 2, USD 121,680 is charged to support community-based adaptation investments and local socio-economic development; - Two full-time Rural Engineers at USD 19,530 per year each (USD 97,650 each over five years). Under component 2,**USD 78,120 per rural engineer (2 engineers)** is charged to support the design and implementation of climate-resilient livelihood interventions across the 29 targeted oases.
23	Consultancy firm to support the varietal inventory, characterization and selection of drought- and heat-adapted date palm, fruit tree, vegetable and fodder varieties across the five delegations, for 62.5 working days at USD 800 per day.
24	Grant to the Regional Centre for Research in Oasis Agriculture (CRRAO) under Output 2.1.2 to support pilot experimentation aimed at identifying and validating solutions to strengthen and conserve drought-adapted local agrobiodiversity. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants. **Total of USD 160,000**
25	- Seed bank and nursery equipment for CRRAO, including storage units, cold cabinets, nursery benches, labelling tools, small laboratory equipment and basic conservation equipment, for USD 60,000; - Field equipment for five collection and demonstration sites, including small irrigation kits, monitoring tools and basic plot equipment, at USD 30,000 per site, for a total of USD 150,000 (Output 2.1.2).
26	- Acquisition and distribution of drought-adapted date palm offshoots and male pollinators for USD 30,000; - Fruit tree seedlings adapted to oasis conditions for USD 50,000; - Vegetable and fodder seed and seedling kits for beneficiary farmers and demonstration plots for USD 50,000; - Soil fertility and moisture-retention inputs for demonstration sites, including compost, manure, sand amendments and planting materials, at USD 10,000 per site for five sites, for a total of USD 50,000 (Output 2.1.2).
27	Venue and logistical costs for farmer field schools, training sessions and field days on local variety conservation, seed management, nursery practices, varietal diversification, pollinator use and adoption of resilient plant material, at USD 3,000 per session for 10 sessions, for a total of USD 30,000 (Output 2.1.2).
28	Field travel costs for CRRAO and technical partners to support varietal identification, nursery supervision, site monitoring, farmer follow-up, distribution verification and collection-site reporting, at USD 500 per mission for 40 missions, for a total of USD 20,000 (Output 2.1.2).

29	Consultancy firm to conduct fire-risk mapping and assess intervention capacities across the 29 targeted oases in the five delegations, including the identification and prioritization of high-risk sites and response gaps; develop standard operating procedures, alert and communication protocols, and community fire-prevention and response plan templates for five priority oases, for 30 working days at USD 800 per day; - Light set-up works for one decentralized rapid-response hub in a high-risk delegation, including storage space adaptation, basic safety arrangements and operational readiness support, for 30 working days at USD 800 per day (Output 2.1.3).
30	Logistical and intervention equipment for the Regional Civil Protection Directorate in Tozeur, including portable pumps, hoses, communication tools and basic response equipment adapted to oasis access constraints, for USD 25,000; Basic equipment kits for five local and delegation-level fire response units, including first-response tools, portable water equipment and communication items, at USD 5,000 per unit, for a total of USD 25,000 (Output 2.1.3).
31	Fire-prevention and early-warning materials for priority oases, including signage, awareness materials, alert boards, small consumables, replacement parts and basic field materials for local response units, at USD 10,000 per oasis for five oases, for a total of USD 50,000 (Output 2.1.3).
32	Venue and logistical costs for training local first responders, GDA representatives and local actors on fire prevention, alert procedures, safe first response and coordination with Civil Protection, at USD 2,000 per session for five sessions, for a total of USD 10,000; Venue and logistical costs for community drills and simulation exercises in priority oases, including practical testing of alert chains and response procedures, at USD 1,000 per exercise for five exercises, for a total of USD 5,000 (Output 2.1.3).
33	Field travel costs for Civil Protection and technical partners to support risk mapping, training delivery, equipment deployment, response-unit monitoring, drills and post-incident follow-up, at USD 500 per mission for 24 missions, for a total of USD 12,000 (Output 2.1.3).
34	Grant to the Technical Centre for Dates (CTD) under Output 2.1.4 to support pilot experimentation, demonstration and validation of climate-resilient agricultural technologies and practices in pilot oases, with the objective of promoting their adoption and scaling up by farmers. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants. **Total of USD 170,000**
35	Consultancy firm to prepare the technical design of climate-resilient agricultural demonstration packages for five pilot oases, including crop planning, water-saving options, soil amendments, mechanization needs and monitoring protocols, for 62.5 working days at USD 800 per day (Output 2.1.4).

36	- Water-saving irrigation and on-farm water-management equipment for five pilot parcels, including drip or bubbler irrigation kits, small storage tanks and control devices, at USD 30,000 per pilot parcel, for a total of USD 150,000; - Agricultural mechanization and demonstration equipment, including small tractors or motorized tools, pruning equipment, pollination equipment and crop-management tools, at USD 20,000 per pilot parcel, for a total of USD 100,000 (Output 2.1.4).
37	Climate-resilient agricultural inputs for five pilot parcels, including selected seeds and seedlings, compost, organic manure, mulching materials and soil-improvement inputs, at USD 25,000 per pilot parcel, for a total of USD 125,000; - inputs to support the demonstration of diversified oasis production systems, including understorey crops, fodder species, fruit trees, and other complementary agricultural activities, at USD 10,000 per pilot parcel, for a total of USD 50,000; - consumable supplies and replacement materials required for the operation, maintenance, and monitoring of the pilot parcels, at USD 5,000 per lot for 10 lots, for a total of USD 50,000 (Output 2.1.4).
38	Venue and logistical costs for farmer field schools and practical training sessions on water-saving irrigation, soil fertility management, resilient crop diversification, mechanized operations, pollination practices and pilot plot maintenance, at USD 5,000 per session for 10 sessions, for a total of USD 50,000 (Output 2.1.4).
39	Field travel costs for CTD and technical partners to support pilot site selection, installation follow-up, farmer coaching, monitoring visits, training delivery and documentation of demonstration results, at USD 500 per mission for 40 missions, for a total of USD 20,000 (Output 2.1.4).
40	Consultancy firm to conduct a comprehensive phytosanitary assessment across the 29 targeted oases, including pest and disease surveillance and inventory, phytosanitary risk mapping, identification of priority intervention areas, and development of integrated pest and disease management protocols for the pilot oases. The protocols will include biological, physical, biotechnical, and judicious chemical control measures tailored to oasis agroecosystems and aligned with organic production practices, where applicable, for 87.5 working days at USD 800 per day (Output 2.1.5).
41	Phytosanitary monitoring and treatment equipment for CTD and field teams, including sprayers, traps, monitoring tools, sampling kits and basic field diagnostic equipment, at USD 5,000 per delegation for five delegations, for a total of USD 25,000 (Output 2.1.5).
42	- Preventive treatment inputs for common date palm and fruit-tree diseases across targeted oases, including approved biological and low-risk treatment products, traps, pheromones and field consumables, at USD 10,000 per lot for 10 lots, for a total of USD 100,000; - Integrated pest management inputs for the same pilot oases supported under Output 2.1.4, including biological control agents, approved treatment products and monitoring consumables, at USD 5,000 per pilot oasis for five pilot oases, for a total of USD 25,000 (Output 2.1.5).
43	Venue and logistical costs for training sessions, technical guides and field demonstrations for farmers, GDAs and local technical staff on disease recognition, preventive treatment, safe product use, biological control and integrated plant disease management, at USD 2,000 per session for 10 sessions, for a total of USD 20,000 (Output 2.1.5).

44	Field travel costs for CTD and technical partners to support phytosanitary diagnosis, farmer support, treatment supervision, monitoring of pilot oases and seasonal reporting, at USD 500 per mission for 20 missions, for a total of USD 10,000 (Output 2.1.5).
45	- Consultancy firm to conduct an economic feasibility study for biomass collection, composting and waste valorization, including biomass volumes, collection routes, processing costs, compost quality, market demand, pricing and governance options; prepare the technical design and operational planning for the composting and valorization mechanism, including site layout, equipment specifications, workflow and environmental operating procedures; and develop the post-project operating model, cost-recovery plan, service-provider agreement templates and monitoring tools for the Regional Council, CRDA, SMSAs/GDAs and private operator, for 137.5 working days at USD 800 per day. - Consultancy firm to support preventive cleaning campaigns in at least two traditional oases per delegation, civil works and installation of one oasis organic waste composting facility in Tamerza, and initial collection, sorting, composting and valorization services, for 550 working days at USD 800 per day (Output 2.1.6).
46	Equipment for SMSAs/GDAs and local service providers for oasis biomass management, including trailers, shredders, hand tools, loading equipment and basic collection equipment, at USD 30,000 per delegation for five delegations, for a total of USD 150,000; - Composting facility equipment, including shredder, turner or mixing equipment, screening tools, weighing equipment, storage equipment and operational safety items, for USD 250,000; - Monitoring and control equipment, including weighing scales, moisture and temperature tools, signage and simple record-keeping equipment, for USD 20,000 (Output 2.1.6).
47	Collection and cleaning consumables, including bags, bins, personal protective equipment, small tools, signage and replacement materials for cleaning campaigns and local collection points, at USD 6,000 per lot for 10 lots, for a total of USD 60,000; - Compost production materials and site consumables, including bulking agents, tarpaulins, testing consumables, packaging materials and maintenance supplies for compost production and demonstration, at USD 8,000 per lot for five lots, for a total of USD 40,000 (Output 2.1.6).
48	Venue and logistical costs for : - Training sessions for SMSAs, GDAs, municipalities, operators and local workers on safe biomass handling, sorting, compost production, occupational safety, service management and compost use in oasis soils, at USD 3,000 per session for 10 sessions, for a total of USD 30,000; - Field demonstrations and user workshops on compost application, soil fertility improvement and water-retention benefits for farmers and pilot sites, at USD 2,000 per session for 20 sessions, for a total of USD 40,000;
49	Field travel costs for the Regional Council, CRDA and technical partners to support site selection, cleaning campaign supervision, equipment deployment, composting facility monitoring, service-provider follow-up, field verification and handover support, at USD 500 per mission for 100 missions, for a total of USD 50,000 (Output 2.1.6).

50	- Consultancy firm (300 working days × USD 500/day = USD 150,000) to conduct feasibility studies and options assessments for 20 collective/community irrigation wells, including energy baseline assessments, photovoltaic (PV) system sizing, eligibility assessment of Water User Associations (GDAs), estimation of energy cost savings, environmental and social screening, and assessment of groundwater abstraction rebound risks. - Consultancy firm (200 working days × USD 500/day = USD 100,000) to prepare detailed technical designs, technical specifications, bills of quantities, and tender documents for 10 selected PV investment packages. - Consultancy firm (150 working days × USD 500/day = USD 75,000) to develop operation and maintenance (O&M) procedures, maintenance contract templates, and groundwater abstraction monitoring protocols for the 10 supported GDAs/collective wells, including abstraction quotas, meter-reading templates, reporting procedures, and anti-rebound monitoring arrangements. - Consultancy firm (100 working days × USD 500/day = USD 50,000) to undertake independent verification of energy savings, functionality of metering systems, compliance with groundwater abstraction controls, and implementation of safeguards to prevent increases in groundwater abstraction at the 10 solar-powered collective/community wells. - Consultancy firm (800 working days × USD 500/day = USD 400,000) to install, test, and commission photovoltaic systems for 10 selected collective/community irrigation wells, including site preparation, mounting structures, electrical installation and wiring, grid or system interface works where applicable, safety testing, and commissioning reports. - Consultancy firm (230 working days × USD 500/day = USD 115,000) to provide post-installation technical assistance and preventive maintenance during the initial operational period, including troubleshooting, performance monitoring, capacity transfer, and support for the establishment of long-term maintenance arrangements with the GDAs (Output 2.2.1).
51	-Supply of photovoltaic systems for 10 selected collective/community irrigation wells, including PV panels, inverters, mounting structures, controllers, cabling, electrical protection devices and connection equipment, at USD 115,000 per well, for a total of USD 1,150,000; - Volumetric metering and monitoring equipment for the same 10 PV-powered wells, including water meters, energy meters, data loggers and basic monitoring devices required for abstraction-control safeguards, at USD 15,000 per well, for a total of USD 150,000 (Output 2.2.1).
52	Venue and logistical costs for training sessions for supported GDAs, CRDA technicians and local operators on PV-system operation, safety, basic maintenance, meter reading, energy-cost monitoring, abstraction-control safeguards and anti-rebound requirements, at USD 3,000 per session for 10 sessions, for a total of USD 30,000 (Output 2.2.1).
53	Field travel costs for the Tozeur Regional Council, CRDA, ANME, STEG and technical partners to support site verification, installation supervision, commissioning, training and post-installation monitoring, at USD 500 per mission for 60 missions, for a total of USD 30,000 (Output 2.2.1).
54	Grant to CSOs, at USD 10,000 per year for five years, for a total of USD 50,000, to provide facilitation support for producer organization, market access and commercialization processes, including strengthening collective action among small producers, supporting inclusive access for women and youth, facilitating market linkages and promotional activities, and contributing to monitoring the equitable use of market infrastructure. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants.

55	- Consultancy firm to conduct the feasibility, governance and operating model for the regional oasis-products market, including demand assessment, producer and user needs, revenue model, management arrangements, cost-recovery options and comparison with alternative commercialization channels; prepare the technical design, layout, equipment specifications and operating procedures for exhibition, sales, sorting, grading, cold storage and hygiene arrangements; and prepare a market-access and partnership plan with producer groups, aggregators, buyers, hotels, tourism operators and local institutions, for 55 working days at USD 500 per day. - Consulting firm to provide financial management guidance, capacity-building, compliance support and financial review services to CSOs, for 15 working days at USD 400 per day. (Output 2.3.1). (Output 2.2.2).
56	Market and commercialization equipment for the regional oasis-products market, including refrigeration units, sorting and grading tables, packaging equipment, labelling tools, weighing scales, display furniture, storage shelves, for a total of USD 65,000 (Output 2.2.2).
57	Operational start-up materials for the initial operation of the regional oasis-products market, including packaging materials, labels, crates, hygiene consumables, small display materials, promotional supports and minor replacement items, for a total of USD 10,000 (Output 2.2.2).
58	Venue and logistical costs for training and coaching producer groups, market staff and local enterprises on quality standards, sorting, grading, packaging, labelling, hygiene, pricing, sales management and buyer relations, at USD 2,000 per session for 10 sessions, for a total of USD 20,000 (Output 2.2.2).
59	Field travel costs and buyer-linkage visits by the Tozeur Regional Council and technical partners to support site follow-up, producer mobilization, equipment verification, market launch support and engagement with buyers and the tourism sector, at USD 500 per mission for 20 missions, for a total of USD 10,000 (Output 2.2.2).
60	Capacity strengthening and accompaniment from UNDP @$48,275 over 5 years to support partners and beneficiaries in: - Climate Adaptation Safeguards Advisory, supporting safeguards screening and the identification of environmentally responsible agricultural product and by-product valorization activities. **(13 working day @213$/day for a total of 2769 per year over 5 years)** - Gender-Responsive Climate Adaptation Advisory, supporting gender-responsive targeting and monitoring of income-generating activities, including women's participation in local value chains. **(12 working day @288$/day for a total of 3456 per year over 5 years)** - M&E and MRV Tracking Advisory, supporting beneficiary tracking tools, reporting templates and dashboards to monitor, compliance and results. **(14 working day @245$/day for a total of 3430 per year over 5 years)** The package will target around 250 agricultural product/by-product enterprises or projects supported under the output.
61	Grant of USD 45,000 per year over five years to CSOs to support community-based self-help initiatives, including climate-resilient livelihood and income-generating activities that enhance the adaptive capacity and resilience of vulnerable households and communities to climate change. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants. **Total of USD 225,000**

62	Consultancy firm to design climate-resilient livelihood training packages, simplified business-plan templates and coaching tools for agricultural product and by-product valorization; develop monitoring tools for beneficiary progress, business viability, adaptation benefits and milestone-based support tracking; mobilize specialized vocational and sectoral training providers; provide business development and incubation support to beneficiary cohorts in the five delegations; and support certification, labelling, market readiness and buyer linkages for selected income-generating activities, for 100 working days at USD 800 per day (Output 2.2.3).
63	Small equipment packages for climate-resilient agricultural product and by-product income-generating activities, including processing, drying, packaging, storage, hygiene and small production equipment for selected beneficiaries or micro-enterprises, at USD 1,500 per package for 60 packages, for a total of USD 90,000 (Output 2.2.3).
64	- Start-up inputs, consumables, packaging, labels and small materials for selected agricultural product and by-product income-generating activities, including women- and youth-led initiatives, at USD 700 per beneficiary for 100 beneficiaries, for a total of USD 70,000; - Hygiene, quality-control, safety and minor replacement materials required during initial production and commercialization cycles, for a total of USD 30,000 (Output 2.2.3).
65	- Venue and logistical costs for group training sessions, business-plan clinics and peer-learning workshops for beneficiaries on entrepreneurship, financial education, product quality, market access, cooperative work and climate-resilient livelihood management, at USD 2,000 per session for 10 sessions, for a total of USD 20,000; - Local exposure events, buyer meetings and beneficiary review workshops to support commercialization and adaptive learning, at USD 2,000 per event for five events, for a total of USD 10,000 (Output 2.2.3).
66	Field travel costs for the vocational training providers and local facilitators to support beneficiary profiling, training delivery, coaching, equipment verification, monitoring visits and follow-up support, at USD 500 per mission for 30 missions, for a total of USD 15,000 (Output 2.2.3).
67	- Grant of USD 5,000 per year over five years (total: USD 25,000) to the Regional Commission for Handicrafts (CRA) to support community-based self-help initiatives through the promotion of climate-resilient handicraft and other income-generating activities that strengthen livelihoods and reduce poverty. The grant will also support collaboration among civil society organizations, government institutions, and development partners, as well as capacity-building initiatives for local organizations engaged in nature-based solutions, climate action and gender equality. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants. - Grant to CSO (@45,000*5years= $225,000): support approximately 150 direct artisan IGA beneficiaries, including individual artisans, micro-enterprises, and collective production groups. The indicative planning envelope will be USD 1,500 per individual artisan or micro-enterprise beneficiary, subject to a ceiling to be defined in the Community IGA Operational Manual. Grant allocation and management will follow UNDP policy on Low-Value-Grants

68	Capacity strengthening and accompaniment @$48,275 over 5 years to support partners and beneficiaries in: - Climate Adaptation Safeguards Advisory, supporting sustainable sourcing of oasis by-products and safeguards screening of handicraft-based activities and gender-Responsive Climate Adaptation Advisory, supporting women's and youth participation, gender-responsive targeting, and monitoring of empowerment-related results**(13 working day @213$/day for a total of 2769 per year over 5 years)** - M&E, Grievance and Follow-up Advisory, supporting grievance channels, beneficiary tracking and follow-up, and reporting of results. **(12 working day @288$/day for a total of 3456 per year over 5 years)** - Communication and Visibility Advisory, supporting partners and beneficiaries to document results, success stories, market-oriented messages and visibility materials based on verified data**.(14 working day @245$/day for a total of 3430 per year over 5 years)** The package will target around 150 women and youth artisans, micro-enterprises or collective production groups.
69	Consultancy firm to support beneficiary identification, selection and safeguards screening for women and youth artisans and micro-enterprises in the four supported handicraft value chains, including sustainable sourcing of oasis by-products, business-readiness assessment and exclusion-list screening; provide product design, quality improvement and technical advisory support for 150 artisan IGA beneficiaries; support certification, labelling, branding, market access and commercialization for 150 beneficiaries; and provide logistical support for handicraft fairs, sales events and exhibitions, for 325 working days at USD 400 per day. - Consulting firm to provide financial management guidance, capacity-building, compliance support and financial review services to CSOs, for 15 working days at USD 400 per day. (Output 2.3.1).
70	Operational training equipment for the Regional Directorate of Handicrafts in Tozeur across four priority value chains, including grinding, sieving, distillation, mixing, palm wood processing and weaving equipment, at USD 15,000 per value chain for four value chains, for a total of USD 60,000; and exhibition stands, display furniture and fair-organization equipment for handicraft promotion and sales events, for a total of USD 30,000 (Output 2.3.1).
71	Inputs, raw materials, packaging, labels, consumables and small production materials for 150 artisan IGA beneficiaries in the four supported value chains, including women- and youth-led initiatives, at USD 433.33 per beneficiary, for a total of USD 65,000; including hygiene, quality-control, safety and minor replacement materials required during initial production and commercialization cycles (Output 2.3.1).
72	Venue and logistical costs for technical training, business-skills sessions and peer-learning workshops for women and youth artisans on sustainable sourcing, safe production, product quality, pricing, financial management and commercialization, at USD 2,000 per session for 10 sessions, for a total of USD 20,000 (Output 2.3.1).
73	Field travel costs for the Regional Directorate of Handicrafts, local CSOs and technical providers to support beneficiary selection, equipment verification, training follow-up, fair participation, monitoring and post-support coaching, at USD 500 per mission for 80 missions, for a total of USD 40,000 (Output 2.3.1).

74	Grant of USD 20,000 per year over five years (total: USD 100,000) to the Regional Directorate of Tourism to support local tourism initiatives that promote climate-resilient livelihood diversification, strengthen the sustainable tourism value chain, and reduce dependence on climate-sensitive oasis agriculture. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants. Grant to CSO to provide small equipment packages for 120 tourism-related IGA beneficiaries. The indicative planning envelope will be USD 3,000 per individual (USD 360,000). Grant allocation and management will follow UNDP policy on Low-Value-Grants
75	-Consultancy firm (125 working days × USD 400/day = USD 50,000) to undertake site selection, prepare low-impact technical designs and investment plans for eight cultural and ecotourism sites or visitor service areas across the targeted delegations, including visitor orientation and interpretation, access management, small visitor service facilities, and heritage-sensitive improvement options. The assignment will also include the development of operating models and partnership arrangements for tourism circuits, artisanal markets, agritourism services, and community-based site management, as well as beneficiary selection criteria, eligibility screening for women- and youth-led tourism enterprises, and monitoring tools for tourism-related income-generating activities (IGAs). - Consultancy firm (300 working days × USD 400/day = USD 120,000) to carry out low-impact rehabilitation and enhancement works at eight selected cultural and ecotourism sites and visitor service areas, including light rehabilitation works, access improvements, visitor safety measures, small-scale visitor facilities, signage where appropriate, and upgrades to enhance site functionality and visitor experience. - Consultancy firm (125 working days × USD 400/day = USD 50,000) to provide certification, branding, market linkage, and commercialization support for 120 tourism-related microenterprises and community-based initiatives. - Consultancy firm to provide financial management guidance, capacity-building, compliance support and financial review services to CSOs, for 15 working days at USD 400 per day = USD 6,000. (Output 2.3.2).
76	Materials & Goods for 120 tourism-related IGA beneficiaries, at USD 1,500 per beneficiary, for a total of USD 180,000; and shared material for agrotourism circuits and community-based tourism services, for a total of USD 40,000 (Output 2.3.2).
77	Venue and logistical costs for: - Tourism service training and coaching for 120 beneficiaries on hospitality, guiding, hygiene, pricing, customer management, digital marketing, cultural interpretation, environmental good practice and low-impact tourism services, at USD 500 per beneficiary, for a total of USD 60,000; - Stakeholder workshops and buyer/operator linkage events with hotels, agencies, municipalities, tourism operators and cultural institutions, for a total of USD 10,000 (Output 2.3.2).
78	Field travel costs for the Regional Directorate of Tourism, local CSOs and technical partners to support site selection, beneficiary screening, works follow-up, equipment verification, training support, tourism-operator engagement and post-support monitoring, for a total of USD 36,986 (Output 2.3.2).

79	Grant of USD 20,000 per year over five years (total: USD 100,000) to the Regional Directorate of Culture to support community-based initiatives that promote the preservation and transmission of oasis cultural heritage through knowledge demonstration activities,local product exhibitions, cultural exchanges, and oasis conservation events. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants.
80	- Consultancy Company (200 working day@$400/day = $80,000) to provide support in documenting oasis intangible heritage and traditional knowledge across the five delegations, including conducting interviews, inventory sheets, photo/video documentation and community validation ; to design of cultural valorization programme, including annual festival themes, heritage transmission activities, cultural tourism linkages and safeguards for traditional knowledge and cultural heritage ; to ensure the preparation of communication, archiving and dissemination materials for documented heritage content ; -Consultancy Company (367.5 working day@$400/day = $147,000) to procide organization support for five annual oasis heritage festivals, approximately one per delegation, including logistics, venue arrangements, cultural programming, community participation and basic safety arrangements; Support the organization of cultural exchange events, forums and thematic initiatives linking oasis heritage, adaptation, traditional knowledge and cultural tourism(Output 2.3.3)
81	Collective equipment for festivals, cultural events and heritage valorization activities, including tents, stands, display furniture, portable sound and lighting equipment, exhibition panels, interpretation equipment and reusable event materials for the five delegations, at USD 20,000 per delegation, for a total of USD 100,000 (Output 2.3.3).
82	Cultural and communication materials, including printing, signage, exhibition supports, small display materials, heritage documentation consumables and promotional items, for a total of USD 51,580 (Output 2.3.3).
83	Venue and logistical costs for: - Community workshops and intergenerational transmission sessions on traditional knowledge, oasis heritage, crafts, cultural practices, local storytelling and adaptation-relevant practices, at USD 3,000 per session for 10 sessions, for a total of USD 30,000; - Training for local cultural actors and event organizers on heritage-sensitive programming, inclusive participation, environmental good practice and cultural tourism linkages, at USD 2,500 per session for 14 sessions, for a total of USD 35,000 (Output 2.3.3).
84	Field travel costs for the Regional Directorate of Culture, local cultural facilitators and technical partners to support heritage documentation, community consultations, event preparation, festival supervision, cultural exchange activities and follow-up reporting, at USD 500 per mission for 60 missions, for a total of USD 30,000 (Output 2.3.3).
85	International adaptation expert for 80 working days at USD 800 per day, for a total of USD 64,000. (Output 3.1.1).
86	National GIS expert for 225 working days at USD 400 per day to support GIS-based mapping, spatial analysis, database structuring and technical inputs for the environmental information and decision-support system under Output 3.1.1.

87	- Full time Climate Change and Environment Specialist at USD 35,500 per year (USD 177,500 over five years). Under component 3, USD17,750$ is charged to provide technical expertise for GIS-based environmental information systems. -Full-time Local Development Specialist at USD 30,420 per year (USD 152,100 over five years). Under component 3, USD30,420 is charged to support the replication of community-based adaptation approaches across traditional oasis systems. - Two full-time Rural Engineers at USD 19,530 per year each (USD 97,650 each over five years) – Under component 3, USD19,530 (each) is charged in to support technical mapping of adaptation interventions, preparation of engineering inputs for knowledge products and technical guidelines, and support to the dissemination of replicable solutions for sustainable oasis management. Capacity strengthening and accompaniment from UNDP @$48,275 over 5 years to support partners in: - M&E and MRV Advisory, supporting indicator tracking, data flows, data quality assurance and reporting arrangements linked to the GIS decision-support tool. **(13 working day @213$/day for a total of 2769 per year over 5 years)** - Climate Adaptation Safeguards Advisory, supporting the integration of safeguards, environmental indicators and compliance monitoring into the use of GIS-linked information and Gender-Responsive Monitoring Advisory, supporting the integration of gender indicators and sex-disaggregated beneficiary data into monitoring dashboards. **(14 working day @245$/day for a total of 3430 per year over 5 years)** - Dashboard and Decision-Support Advisory, supporting the practical use of templates and dashboards to track implementation progress, safeguards commitments, gender indicators, beneficiary data and compliance with environmental and social requirements. **(12 working day @288$/day for a total of 3456 per year over 5 years)** The package will cover the 29 traditional oases monitored through the GIS tool and target around 100 institutional users trained.
88	Field travel costs for technical teams and partners to support GIS data collection, field validation, stakeholder consultations for a total of USD 15,000 over two years.
89	Grant of USD 60,000 to the Regional Centre for Research in Oasis Agriculture (CRRAO) under Output 3.1.1 to strengthen the institutional capacity of CRRAO while ensuring national ownership, long-term sustainability, and continued accessibility of the GIS platform beyond the project lifetime. Grant allocation and management will be carried out in accordance with the UNDP Policy on Low-Value Grants.
90	Venue and logistical costs for inception and validation workshops under Output 3.1.1, at USD 3,000 per workshop.
91	Field travel costs to support participation in public events, workshops, dissemination activities and stakeholder consultations under Component 3, for a total of USD 15,000 over five years.
92	Organization of conferences and knowledge-sharing events, at USD 15,000 per event per year over five years, to support dissemination of lessons learned, exchange of experience and replication of adaptation solutions.
93	Audiovisual production, printing and dissemination costs for knowledge products, communication materials, technical guides, workshop materials and outreach tools under Output 3.1.2, for a total of USD 149,964 over five years.

94	Travel costs for exchange visits and learning events under Output 3.1.3, at USD 20,000 per year over five years, to facilitate peer learning, documentation of lessons learned and replication of successful adaptation practices.
95	Organization of five conferences and knowledge-sharing events under Output 3.1.3, at USD 20,000 per event, to disseminate project results, promote learning across oasis stakeholders and support replication of adaptation measures.
96	National dissemination and outreach expert for 300 working days at USD 400 per day to systematically disseminate lessons learned, support replication of successful approaches, and train, accompany and coach local actors in applying climate-resilient oasis management practices.
97A	Full time Project Manager USD 144,029.23 over five years, fully charged to Component PM to support overall day to day project management coordination, work planning, progress monitoring and reporting, stakeholder coordination, and liaison with project's stakeholders to ensure effective delivery of project activities and compliance with Adaptation Fund and UNDP requirements. Full-time project associate USD92,406.20 over five years, fully charged to Project Management Costs to provide administrative and financial support during project implementation Full time Administrative and Logistical Assistant USD 78,841.58 over five years, fully charged to Project Management Costs, to provide administrative and logistical support during project implementation, Full time communication associate USD 92,562.44 over five years, fully charged to Project Management Costs, to support project communication activities Full time Driver USD 50,658.56 over five years, fully charged to Project Management Costs, to provide transportation services for project personnel, consultants and stakeholders, support field missions and project activities in the targeted areas.
97B	Full time Project Manager USD 8,060.77 over five years, fully charged to Component PM to support overall day-to-day project management coordination, work planning, progress monitoring and reporting, stakeholder coordination, and liaison with project's stakeholders to ensure effective delivery of project activities and compliance with Adaptation Fund and UNDP requirements. Full time project associate USD 5,174.74 over five years, fully charged to Project Management Costs to provide administrative and financial support during project implementation Full time Administrative and Logistical Assistant USD 4,408.28 over five years, fully charged to Project Management Costs, to provide administrative and logistical support during project implementation, Full time communication associate USD 5,175.45 over five years, fully charged to Project Management Costs, to support project communication activities Full time Driver USD 2,885.76 over five years, fully charged to Project Management Costs, to provide transportation services for project personnel, consultants and stakeholders, support field missions and project activities in the targeted areas.
98	5 project supervision missions per year at USD 2,000 per mission, covering travel costs for project stakeholders to the project intervention area, for a total of USD 50,000 over five years.

99	Acquisition of two four-wheel drive vehicles to support the mobility needs of the project team for field missions, at USD 50,000 per vehicle, for a total of USD 100,000; and office furniture for the Project Management Unit based in Tozeur, for a total of USD 30,000.
100	- IT equipement for Executing Entity @4000$ per IT package (8 Laptops and accessories) - 2 multifunction printer-scanner units@4,000$ each - Visio-conference equipement @10,000$
101	- 8 Software licenses and email subscriptions for EE @600$ each/year
102	Acquisition of eight mobile phones for the Executing Entity, at USD 1,000 each, for a total of USD 8,000; and communication and connectivity expenses, including mobile data, internet box subscriptions, voice communication and internet usage, budgeted at USD 3,000 per year. **(first year includes mobile price of $8,000 + 3,000 charges = 11,000)**
103	Office rental costs for the Project Management Unit (PMU) in Tozeur@ USD 15,000 per year over 5 years Office rental costs for the Project Management Unit (PMU) in Tunis@ USD 15,000 per year over 5 years
104	Fuel, vehicle insurance and vehicle maintenance costs to support project field missions and operational mobility, budgeted at USD 15,000 per year over five years.
105	Office supplies required for the effective functioning of the Project Management Unit and Executing Entity, for a total of USD 24,959 over five years.
106	UNDP operational support services, including procurement, recruitment/contract management, travel and event organization, financial payment/transaction services, grants management.

H. Include a disbursement schedule with time-bound milestones.

	Upon Agreement signature	One year after project starts	Two years after project starts	Three years after project	Four years after project starts	Total
Scheduled Date	04/01/2027	04/01/2028	04/01/2029	04/01/2030	04/01/2031	
Project Funds	2,324,471	4,022,378	3,933,245	2,181,392	1,363,397	13,824,883
Implementing Entity Fees	197,580	341,902	334,326	185,418	115,889	1,175,115
Total	**2,522,051**	**4,364,280**	**4,267,571**	**2,366,810**	**1,479,286**	**14,999,998**

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

A. Record of endorsement on behalf of the government[102]

Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project proposal. Please attach the endorsement letter(s) with this template; add as many participating governments as possible if a regional project/programme:

	Date:

B. Implementing Entity certification

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Also provide the project contact person's name, telephone number and email address.

[102] 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.

ADAPTATION FUND

Letter of Endorsement by Government

REPUBLIC OF TUNISIA

***

Ministry of Environment

25 June 2026

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

Subject: Endorsement for "Strengthening adaptive capacity and livelihood in most vulnerable traditional oases in the Governorate of Tozeur (Tunisia)"

In my capacity as designated authority for the Adaptation Fund in Tunisia, I confirm that the above national project/pogramme 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 Tunisia.

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 United Nations Development Programme (UNDP) and executed by national executing entity.

Sincerely,

Ministry of Environment

Head of the National Coordination Unit on Climate Change
Primary Contact Point with Signing Authority

Mr.Taoufik Mustapha



ANNEX 1: LETTER OF ENDORSEMENT

ANNEX 2: DETAILED MULTI-YEAR BUDGET AND WORK PLAN, WITH BUDGET NOTES

ANNEX 3: BREAKDOWN OF THE IE MANAGEMENT FEE

Table 20: Breakdown of the IE management fee

Category	Services Provided by UNDP	IE Fee (USD)
Identification, Sourcing and Screening of Ideas	Provide upstream technical guidance on Adaptation Fund eligibility and strategic fit; support early dialogue with the Ministry of Environment/UGPO-CC and national partners; screen the project idea against AF adaptation rationale, country eligibility, environmental and social risk considerations, and UNDP quality standards; provide initial guidance on the proposed scope, intervention logic and feasibility of an integrated oasis adaptation project.	55,000
Feasibility Assessment / Due Diligence Review	Review and quality assure the technical, financial, fiduciary, environmental, social and institutional feasibility of the project; assess execution arrangements and partner capacity; review the project's alignment with AF requirements, UNDP Social and Environmental Standards, gender requirements and risk management procedures; provide due diligence on implementation modalities, co-executing entities, safeguards arrangements and procurement/financial management implications.	120,000
Development & Preparation	Provide technical backstopping and quality assurance during full proposal preparation; support the refinement of the theory of change, results framework, budget, M&E plan, implementation arrangements, risk analysis, gender and safeguards documentation; coordinate internal UNDP reviews and clearances; support responses to AF comments and ensure the proposal meets AF and UNDP standards before submission.	145,000
Implementation oversight, technical backstopping and quality assurance	Provide project-cycle management services during implementation, including strategic and programmatic oversight, technical backstopping, quality assurance of annual work plans, review of implementation progress, support to adaptive management, review of procurement and execution arrangements from an IE oversight perspective, participation in key project review meetings, and oversight missions. This includes ensuring that implementation remains aligned with the approved project objective, expected outcomes, AF policies and UNDP procedures.	335,000
Financial oversight, fiduciary monitoring and risk management	Monitor the use of AF resources, annual spending limits, disbursement requests, financial reporting, budget execution, and compliance with fiduciary standards; review financial risks and mitigation measures; support periodic risk updates in UNDP systems; oversee segregation of implementation and execution functions; ensure accountability, transparency and compliance with UNDP internal control requirements and AF fiduciary standards.	180,000
Environmental, social and gender safeguards oversight	Provide oversight and quality assurance for implementation of the Environmental and Social Management Framework, Stakeholder Engagement Plan, Gender Action Plan and Grievance Redress Mechanism; review safeguards screening and management plans where required; monitor implementation of mitigation measures; support compliance with the AF Environmental and Social Policy, Gender Policy and UNDP Social and Environmental Standards; provide guidance on emerging safeguards risks, including water abstraction, access and equity, OHS, gender inclusion and cultural heritage.	115,000
Monitoring, evaluation, reporting and learning	Provide oversight and quality assurance of the project M&E system, annual Project Performance Reports, results reporting, risk reporting and lessons learned; review and validate progress against AF indicators, gender-disaggregated indicators and adaptation outcomes; provide technical inputs to knowledge capture and reporting; support preparation, commissioning and quality assurance of the Mid-Term Review and Terminal Evaluation, including review of TORs, evaluation products and management responses.	175,000
Project closure and final reporting	Provide oversight for operational and financial closure; review final delivery, asset and handover documentation, final financial reporting,	50,115

	final lessons learned, terminal reporting and closure requirements; ensure unspent funds, if any, are handled in accordance with AF/UNDP procedures; support final accountability and compliance checks.	
Total		**1,175,115**

Annex 4: Social and Environmental Screening Procedure (SESP)

Annex4-SESP-Tozeur

Annex 5: Environmental and Social Management Framework (ESMF)

Annex5-ESMF-Tozeur

Annex 6: Gender Assessment and Action Plan

Annex6_GAP_Tozeur

Annex 7: Stakeholder Consultations and Engagement Report

Summary of stakeholder consultations undertaken during full proposal preparation

Table 21: Summary of stakeholder consultations undertaken during full proposal preparation

Date/location	Main topics discussed	Key stakeholders consulted	Participants/ Men, Women
29/09/2025/ Tozeur Governorate Headquarters	Kick-off meeting for the process of drafting the full project document, **Main points of the meeting:** - Discussions on the impacts of climate change on oasis ecosystems, - Presentation of the project's overall objective, - Discussion on the project's priorities, components and activities across all key sectors (agriculture, tourism, heritage, crafts, employment, research, etc.) - Organization of the preparatory mission and ownership of the process by the stakeholders	Governor of Tozeur, representatives from the five targeted delegations, all regional departments in Tozeur (Agriculture, Tourism, Infrastructure, Energy, etc.) and key institutions	29 participants, 11 women and 18 men
29/09/2025/ CRDA headquarters in Tozeur	Meeting with the Tozeur Regional Agricultural Development Commission **Key points of the meeting:** - Key programmes undertaken by the CRDA for the preservation of traditional oases (water resources, soils, crop improvement, disease protection, etc.), - Vulnerability of water resources: priority actions and areas, - Priority actions to improve agricultural productivity and combat diseases, - Role of the CRDA in implementing priority actions, particularly in the field of water resources.	CRDA staff, Ministry of the Environment, UNDP	15 participants, 3 women 12 men
29/09/2025 CTD headquarters in Tozeur	**Main points of the meeting:** - Role and responsibilities of the CTD, - CTD experiences and best practices (dissemination of oasis research findings, crop improvement, water resource optimisation, crop disease prevention, etc.) - Discussions on the proposed role of the CTD in the project (particularly regarding the operational implementation of good agricultural practices for climate change adaptation)	Director General of the CTD, CTD staff, Ministry of the Environment, UNDP	6 participants, 2 women, 4 men
30/09/2025 Headquarters of the Regional Tourism Directorate in Tozeur	**Key points of the meeting:** - Vulnerability of the tourism sector to climate change (manifestations and impacts) - Regional priorities and sites of interest for enhancing tourism appeal, - Opportunities to support entrepreneurship and job creation in tourism-related services and hospitality infrastructure, particularly through spa tourism, agritourism and ecotourism	Staff from the regional tourism directorate, the Ministry of the Environment, and the UNDP	9 participants, 3 women 6 men
30/09/2025 CRRAO headquarters (Dégache)	**Key points of the meeting:** - Key findings and results of research in the oasis region, - Findings and lessons learnt from the assessment of the impact of climate change on agricultural productivity in oasis environments, - Role and terms of CRRAO's involvement in the project, - Priority actions in the field of agricultural intensification, - Development of the main components and activities of a project on agricultural diversification in the targeted	CRRAO staff, CRDA Tozeur staff, Ministry of the Environment, UNDP	14 participants, 6 women 8 men

	traditional oases		
1 October 2025 Headquarters of the Tozeur Regional Directorate of Culture	**Main points of the meeting:** - Current key initiatives for the preservation of cultural heritage (tangible and intangible), - Key current cultural events aimed at promoting oasis heritage and traditional skills, - Possible forms of support within the framework of the current project	Staff of the Regional Directorate of Culture, Ministry of the Environment, UNDP	9 participants, 3 women, 6 men
1 October 2025 Headquarters of the Regional Directorate for Crafts	**Main points of the meeting:** - List of craft sectors in the governorate of Tozeur - Availability of a database of craftspeople, - Current support measures for craftspeople - Proposals for possible project interventions (AF) to support entrepreneurship in the craft sector linked to the promotion of traditional oases	Staff from the Regional Directorate of Handicrafts, Ministry of the Environment, UNDP	6 participants, 2 women 4 men
01/10/2025 Regional Civil Protection Directorate in Tozeur	**Main points of the meeting:** - Current situation and observed trends regarding fires in traditional oases, - Main causes and links to climate change, - Measures for prevention and firefighting, - Proposals for support from the AF project	Staff from the regional civil protection directorate, Ministry of the Environment, UNDP	8 participants, 2 women 6 men
02/10/2026 Regional Development Directorate	**Key points of the meeting:** - Current projects and programmes for the development of oases in the governorate of Tozeur, - Ongoing work to improve the date value chain and support marketing (production market) - Progress in preparing the photovoltaic irrigation programme	Regional Director of Development, Ministry of the Environment, UNDP	6 participants, 1 woman 5 men
03/10/2025 GDA Tamerza Headquarters	**Key points of the meeting:** - Organisation and initiatives by the GDA to support farmers and members, - Logistical and technical capabilities at GDA level, - Methods of intervention and the GDA's role in project implementation (AF)	Members of the Tamerza GDA, Tozeur Regional Farmers' Union,	10 participants, 1 woman, 10 men
02/10/2025 Elhamma delegation and pilot oases	**Elhamma meeting and field visit.** **Main activities carried out:** - Current projects and development priorities for traditional oases, - Visit to the Elhamma spa, - Visit to the old village of Elhamma, - Visit to the three targeted traditional oases	The Elhamma representative, the local council, Local Agriculture Directorate (CTV)	9 participants, 1 woman, 8 men
02/10/2025 Dégache delegation and sites of interest	**Degache meeting and field visit.** - Current projects and development priorities for traditional oases, - Visit to the municipal oasis, - Tour of the Degache tourist and cultural circuit,	The representative from Degache, the local council, and the Local Agricultural Directorate (CTV)	11 participants, 2 women, 9 men
02/10/2025 Regional Union for Agriculture and Fisheries (URAP)	**Key points of the meeting:** - Key challenges and current difficulties in the management of traditional oases, - Debt of the GDA to STEG (electricity costs for pumping and irrigation), - Support and guidance for farmers, particularly smallholders, - Possible measures to improve the adaptive capacity of the most vulnerable farmers	URAP member, Ministry of the Environment, UNDP	5 participants, 1 woman, 4 men

04/10/2025 Delegation from Nafta and targeted oases	**Key points of the meeting and visits:** - Development of SMSAs and community-based organizations to support and mentor farmers, - Current difficulties in adapting oases to the impacts of climate change, - Identification of priority adaptation measures, - Visit to the Ras Elain oasis and meeting with the GDA office, - Visit to the Ras Elain tourist circuit - Visit to the Beni Ali site (drainage water issue), - Visit to the traditional weaving project and meeting with the women artisans of Nafta	Delegate from Nafta, local council, GDA chairpersons, local technical departments, NGOs	18 participants, 4 women, 14 men
06/10/2025 Tozeur delegation	**Key points of the meeting and visits:** - Current difficulties in adapting oases to the impacts of climate change in the Tozeur delegation, - Organizational and debt issues facing the GDAs in traditional oases - Current projects and tourism development priorities in the delegation (restoration of the Ouled Elhadef historic site, restoration of the Ras Elain Tozeur site)	Delegate of Tozeur, Local Council, neighbourhood leaders, Municipality of Tozeur	20 participants, 2 women, 18 men
1-2 October 2025 Individual project sites	**Visits to small family-run private businesses and initiatives promoting oasis products and by-products:** - **'Oasissia' project,** extraction of oils from date pits and cosmetics based on these oils. - **'Cosmo Nat' project** in crafts, production of cosmetic products based on date stone oils and local produce. - **'Gout Oasis' project**, specializing in handicrafts, the production of date-based products and local produce - **Private nursery**, a family project for the propagation of fruit trees and local cuttings - **'DecoPalm' project:** crafts, wooden decorations and palm waste - **'Oasis Basket' project:** the production of baskets and decorative items using woven palm leaves and oasis waste	Project leaders, mainly women and young people	12 participants Women: 8 Men: 4
01/12/2025 Tozeur CRDA	**Key points of the meeting:** - Actions to be implemented as part of the AF project on the adaptation of oasis agriculture, - Collection of information regarding current boreholes in the targeted oases, - Interventions in the field of water resource adaptation, oasis clean-up and the establishment of an integrated oasis waste management system	CRDA Tozeur staff, Ministry of the Environment, UNDP	17 participants; 3 women, 14 men
01/12/2025 Delegation from Tozeur and targeted tourist sites and traditional oases	**Key points of the meeting and visits:** - Gathering of available information and studies (development study for the Ras Elain site, Tozeur), - Visit to the Ras Elain site (tourist attraction), - Visit to the historic site of Ouled Elhadef, - Visit to traditional oases (Oussat, Rbat, Hafir, Jhim1, Castilia, Abbes), - Meetings with the chairpersons of the GDAs	Tozeur Delegate, Tozeur Municipality, Local Council, National Waste Management Agency, Ministry of the Environment, UNDP	9 participants; 1 woman, 8 men
02/12/2025 Visits to selected traditional oases in the Dégache district)	**Main visits:** - Field visits (all targeted traditional oases) and meetings with the offices of the GDAs of the traditional oases, - Meeting with the SMSA of the Sebaa Abar – Degache oasis, - Visit to irrigation systems in the targeted oases	Degache Delegate, Local Council, Local Directorate of Agriculture (CTV),	9 participants, 2 women, 7 men
05/12/2025 Tozeur Regional	**Key points of the meeting:** - Progress on the preparation of a project to support entrepreneurship in the craft sector and the promotion of oasis	Regional Director of Crafts, Director	9 participants, 2 women,

Directorate of Crafts	by-products, - Possible methods for implementing the project and supporting beneficiaries, identification of key stakeholders	of the business centre in Tozeur, local NGO,	7 men
08/12/2025 Tozeur Governorate Headquarters	***Bilateral meeting with the Governor of Tozeur*** **Main points of the meeting:** - Briefing on the results of consultations and site visits, - Proposals and discussion of the main components and activities of the project (AF)	Governor of Tozeur, Deputy Governor, Regional Director of Development	6 participants, 1 woman, 5 men
06/03/2026 (Tamerza Delegation)	***Meeting with local stakeholders in the Tamerza Delegation:*** **Key points of the meeting:** - Presentation of an initial organizational proposal and the main activities proposed as part of the Traditional Oasis Adaptation (FA) project, - Discussions on the arrangements for implementing the project at local level, the role and involvement of GDAs and private agricultural service companies.	Tamerza Delegation, Tamerza Municipality, Local Council, CTV, GDAs, ULAP,	16 participants, 0 women, 16 men
09/03/2026 Nafta Delegation	***Meeting to discuss the roles and contributions of community support structures and the private sector in the implementation of climate-resilient good agricultural practices,*** **Key points of the meeting:** - Presentation of an initial organizational proposal and the main activities proposed as part of the Traditional Oasis Adaptation (FA) project, - Identification of needs for strengthening the administrative, technical and logistical capacities of agricultural support structures in the Nafta governorate.	Nafta Delegate, Nafta Municipality, GDAs, SMSAs, CTV Agriculture, Local Agricultural Union	20 participants 05 women 15 men
09/03/2026 Nafta Delegation	***Discussion meeting on local expertise in the field of crafts and the promotion of agricultural by-products from the oasis, through youth and women's entrepreneurship:*** **Key points of the meeting:** - Presentation of value-added sectors within the delegation, - Discussions on the implementation of community adaptation projects, - Identification of capacity-building needs and technical support for women and young entrepreneurs.	Nafta Delegate, Nafta Municipality, Women Artisans, Regional Directorate of Crafts, 'Shnti' Association	25 participants 20 women 5 men
11/03/2026 ('Entreprendre' Centre	***Meeting regarding support mechanisms and capacity building in the field of entrepreneurship for the most vulnerable communities:*** **Key points of the meeting:** - Presentation of a proposal for the implementation of a community project to support entrepreneurship in craft sectors involved in the processing of oasis products and by-products (wood, basketry, aromatic and medicinal plants, traditional weaving) - Role of the 'Entreprendre' centre in providing guidance and monitoring the direct beneficiaries of the project, particularly young people and women.	Director of the 'Entreprendre' unit, Ministry of the Environment, UNDP	5 participants: 1 woman, 4 men
13/03/2026 Tozeur Governorate	***Regional workshop to present a preliminary project outline (FA), key components and activities:*** **Key points of the meeting:** - Presentation of the preliminary project document (FA) by the Ministry of the Environment and supporting experts, - Discussions on the next steps in preparing the project document, - Discussion of the general project structure (Steering Committee, Regional Advisory Committee, management units	Governor of Tozeur, delegates from the five target localities, all relevant technical departments, relevant municipalities,	Participants: 32 Women: 11 Men: 21

	at national and regional levels, etc. - Approval of the proposed version by all stakeholders,	regional council, GDAs	
12/05/2026 Ministry of the Environment	***National workshop to present the project document (FA), its main components and activities:*** **Key points of the meeting:** - Presentation of the draft project document (FA) by the Ministry of the Environment and supporting experts, - Discussions on the next steps in preparing the project document and its validation and ownership, - Discussion of the general organization of the project (Steering Committee, Regional Advisory Committee, management units at national and regional levels, etc. - Validation of the proposed version by all stakeholders	Ministry of Economy and Planning, Ministry of Finance, all technical ministries at central and regional level, targeted municipalities, NGOs	
01/06/2026 Tozeur Governorate	**Regional workshop for the presentation and final validation of the project.** Key points of the meeting: - Presentation of the project document; - Discussion of the final project design and implementation arrangements; - Final validation by regional stakeholders.	Regional authorities, technical services, local stakeholders and project partners.	Participants: 93 Women: 17 Men: 76
02-03/06/2026 Tamerza, Midès and Tozeur	***Consultation meetings with women's GDA's*** ***Main points of the meeting:*** - Discussion of women's priorities and needs for climate adaptation; - Identification of opportunities for participation in project activities, including livelihood interventions and income-generating activities (IGAs).	Women's GDA of Tamerza, Women's GDA of Midès, Women's GDA Toziuros (Tozeur).	
03/06/2026 Nafta	***Consultation meeting with organizations representing persons with disabilities.*** ***Main points of the meeting:*** - Discussion on opportunities to ensure the inclusion of persons with disabilities in project activities; - Identification of potential participation in income-generating activities (IGAs).	Tunisian Union of the Blind; Tunisian Association of Persons with Organic Motor Disabilities.	

The table below lists key stakeholders met during the project's full proposal preparatory phase.

Table 22: Key stakeholders met during the project's full proposal preparatory phase

Name	Position	Organisation
Yousri Helal	Team Leader	UNDP
Sellema Houij	Programme Associate	UNDP
Fadhel Baccar	Expert	UNDP
Mohamed Zmerli	Support Expert	NDC Partnership
Taoufik Mustapha	National Focal Point for the Adaptation Fund, Ministry of the Environment	Ministry of the Environment
Lotfi Msadki	Director, National Coordination Unit for Climate Change (UGPO-CC), Ministry of the Environment	Ministry of the Environment
Chahine Zribi	Governor of Tozeur	Governorate of Tozeur
Rafika Shimi	Head of the Tozeur Governorate	Governorate of Tozeur
Noureddine Zarai	Delegate	Tozeur Delegation
Basma Yacoubi	Delegate	Nafta Delegation
Abderrahmane Idoudi	Delegate	Dégache and Tamerza Delegation (acting)
Slim Mansour	Delegate	Elhamma Delegation
Ridha Gasmi	Regional Director of the Environment – Tozeur	Ministry of the Environment
Awatef Bourogaa	Chief Engineer – Regional Directorate of the Environment	Ministry of the Environment
Belgacem Ammar	Director General, CRDA of Tozeur	MARHP

Hafedh Jroud	Head of CTV Nafta (CRDA Tozeur)	MARHP
Yamen Msatra	Head of CTV Dégache	MARHP
Ahmed Miadi	Head of CTV Elhamma	
Rached Nasr	Secretary General	Municipality of Tozeur
Nizar Sfia	Chairman	Local Council – Tozeur
Slaheddine Chebbi	Member	Local Council - Tozeur
Khalil Afsi	Secretary General	Elhamma Municipality
Mongi Akremi	Member	Local Council - Dégache
Sami Jellouli	Member	Local Council - Dégache
Soumaya Aloui	Member	Local Council - Dégache
Sadek Zaoui	Secretary General	Municipality of Tozeur
Aid Lazouech	Regional Director	Regional Development Directorate – Tozeur
Mehdi Baccouche	Chairman	"Shanti" Association, Nafta
Atef Omrane	Regional Coordinator	"Shanti" Association, Nafta
Salem Ben Salma	Board member	La Ruche Association, Tozeur
Souhir Ben Ayed	Regional Director	Regional Directorate of Crafts – Tozeur
Yahia Hsine	Director	"Entreprendre" Centre, Tozeur, Ministry of Vocational Training and Employment
Amel Touil	Head of the 'Agricultural Extension' District, CRDA of Tozeur	MARHP
Mohamed Sghaier Chebbi	District Head of CES, Tozeur CRDA	MARHP
Atef Dabbaoui	Head of the Irrigated Areas District, CRDA of Tozeur	MARHP
Adel Sbita	Regional Director	Regional Tourism Directorate
Saloua Maami	Engineer	Regional Employment Directorate
Rochdi Hermassi	Chairman	GDA Ras Elain-Nafta
Ahmed Lamouchi	Chairman	GDA Rmada-Nafta
Amine Zekri	Chairman	Local Council - Nafta
Haythem Miadi	Project Manager	AGDOR Association, Nafta
Monia Ezza	Secretary General	Municipality of Nafta
Abdallah Jridi	Head of the Forestry Department, CRDA of Tozeur	MARHP
Arafet Tlili	Member	Local Council – Elhamma
Zohra Lamouchi	District Head,	Regional Tourism Directorate - Tozeur
Sihem Ben Maachia	Director General	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Boutheina Zougari	Researcher	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Anis Zouba	Director General	Centre Technique des Dattes
Mourad Lassoued	Regional Director	Centre Technique des Dattes
Monia Jomni	Researcher	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Rabeb Khaldi	Researcher	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Ahrane Khadli	Researcher	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Karim Kadri	Researcher	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Sameh Ben Chabane	Researcher	Regional Centre for Agricultural Research in Oasis Environments (CRRAO)
Sabri Bachta	Head of Office	Civil Protection - Tozeur

Mohamed Nasr	Member	Tunisian Union of Industry and Commerce (UTICA) – Tozeur
Zohra Nsiri	Engineer	Municipality of Tozeur
Ahmed Kheli	Chairman	GDA Tamerza
Mounir Ben Romdhane	Member	GDA of Tamerza
Mouin Ben Messoud	Secretary General	GDA of Tamerza
Karim Ben Chabane	Executive Committee Member	Regional Union of Agriculture and Fisheries – Tozeur
Rania Elabed	Regional Director	Regional Directorate of Culture – Tozeur
Badre Eddine Chaabani,	Manager	Regional Directorate of Culture – Tozeur
Mbarka Mbarek ‘	young entrepreneur (crafts sector)	‘Oasisia’ project
Lobna Suissi	young entrepreneur	‘Cosmo Nat’ project
Sameh Hachani, project manager	young entrepreneur	‘Gout Oasis’ project
Mohamed Saiid Ejemni	Entrepreneur	‘Pépinière oasienne’ project
Ferida Laimech	Young entrepreneur	Crafts company specialising in woodwork and palm waste
Taieb Radhouani	Entrepreneur	Coffins and decorative items made from green waste from the oasis
Nadia Jazia	Head of Department	Tunisian Electricity and Gas Company (STEG)
Karima Bouallegue	Chair	Elhamma Local Council
Amine Zekri	Chairman	Local Council – Nafta
Imed Zaghdadi	District Head – Crop Production, Tozeur CRDA	MARHP
Sihem Miadi	Investor Support Unit	Tozeur Governorate
Salem Gezaz	Water Resources District, Tozeur CRDA	MARHP
Imed Triki	Regional Representative – Tozeur	National Energy Management Agency - ANME

The documents below are the attendance lists for the various workshops held in September and December 2025, as well as for the most recent regional meeting to present and approve the project structure at the regional level (March 13, 2026).


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Annex 8: Stakeholder Engagement Plan

Annex8_SEP_Tozeur

Annex 9: Procurement Plan

Annex 10: Summary and justification of main changes from the endorsed Concept Note logframe

The fully developed proposal preserves the endorsed Concept Note's impact logic, geographical scope, and three-component structure. The endorsed Concept Note's general objective was to mainstream cross-sectoral climate change adaptation strategies, training, and concrete adaptation projects into the management of traditional oases of the Governorate of Tozeur, with the aim of reducing the vulnerability of communities in traditional oases through diversified and enhanced livelihood opportunities and improved adaptive capacity of communities and institutions. This impact logic remains unchanged. The endorsed Concept Note also retained three specific objectives: strengthening institutional and technical capacity for oasis management; implementing concrete adaptation activities that promote climate adaptation and livelihood enhancement measures; and improving communication and the evidence base for good practices in climate-adaptive management of traditional oases.

The revisions introduced in the full proposal do not modify the endorsed impact statement, do not change the target geography, and do not alter the three-component architecture endorsed at Concept Note stage. The project remains structured around: Component 1, Institutional Capacity Building; Component 2, Implementation of concrete adaptation projects; and Component 3, Data, knowledge and communication management. The changes are therefore presented as full-proposal refinements required to improve results-based formulation, strengthen technical coherence, respond to Adaptation Fund Board observations, and reflect the more precise intervention priorities identified through field consultations and technical discussions.

The endorsed Concept Note logframe included one outcome and four outputs under Component 1; three outcomes and seven outputs under Component 2; and one outcome and four outputs under Component 3. The revised results framework maintains this broad structure but reformulates several outcomes and outputs to make them more measurable and implementation-ready. In particular, several outputs that were originally formulated as events, delivery mechanisms, or broad thematic areas have been converted into more precise adaptation results, included in a SMART[103] results framework, with measurable outputs, quantified benefits, clear adaptation additionality, adequate environmental and social risk management, and gender-responsive monitoring. As a results of the higher number of outcomes (and outputs per outcome) under Component 2, the budget allocated to Component 2 represents 70% of the project budget.

The revisions also respond to the Adaptation Fund Board observations under Decision B.43/12. These observations required the fully developed proposal to clarify the meaning and scope of "biodiversity" in the agricultural context, provide guidance for unidentified sub-projects, quantify project benefits, address national technical standards, assess risks of duplication, strengthen environmental and social risk assessment, explain activities not fully formulated at Concept Note stage, and present gender-disaggregated data where relevant. These requirements justify the more precise formulation of outputs related to agro-biodiversity, pilot parcels, plant disease management, organic oasis waste management, livelihood diversification, gender-responsive income-generating activities (IGAs), and knowledge systems.

The revised framework also reflects the extensive consultation process carried out during full proposal preparation. The field mission and consultations confirmed that climate vulnerability in the traditional oases is systemic: water scarcity, irrigation inefficiency, increasing energy costs, agrobiodiversity erosion, pest and disease pressures, biomass accumulation, fire risk, weak GDA capacities, abandoned plots, limited market access, and declining livelihood profitability are interlinked. The full proposal therefore reorganizes the project around integrated adaptation pathways rather than isolated activities. This improves the logic, efficiency, and sustainability of the intervention.

The revisions should be understood as refinements and operational strengthening of the endorsed concept, rather than a modification of its strategic scope or intended impact. The project impact statement, target geography, target ecosystem, beneficiary rationale, and overall three-component structure are maintained.

[103] Acronym: Specific, Measurable, Achievable, Relevant and Time-bound (SMART).

The revisions primarily respond to: (i) the detailed climate risk and vulnerability analysis conducted during full proposal preparation; (ii) extensive consultations carried out across the target delegations and oasis communities; (iii) the need to transform broad Concept Note orientations into technically implementable, costed and measurable interventions; and (iv) recommendations formulated by the Adaptation Fund Board under Decision B.43/12.

Several outputs initially formulated at conceptual level in the Concept Note were substantially operationalized and expanded during full proposal development. This applies in particular to: (i) climate-smart irrigation rehabilitation and optimization measures in highly vulnerable oasis systems; (ii) integrated fire prevention and rapid-response systems; (iii) integrated phytosanitary management and climate-sensitive pest control; (iv) organized organic waste management and valorization systems; (v) strengthened support to local agro-biodiversity conservation and multiplication of climate-resilient local varieties; and (vi) livelihood diversification activities linked to handicrafts, oasis-based eco-tourism, cultural heritage valorization, and local value addition.

The additional financing also allowed the project to strengthen investments in institutional accompaniment, local implementation support, technical assistance, GDA operational strengthening, household coaching, monitoring and safeguards support, and long-term capacity development. These additions are intended to improve implementation quality, strengthen local ownership, and support sustainability of adaptation investments beyond the project lifetime.

The scale-up from approximately USD 10 million to USD 15 million therefore reflects not only an increase in budget volume, but also a strengthening of the operational and sustainability dimensions of the adaptation programme. The additional resources are used to: (i) strengthen the implementation and technical accompaniment of adaptation investments; (ii) operationalize additional adaptation dimensions identified during full proposal preparation and stakeholder consultations; (iii) reinforce livelihood resilience and local economic diversification activities; and (iv) strengthen the institutional and technical conditions required for long-term sustainability and replication.

Similarly, the extension of project duration from four to five years reflects implementation feasibility considerations rather than an expansion of project scope. The project involves technically complex and geographically dispersed interventions across 29 traditional oases, including irrigation rehabilitation works, ecosystem restoration measures, agro-biodiversity multiplication, community-based livelihood support, and extensive local capacity-building processes. Consultations confirmed that implementation sequencing is critical: local planning, institutional strengthening, technical training, beneficiary mobilisation, and organizational support must precede large-scale field investments to ensure ownership, technical quality, and sustainability. The additional year also reflects the operational realities of oasis systems, where agricultural and water-management cycles limit the speed at which adaptation measures can be implemented and consolidated. Compressing implementation into four years would significantly increase operational risks, reduce the quality of community engagement and technical accompaniment, and weaken the sustainability of adaptation outcomes. The five-year duration therefore improves implementation realism, allows progressive deployment and consolidation of adaptation measures, and strengthens the likelihood that project-supported systems and organizations remain functional after project closure.

Overall, the revisions introduced in the full proposal do not alter the endorsed adaptation rationale or strategic direction of the Concept Note. Rather, they transform the endorsed concept into a more operational, evidence-based, implementable and sustainability-oriented adaptation programme consistent with the implementation requirements associated with a USD 15 million Adaptation Fund project.

The table below presents a systematic comparison between the endorsed Concept Note logframe and the updated full proposal formulation. It highlights the nature and rationale of each change, demonstrating that while the results framework has been strengthened and operationalized, the overall structure and intent of the endorsed Concept Note have been fully preserved, in line with Adaptation Fund requirements.

Table 23: Summary and justification of main changes from the endorsed Concept Note logframe

Endorsed Concept Note element	Latest full-proposal formulation / operationalization	Nature of change	Justification for the change	Confirmation that endorsed Concept Note structure is preserved
Impact / objective: reduce vulnerability of communities in traditional oases through mainstreaming cross-sectoral adaptation, training and concrete adaptation projects.	Impact and objective retained. The full proposal continues to focus on reducing climate vulnerability in the 29 traditional oases of Tozeur through institutional capacity, concrete adaptation and knowledge management.	No substantive change.	Required by AF rules: the endorsed impact statement is preserved. The full proposal strengthens evidence, indicators and intervention detail, but does not modify the impact logic.	Endorsed impact/objective unchanged.
Component 1: Institutional capacity building.	**Component 1 – Institutional Capacity Building and governance strengthening.** Specific objective remains to strengthen institutional and technical capacity for oasis management in the public sector and civil society.	No structural change; operational strengthening.	The latest formulation clarifies that Component 1 addresses institutional, technical and organizational constraints that limit effective climate adaptation, including fragmented governance, weak local structures and limited integration of climate risk into decision-making.	Component 1 preserved.
Outcome 1.1: Capacity of national and sub-national institutions strengthened through development of plans and trainings to promote climate adaptative management of oasis ecosystems	**Outcome 1.1:** Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems.	Results-based improvement and clarification of implementation function.	The old wording focused mainly on planning and promotion. The revised wording adds coordination and implementation, reflecting the need for operational adaptive governance. It also explicitly includes local organizations because GDAs, CSOs, SMSAs and other local actors are essential for sustaining adaptation investments.	Same outcome area preserved: institutional capacity for climate-adaptive oasis management.
Output 1.1.1: Five delegation-level plans updated through stakeholder consultation.	**Output 1.1.1:** Delegation-level climate change adaptation plans updated, validated and operationalized.	Results-based improvement.	The change converts a process-oriented output into an operational result.	Same output retained, with stronger operationalization.
Output 1.1.2: National-level workshop for all relevant institutions and actors to present	**Output 1.1.2:** Technical capacities of national and local-level stakeholders across relevant sectors strengthened	Reformulation from event to result.	A workshop is a delivery modality, not a durable adaptation result. The revised output focuses on strengthened technical	Same knowledge-sharing and capacity-building function retained under Component 1.

the climate change adaptation plans held.	to integrate climate adaptation into the governance and management of oasis ecosystems.		capacity across relevant sectors, including water, agriculture, energy and tourism, which is measurable and directly supports implementation.	
Output 1.1.3: Cross-sectoral capacity building activities for national and subnational institutions and stakeholders undertaken.	**Output 1.1.3:** Capacities of households strengthened to develop and implement climate-resilient income-generating activities.	Operational clarification of beneficiary capacity-building needs.	The latest logframe makes household adaptive capacity explicit. This responds to the livelihood-resilience pathway already endorsed in the Concept Note and addresses the need to equip vulnerable households, especially women and youth, to implement diversified climate-resilient activities.	Does not change the component structure; it strengthens the capacity-building function supporting Component 2 livelihood outcomes.
Output 1.1.4: Capacity assessment and strengthening of existing CSOs in targeted oases for climate change adaptation management.	**Output 1.1.4:** Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions.	Results-based improvement.	The revised wording makes the expected result clearer: CSOs and local actors are not only assessed but strengthened to plan, implement and manage adaptation actions. This responds to the importance of local organizations in collective resource management.	Same CSO/local capacity scope retained.
Component 2: Concrete adaptation projects.	**Component 2 – Implementation of community-based adaptation projects in the targeted oases.**	No structural change; clearer wording.	The latest formulation clarifies that Component 2 is the concrete investment component and that activities are community-based and targeted to the traditional oases.	Component 2 preserved.
Outcome 2.1: Improved capacity for efficient and climate-resilient management of water, biodiversity and agricultural resources.	**Outcome 2.1:** Improved climate-resilient and resource-efficient management of water, agro-biodiversity and agricultural production systems in targeted traditional oases.	Results-based and technical clarification.	The term “biodiversity” is refined as “agro-biodiversity” where appropriate, responding to AF observations that the fully developed proposal should delineate biodiversity and use a term more specific to the agricultural context.	Same outcome retained: water, biodiversity/agro-biodiversity and agricultural resource management.
Output 2.1.1: Low-carbon, climate-resilient irrigation systems developed.	**Output 2.1.1:** Climate-resilient irrigation systems established and operational	Results-based improvement and operational specification.	“Developed” is too broad. “Established and operational” defines a verifiable result. The revised output specifies rehabilitation and optimization of water	Same irrigation output retained and made measurable.

			capture and distribution, replacement boreholes where required, and irrigation infrastructure improvement.	
Output 2.1.2: Drought-adapted local biodiversity conserved through improved tools and practices.	**Output 2.1.2:** Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties, including seeds and seedlings of date palms, fruit trees and vegetables.	Technical clarification and response to AF observation.	The revised output clarifies the agricultural biodiversity focus and defines the means of conservation. This responds directly to the need to avoid an overly broad and ambiguous use of the term “biodiversity.”	Same biodiversity/adaptation function retained, with clearer agricultural scope.
No separate output in the endorsed Concept Note; fire risk was implicit within climate-adaptive oasis management.	**Output 2.1.3:** Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level.	New explicit output under endorsed Outcome 2.1.	Consultations identified fire risk as a climate-related threat linked to heat, dry biomass, abandoned plots and difficult access. Making fire response explicit protects the same ecosystem and agricultural assets targeted by the endorsed Concept Note. It also strengthens risk management and safeguards.	Remains within endorsed Outcome 2.1 on climate-resilient management of oasis resources.
Output 2.1.3: Pilot farms with training programmes on oasis agriculture developed.	**Output 2.1.4:** Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers.	Reformulation and integration of the pilot approach.	The old pilot-farm output is retained but strengthened. The latest formulation specifies integrated pilot parcels covering efficient irrigation, water storage, soil amendments, crop diversification, mechanization and pollinisation. It also focuses on adoption by farmers, not only establishment of pilot farms.	Same pilot farm/training scope retained, with stronger adaptation content.
No separate output in the endorsed Concept Note; pest and disease management was implicit in climate-resilient agricultural management.	**Output 2.1.5:** Agricultural productivity in pilot oases improved through the implementation of integrated plant disease management systems.	New explicit output under endorsed Outcome 2.1.	This addition is justified because climate change increases pest and disease pressures affecting date palms and fruit trees. The output operationalizes the old focus on agricultural resources and productivity through phytosanitary	Remains within endorsed Outcome 2.1; it does not introduce a new sector, geography or impact. It operationalizes climate-resilient agricultural resource management.

			assessment, preventive treatment, farmer capacity strengthening and integrated biological/chemical control adapted to local conditions and organic production requirements. It strengthens adaptation additionality by reducing climate-induced production losses.	
No separate output in the endorsed Concept Note; organic waste was implicit in ecosystem management, land conservation, fire prevention and disease reduction.	**Output 2.1.6:** Integrated organic oasis waste management mechanism established at governorate level and operational at delegation and oasis levels.	New explicit output under endorsed Outcome 2.1.	This addition is justified because accumulated biomass increases fire risk, pest and disease spread, and ecosystem degradation, while also representing a resource for composting, soil fertility improvement and circular valorization. The output supports preventive cleaning, logistical strengthening of SMSAs and GDAs, composting capacity, private-sector collection and valorization, and technical assistance. It contributes directly to climate-resilient oasis management, soil-water retention and reduced fire/disease vulnerability.	Remains within Component 2 and Outcome 2.1; it strengthens climate-resilient management of oasis ecosystems and does not alter the endorsed impact or component structure.
Outcome 2.2: Livelihoods enhanced through income diversification, market access and skills development of oasis communities.	**Outcome 2.2:** Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains and market access.	Results-based improvement.	The revised wording keeps the endorsed livelihood scope but makes the climate-resilience pathway clearer: reducing production costs, increasing value addition, diversifying income and strengthening market access to reduce sensitivity to climate shocks.	Same livelihood outcome retained.
Output 2.2.1: Traditional good practices in oasis agriculture captured and disseminated.	**Output 2.2.1:** Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency.	Substantive operational refinement within the endorsed livelihood and resource-efficiency scope.	This change is more than a wording adjustment and must be explicitly justified. Consultations showed that electricity costs for pumping are a major constraint to GDA solvency and oasis profitability. Reducing	Acceptable as part of the endorsed livelihood resilience and water-management scope; it does not alter the impact or component structure.

			energy costs for collective irrigation systems strengthens the viability of climate-resilient water management and protects livelihoods. The output should be accompanied by safeguards to avoid rebound effects on groundwater abstraction, including metering, quotas, water-use monitoring and CRDA oversight.	
Output 2.2.2: Platform for the marketing of oasis products developed.	**Output 2.2.2:** A regional market for oasis products established, equipped and operational, improving valorization and commercialization of date products.	Operational specification of market-access output.	The term “platform” was ambiguous and could be interpreted as digital-only. Consultations clarified the need for a physical and operational market and exhibition space, including construction support, exhibition areas, refrigeration, labelling, packaging, sorting and calibration.	Same market-access output retained and made operational.
Livelihood diversification was included in Outcome 2.2 but not separately detailed.	**Output 2.2.3:** New climate-resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products.	Disaggregation of livelihood diversification pathway.	The revised output specifies how diversification will occur: support to entrepreneurship in common date value chains and processing of agricultural products, certification/labelling, direct sales, packaging, and participation of women and youth entrepreneurs in fairs and commercial events.	Remains within endorsed Outcome 2.2 on livelihood diversification, market access and skills.
Outcome 2.3: Support provided for locally implemented interventions at selected oases, prioritizing ideas replicable in other oases in and beyond Tozeur.	**Outcome 2.3:** Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources.	Results-based reformulation of local intervention outcome.	The old wording described a support modality. The revised wording expresses the intended adaptation result: resilient employment, valorization of local know-how and reduced pressure on natural resources.	Same locally led intervention and replication function retained.
Output 2.3.1: Capacity assessment and strengthening for climate change adaptation.	**Output 2.3.1:** Beneficiaries, particularly women and youth, develop and sustain climate-resilient handicraft-based income-generating activities	Operationalization of local adaptation and livelihood diversification.	This is more specific than the Concept Note and must be justified. It remains within the endorsed local adaptation and livelihood diversification scope because it uses oasis by-products,	Remains within Component 2 and endorsed Outcome 2.3.

	based on oasis by-product valorization.		creates income opportunities for women and youth, and reduces pressure on natural resources by increasing value from existing biomass and local skills.	
Output 2.3.2: Calls for proposals for concrete adaptation interventions developed, advertised and awarded for implementation.	**Output 2.3.2:** Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services and enterprises, especially by women and youth.	Reformulation from financing mechanism to adaptation result.	The old output described a call-for-proposals mechanism. The revised output defines the locally validated investment area: eco-tourism and cultural services that diversify incomes and increase local benefits from oasis landscapes. The call-for-proposals approach can remain as an implementation modality, but the result is now expressed as enhanced climate-resilient livelihood opportunities.	Same local adaptation and livelihood diversification function retained.
Cultural heritage was recognized in the Concept Note context but not formulated as a specific output.	**Output 2.3.3:** Intangible heritage and traditional knowledge documented, preserved and actively valorized through cultural events and local initiatives.	New explicit output under endorsed Outcome 2.3.	Traditional knowledge and cultural practices are part of oasis adaptive capacity and support livelihood diversification. This output helps preserve adaptive know-how, reinforce local identity, generate income opportunities and reduce reliance on climate-sensitive primary production.	Remains within Component 2; contributes to resilient employment, local know-how and reduced pressure on natural resources.
Component 3: Data, knowledge and communication management.	**Component 3 – Knowledge production, management and dissemination.**	No structural change; clearer wording.	The revised title makes explicit that Component 3 is not only about communication but also about knowledge generation, management and use for adaptive management.	Component 3 preserved.
Outcome 3.1: Improved knowledge management and learning for climate-adaptive management of oasis ecosystems.	**Outcome 3.1:** Improved generation, management and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems.	Results-based improvement.	The revised wording clarifies that knowledge must be generated, managed and used for adaptive management, not simply disseminated.	Same knowledge-management outcome retained.
Output 3.1.1: Information platform on new	**Output 3.1.1:** A GIS **decision-support tool** for traditional	Technical strengthening of	The old information platform is upgraded into a decision-support	Same information and evidence function

technologies and good practices in climate-adaptive oasis management developed.	oases in the Governorate of Tozeur established and operational, including key indicators of ecosystem status and use.	information-platform function.	system. This responds to the need for spatially explicit monitoring of ecosystem status, land use, water risks, abandoned plots and intervention results.	retained, strengthened for decision support.
Output 3.1.2: Action plan and communication tools developed and implemented.	**Output 3.1.2:** Public communication tools and knowledge products on project results and lessons learned developed and disseminated.	Results-based clarification and renumbering.	The revised output clarifies the content of the communication function: project website, guidance materials, printed communication products, videos and beneficiary testimonials.	Same communication function retained.
Output 3.1.3: Regular events to share results and evidence organized and held; **Output 3.1.4:** Exchange missions for dissemination of good practice organized and held.	**Output 3.1.3:** Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.	Consolidation and reformulation from activities/events to result.	Events and exchange missions are implementation modalities. The revised output focuses on the result: documented lessons and good practices disseminated to support replication within Tozeur and in other oasis regions.	Same learning, sharing and replication function retained.

Annex 11: Output-level alignment of the project with the Results Framework of the Adaptation Fund

Table 24: Output-level alignment of the project with the RF of the AF

Project Objective(s)	Project Objective Indicator(s)	AF Fund Outcome/Output	AF Fund Outcome/Output Indicator
Objective: Mainstream cross-sectoral climate change adaptation strategies, training and concrete adaptation projects into the management of traditional oases of the Governorate of Tozeur	Number of direct and indirect beneficiaries, disaggregated by sex, age group and delegation	**AF Impact:** Increased resiliency at community, national and regional levels	Number of beneficiaries, direct and indirect
Outcome 1.1 Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems	Number of institutions and local organizations demonstrating improved capacity to plan, coordinate and implement climate-resilient oasis management	**AF Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses **AF Outcome 7:** Improved policies and regulations that promote and enforce resilience measures	**2.1** No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks **7**. Climate change priorities are integrated into national development strategy
Output 1.1.1: Delegation-level climate change adaptation plans updated, validated and operationalized	Number of delegation-level climate adaptation plans updated, validated and including costed, prioritized, gender-responsive adaptation measures	AF Output 1.1: Risk and vulnerability assessments conducted and updated at a national level AF Output 7: Improved integration of climate-resilience strategies into country development plans	1.1 No. and type of projects that conduct and update risk and vulnerability assessments 7.1. No., type, and sector of policies introduced or adjusted to address climate change risks
Output 1.1.2: Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems	Number of institutional staff and local stakeholders trained on climate risk, oasis ecosystem management, water governance, biodiversity and resilient value chains, disaggregated by sex and institution	AF Output 2.1: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events
Output 1.1.3: Capacities of households strengthened to develop and implement climate-resilient IGAs	Number of households receiving training/coaching to develop climate-resilient income-generating activities, disaggregated by sex and age of lead beneficiary	AF Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies
Output 1.1.4: Capacities of civil society organisations and local actors in targeted oases strengthened to plan,	Number of CSOs, GDAs, SMSAs or community-based organizations supported to design,	AF Output 2.1: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events	2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased

implement and manage climate change adaptation interventions	implement and manage adaptation initiatives		
Outcome 2.1. **Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases**	Number of people and hectares benefiting from improved water, agro-biodiversity, fire, phytosanitary, waste and climate-resilient agricultural systems	**AF Outcome 4:** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability **AF outcome 5:** Increased ecosystem resilience in response to climate change and variability-induced stress	**4.2** Physical infrastructure improved to withstand climate variability and change **5** Ecosystem services and natural assets maintained or improved
Output 2.1.1: Climate-resilient irrigation systems established and operational	Percentage reduction in irrigation water intensity in targeted oases (% reduction in m^3/ha/year)	AF Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change
Output 2.1.2: Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties	Number of local drought-adapted varieties/collections conserved, multiplied and distributed through project-supported mechanisms	AF Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change
Output 2.1.3: Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level	Number of local/delegation-level fire prevention and response units or hubs equipped and operational	AF Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change
Output 2.1.4: Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	Area of pilot parcels implementing integrated climate-resilient agriculture packages; number of farmers adopting at least two promoted practices	AF Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change
Output 2.1.5: Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management system	Number of oases covered by phytosanitary diagnosis and integrated pest/disease management support	AF Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change
Output 2.1.6: Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels	Number of oases and service mechanisms covered by organic waste cleaning, collection, composting and valorization systems	AF Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change

Outcome 2.2. Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access	Number and percentage of targeted households reporting improved or stabilized climate-resilient income sources, disaggregated by sex and age of lead beneficiary	**AF Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	**6.1** % households with increased access to livelihood assets
Output 2.2.1: Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	Number of collective/community wells or pumping stations equipped with PV/energy efficiency systems and volumetric monitoring; percentage reduction in energy cost for supported GDAs	AF Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. No. and type of adaptation assets (physical as well as knowledge) created in support of individual- or community-livelihood strategies
Output 2.2.2: A regional market for oasis products established, equipped and operational, improving the valorization and commercialisation of date products	Regional market established and operational; number of producers using market services, disaggregated by sex and age	AF Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. No. and type of adaptation assets (physical as well as knowledge) created in support of individual- or community-livelihood strategies \n6.1.2. Type of income sources for households generated under climate change scenario
Output 2.2.3: New climate-resilient IGAs developed and operational through improved valorization and commercialisation of agricultural products and by-products	Number of new or strengthened agricultural product/by-product enterprises supported, disaggregated by sex and age of owner/manager	AF Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.2. Type of income sources for households generated under climate change scenario
Outcome 2.3 Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources	Number of beneficiaries generating income from climate-resilient handicrafts, eco-tourism, cultural heritage and oasis by-product valorization, disaggregated by sex and age	**AF Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas **AF Outcome 5:** Increased ecosystem resilience in response to climate change and variability-induced stress **AF Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**6.2** % population with sustained climate-resilient livelihoods **5.** Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress 3.2. Modification in behavior of targeted population
Output 2.3.1: Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization	Number of women and youth artisans supported in oasis by-product value chains	AF Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.2. Type of income sources for households generated under climate change scenario

Output 2.3.2: Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	Number of climate-resilient cultural/eco-tourism sites or service enterprises supported	AF Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. No. and type of adaptation assets (physical as well as knowledge) created in support of individual- or community-livelihood strategies \n6.1.2. Type of income sources for households generated under climate change scenario
Output 2.3.3: Intangible heritage and traditional knowledge documented, preserved and actively valorized through cultural events and local initiatives	Number of cultural events, knowledge products and local initiatives documenting/valorising oasis heritage and adaptation knowledge	AF Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1. No. and type of risk reduction actions or strategies introduced at local level \n3.1.2. No. of news outlets in the local press and media that have covered the topic
Outcome 3.1 Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems	Number of institutions and users accessing and applying climate/oasis data, tools, lessons and good practices	**AF Outcome 1:** Reduced exposure at national level to climate-related hazards and threats **AF Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**1**. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis **3.1** % of targeted population aware of climate impacts and responses
Output 3.1.1: A GIS decision-support tool for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use	GIS and monitoring system operational, covering 29 traditional oases and key indicators of ecosystem status/use	AF Output 1: Risk and vulnerability assessments conducted and updated at a national level	1.1. No. and type of projects that conduct and update risk and vulnerability assessments
Output 3.1.2: Public communication tools and knowledge products on project results and lessons learned developed and disseminated	Number of communication tools/knowledge products produced and disseminated; number of people reached, disaggregated where possible	AF Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1. No. and type of risk reduction actions or strategies introduced at local level \n3.1.2. No. of news outlets in the local press and media that have covered the topic
Output 3.1.3: Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication	Number of good practices documented and replication/exchange events conducted	AF Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1. No. and type of risk reduction actions or strategies introduced at local level

Annex 12: Key gendered dimensions of climate risks

The table below summarizes key gendered dimensions of climate risks.

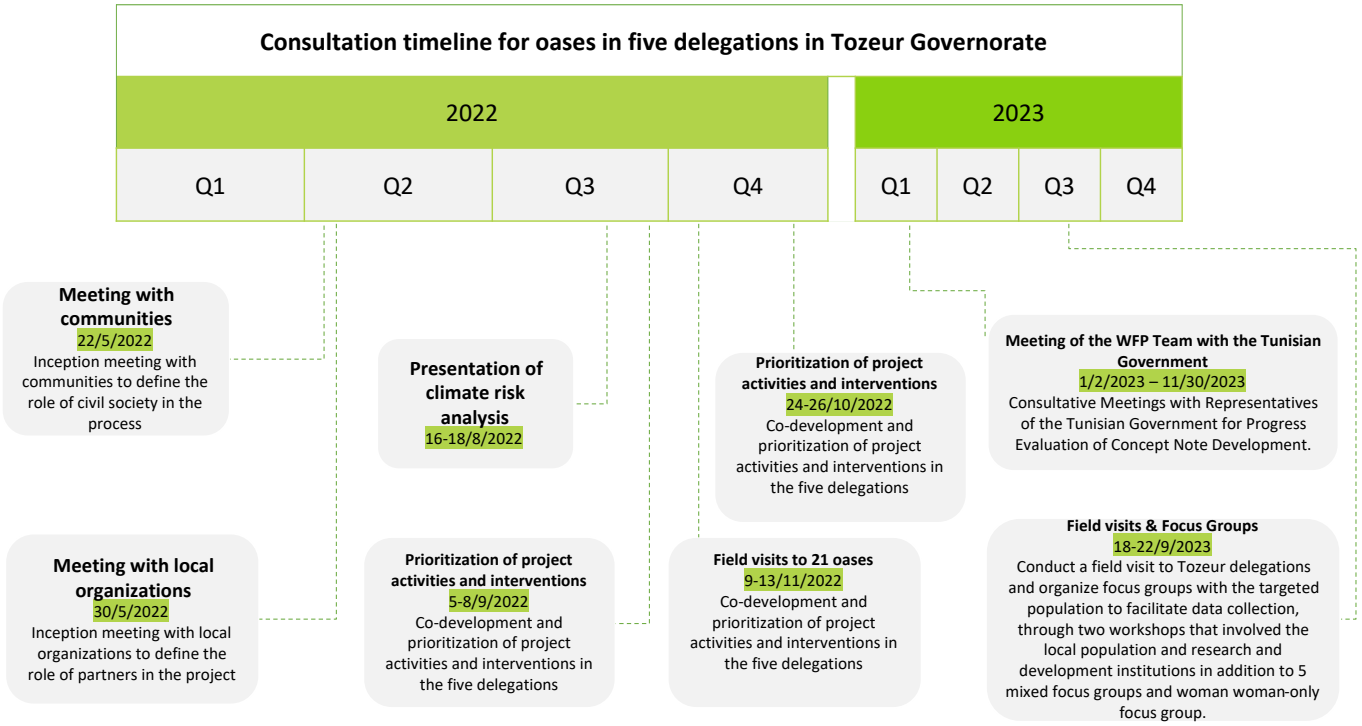
Table 25: Gendered climate risks and vulnerabilities in the Governorate of Tozeur (source: adapted from Project Concept Note, based on Acterra vulnerability study (2022).

Theme	Climate change impacts	Gender issues and risks
Living conditions	Agriculture and food insecurity: The irregularity of the rains strongly disrupts the cropping calendar which has consequences on agricultural production (fall in production, or even production reduced to nothing).	Issue: Increased pressure on women's capacities to produce crops, to fulfil their responsibility for food and the health of children within the household. Risks: Deterioration of the economic and health situation through an increase in malnutrition and economic and social inequalities between the sexes.
	Health: Increase in epidemic and endemic risks due to the deterioration of environmental conditions (water quality due to the drying up of springs, floods, etc.). For example, women in Tozeur report that the length of the dry spell leads to persistent coughs.	Issue: Women are considered responsible, within the household, for health care to be provided to the various members of the family and in particular to children and the elderly, the negative impact on the health status of the population has consequences on women's workload and their own health status. Risks: Deterioration in the state of health of the population, especially children (malnutrition, diarrhoea) and increase in health expenditure.
	Accentuation of seasonal and long-lasting migratory phenomena: Migration to nearby municipalities or even to more distant regions to seek temporary work. Men would move to big cities.	Issue: Women's workload (considering that migration primarily concerns men) who must assume their usual workload and replace men for field work. Risks: While the economic migration of men can be a means of diversifying the sources of household income, it often seems to be an additional burden for women who must take on men's activities in addition to their work.
	Diversification of economic activities: The irregularity of harvests due to the vagaries of the weather forces us to diversify activities to secure resources.	Issue: The diversification of activities in addition to agriculture and livestock (handicrafts, trade, mica mines) can certainly be considered as an adaptation strategy, but it also constitutes an additional workload carried out to the detriment of other tasks and/or well-being. Risks: This increase in the workload of women results in a reduction in the time available for the care of children with the risk of deterioration of their state of health (particularly nutritional). They are also exposed to various forms of violence, including exploitation.
Water supply	Water and sanitation: Climate change affects the availability and quality of water	Issue: Increased pressure on the resource leads to an increase in the workload of women and girls, who are often responsible for collecting water in households. This can reduce their time available for productive and educational activities, as well as their health and well-being. Risks: women's workload increases and their time available for education and other productive activities is reduced.
Access to and control of natural resources	Land insecurity: Droughts and episodes of torrential rain contribute to soil degradation (erosion, landslides) and indirectly increase land pressure.	Issue: More difficult access to land for women and young people. The plots available to women are often of poorer quality (quality of land, access to water) and more vulnerable to climate change. Due to land insecurity (women not inheriting land), women do not invest in the plots they use and do not practice adaptation techniques such as soil conservation that would reduce climate risks. Risks: Increase in inequalities and precariousness; Pressure on resources aggravating climate change.
	Degradation of natural resources: Deterioration and more difficult access to certain resources including water, fruits, etc.).	Issue: Increase in the arduous nature of the work and the time required for collection and picking, mostly carried out by women. Risks: Loss of income, sources of food diversification, means of subsistence.

Annex 13: Consultation timeline for the concept note preparation phase

The table below summarizes the consultation timeline for the concept note preparation phase.

Figure 16: Consultation timeline for the concept note preparation phase



Stakeholder Engagement Plan

Mainstreaming Cross-Sectoral Climate Change Adaptation Strategies in Traditional Oasis of the Governorate of Tozeur

1. Introduction

1.1. Project Background

Oases are unique natural landscapes found in the arid regions of Tunisia and are of particular importance in the southern Saharan region. One of the defining features of oases is the presence of water, which is crucial for sustaining these unique ecosystems and renders them sensitive to changes in water availability and quantity. This water is typically derived from underground sources, such as natural springs or groundwater reservoirs. In addition to their contribution to food security and income generation, oases play an important socio-cultural role in Tunisia, where activities in and around these systems have sustained a traditional way of life for centuries.

1.2. Purpose of the Project

The project, entitled "Strengthening adaptive capacity and livelihood security in the most vulnerable oases of the Governate of Tozeur" is funded by the Adaptation Fund (AF) and implemented by UNDP and the Government of Tunisia. It aims to reduce vulnerability to the effects of climate change and increase adaptive capacity in the most vulnerable oases of the Governorate of Tozeur.

1.3. Project Components

The project objective will be achieved through 3 components and 20 outputs defined below:

COMPONENT 1 – Institutional Capacity Building and Governance Strengthening
Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems

- Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationali~~s~~zed
- Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems
- Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities
- Output 1.1.4 – Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions

COMPONENT 2 – Implementation of community-based adaptation projects in the targeted oases
Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases

- Output 2.1.1 – Climate-resilient ~~smart~~ irrigation systems established and operational ~~in four targeted oases~~.
- Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).
- Output 2.1.3 – Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level
- Output 2.1.4 Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers
- Output 2.1.5 Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems
- Output 2.1.6 Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels

Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access

- Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency
- Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products
- Output 2.2.3. New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products

Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources

- Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.
- Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth
- Output 2.3.3. Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives

COMPONENT 3 – Knowledge production, management, and dissemination

Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems

- Output 3.1.1 – A GIS mapping and monitoring system for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use
- Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.
- Output 3.1.3 – Public communication tools and knowledge products on project results and lessons learned developed and disseminated
- Output 3.1.4 – Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.

1.4. Purpose and Scope of the SEP

This Stakeholder Engagement Plan is a management instrument aimed at achieving the successful involvement and active participation of stakeholders linked to the project. The proposed project tackles increased climate change impacts on vulnerable rural communities in Tozeur Governorate in Tunisia, where the oases are highly vulnerable to climate change, including rising temperatures, water scarcity, and land degradation. These pressures threaten traditional livelihoods, biodiversity, and food security.

This plan recognizes the importance of effective participation for the different stakeholders to improve the transparency, accountability, integrity, effectiveness and sustainability of the project. In addition, such participation will, on the one hand, promote national, regional and local interests to forge stronger relationships, particularly with civil society, local communities and the private sector; on the other hand, respect for human rights, gender equality, diversity and environmental sustainability is ensured during project implementation activities.

This Comprehensive Stakeholder Engagement Plan takes into consideration the potential social and environmental issues highlighted in the SESP, where the main risks (and related management plans) on safeguards have been identified.

The Plan, and all the other Safeguards documents have been developed considering with particular attention the following social components:

- Involvement of women and youth in project activities.
- Presence of vulnerable or marginalised people in the project areas, especially farmers or other resource-users' groups who practice traditional livelihoods and local communities at risk of marginalisation.
- Involvement of private sector, also as co-funding contributors.

2. Regulations and Requirements

UNDP policies are focused on principles and standards, and are structured around the following Programming principles:

1. Leave No One Behind
2. Human Rights
3. Gender Equality and Women's Empowerment
4. Sustainability and Resilience
5. Accountability

3. Summary of Previous Stakeholder Engagement Activities

Stakeholders have been consulted during the PPG phase, through **interviews with key informants** and **FDGs** focused on collecting data about the context and the main elements that can be included in the Project Document, such as:

- Opportunity for stakeholder involvement in project's activities
- Description of the project areas
- Main concerns related to the project's activities
- Main stakeholders' expectations
- Inputs for Gender Analysis and Gender Action Plan
- Main issues related to marginalized groups
- Main issues related to gender equality and women's empowerment, with a focus on the role of women in the project's activities
- Main issues related to social and economic dynamics between the stakeholder's groups, related to the access to land and natural resources.
- Possible impacts of the project

Stakeholder consultations done during the PPG phase are summarized in the table here below:

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
29/09/2025/ Tozeur Governorate Headquarters	Governor of Tozeur, delegates from the 5 targeted delegations, all regional directorates of Tozeur (Agriculture, Tourism, Equipment, Energy, etc.) and key institutions	Kick-off meeting for the process of developing the complete Project document **Key points of the meeting:** - Debates on the impacts of climate change on oasis ecosystems, - Presentation of the overall objective of the project, - Debate on the priorities, components and activities of the project in all key areas (agriculture, tourism, heritage, crafts, employment, research, etc.) - Organization of the preparatory mission and appropriation of the process by the stakeholders	29 participants, 11 women and 18 men
29/09/2025/ Headquarters of the CRDA of Tozeur	CRDA staff, Ministry of the Environment, UNDP	Meeting with the Regional Commission for Agricultural Development of Tozeur **Key points of the meeting:** - Main programs undertaken by the CRDA for the preservation of traditional oases (water resources, soils, improved cultivation, protection against diseases, etc.), - Vulnerability of water resources: actions and priority areas, - Priority actions to improve agricultural productivity and combat disease, - Role of the CRDA in the implementation of priority actions, particularly in the field of water resources.	15 participants, 3 women 12 men
29/09/2025 CTD headquarters in Tozeur	Director General of the CTD, CTD staff, Ministry of Environment, UNDP	**Key points of the meeting:** - Role and responsibilities of the CTD, - Experiences and good practices of the CTD (dissemination of oasis research results, crop improvement, water resource optimization, prevention of crop diseases, etc.) - Discussions on the proposed role of the CTD in the project (particularly for the operational implementation of good agricultural practices for adaptation to climate change)	6 participants, 2 women, 4 men

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
30/09/2025 Headquarters of the Regional Tourism Directorate in Tozeur	Staff of the Regional Tourism Directorate, Ministry of the Environment, UNDP	**Key points of the meeting:** - Vulnerability of the tourism sector to climate change (manifestations and impacts) - Regional priorities and sites of interest for improving tourist appeal - Opportunities to support entrepreneurship and job creation in tourist services and infrastructure, particularly through thermal tourism, agritourism and ecotourism	9 participants, 3 women 6 men
30/09/2025 CRRAO Headquarters (Dégache)	CRRAO staff, CRDA Tozeur staff, Ministry of the Environment, UNDP	**Key points of the meeting:** - Main elements and results of research in the oasis field - Results and achievements in assessing the impact of climate change on agricultural productivity in oasis environments - Role and methods of involvement of the CRRAO in the project - Priority actions in the area of agricultural intensification - Development of the main components and activities of a project on agricultural diversification in targeted traditional oases	14 participants, 6 women 8 men
01/10/2025 Headquarters of the Regional Directorate of Culture of Tozeur	Staff of the Regional Directorate of Culture, Ministry of the Environment, UNDP	**Key points of the meeting:** - Main current interventions for the preservation of cultural heritage (tangible and intangible), - Main current cultural events for promoting oasis heritage and know-how, - Possible support arrangements within the framework of the current project	9 participants, 3 women, 6 men
01/10/2026 Headquarters of the Regional Directorate of handicrafts	Staff of the Regional Directorate of Handicrafts, Ministry of the Environment, UNDP	**Key points of the meeting:** - List of artisanal sectors in the governorate of Tozeur - Availability of a database of artisans, - Current methods of intervention to support artisans - Proposals for possible interventions by the project (AF) to support entrepreneurship in the field of handicrafts related to the development of traditional oases	6 participants, 2 women 4 men

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
01/10/2026 Regional Directorate of Civil Protection in Tozeur	Staff of the Regional Directorate of Civil Protection, Ministry of the Environment, UNDP	**Key points of the meeting:** - Current state and observed evolution of fires in traditional oases - Main causes and links to climate change, - Methods of intervention for prevention and control, - Proposals to support the AF project	8 participants, 2 women 6 men
02/10/2026 Regional Development Directorate	Regional Development Director, Ministry of Environment, UNDP	**Key points of the meeting:** - Current projects and programs for the development of oases in the governorate of Tozeur, - Current work to improve the date value chain and support marketing (production market) - Progress in the preparation of the photovoltaic irrigation program	6 participants, 1 woman 5 men
03/10/2025 GDA Tamerza Headquarters	Members of the GDA of Tamerza, Regional Union of Farmers of Tozeur	**Tamerza GDA meeting :** **Key points of the meeting:** - Organization and interventions of the GDA to support farmers and members, - Logistical and technical capabilities at the GDA level, - Methods of intervention and role of the GDA in the implementation of the project (AF)	10 participants, 1 woman, 10 men
02/10/2025 Elhamma delegation and pilot oases	The delegate of Elhamma, the local council, Local Directorate of Agriculture (CTV)	**Elhamma meeting and site visit** **Main activities carried out:** - Current projects and development priorities of traditional oases, - Visit to the Elhamma thermal spa resort, - Visit to the old village of Elhamma , - Visit to the 3 targeted traditional oases	9 participants, 1 woman, 8 men
02/10/2025 Delegation of Dégache and sites of interest	The delegate from Dégache , the local council, Local Directorate of Agriculture (CTV)	**Dégache meeting and site visit** - Current projects and development priorities of traditional oases - Visit to the municipal oasis, - Visit to the Dégache tourist and cultural circuit	11 participants, 2 women, 9 men

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
02/10/2025 Regional Union of Agriculture and Fisheries (URAP)	Member of URAP, Ministry of Environment, UNDP	**Key points of the meeting:** - Main current challenges and difficulties in the exploitation of traditional oases - Debt of the GDA to STEG (electricity costs for pumping and irrigation - Support and guidance for operators, particularly small farmers - Possible interventions to improve the adaptive capacities of the most vulnerable farmers	5 participants, 1 woman, 4 men
04/10/2025 Delegation of Nafta and targeted oases	Delegate from Nafta, municipality, presidents of the GDAs, local technical directorates, NGOs	**Main points of the meeting and visits:** - Development of SMSAs and Community Societies for the support and guidance of operators, - Current difficulties in adapting oases to the impacts of climate change - Identification of priority adaptation interventions, - Visit to the Ras Elain oasis and meeting with the GDA office, - Visit to the Ras Elain tourist circuit - Visit to the Beni Ali site (drainage water problem), - Visit to the traditional weaving project and meeting with the women artisans of Nafta	18 Participants, 4 women, 14 men
06/10/2025 Delegation from Tozeur	Delegate from Tozeur, Local council, neighborhood leaders, Municipality of Tozeur	**Main points of the meeting and visits:** - Current difficulties in adapting oases to the impacts of climate change in the Tozeur delegation - Organizational and debt problems of GDAs in traditional oases - Current projects and tourism development priorities in the delegation (rehabilitation of the Ouled historical site) Elhadef , rehabilitation of the Ras Elain site (Tozeur)	20 participants, 2 women, 18 men
01-02 /10/2025 Individual project websites)	Project leaders, mainly women and young people	**Visits to small, private, family-run businesses and initiatives to promote oasis products and by-products:** - Oasissia ' project , extraction of oils from date kernels and cosmetic products based on these oils.	12 participants Women: 8 Men: 4

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
		- 'Cosmo Nat' project in crafts, production of cosmetic products based on date kernel oils and local produce. - The 'Gout Oasis' project specializes in handicrafts, date derivative production, and local products. - Private nursery , family project for the propagation of local fruit trees and offshoots - DecoPalm ' project : crafts and decorations made from wood and palm waste - 'Oasis Cushion' Project, manufacturing of Coffins and decorative items made from braided palm leaves and oasis waste	
01/12/2025 CRDA of Tozeur	CRDA Tozeur staff, Ministry of the Environment, UNDP	**Key points of the meeting:** - Actions to be implemented within the framework of the AF project in the adaptation of oasis agriculture, - Collection of information regarding current drilling in the targeted oases, - Interventions in the areas of water resource adaptation, oasis cleanup, and the implementation of an integrated oasis waste management system	17 participants; 3 women, 14 men
01/12/2025 Delegation from Tozeur and targeted tourist sites and traditional oases	Delegate for Tozeur, municipality of Tozeur, Local Council, National Waste Management Agency, Ministry of the Environment, UNDP	**Main points of the meeting and visits:** - Collection of available information and studies (study of the development of the Ras Elain site , Tozeur), - Visit to the Ras Elain site (tourist attraction site), - Visit to the historical site of Ouled Elhadef, - Visit to traditional oases (Oussat , Rbat , Hafir , Jhim1, Castilia , Abbes), - Meetings with the presidents of the GDAs	9 participants; 1 woman, 8 men
02/12/2025 Dégache delegation~~)~~	Delegate Dégache, Local Council, Local Directorate of Agriculture (CTV)	**Main visits:** - Field visits (to all targeted traditional oases) and meetings with the offices of the GDAs of the traditional oases - Interview with the SMSA of the Sebaa oasis Abar – Degache - Visit to irrigation systems in targeted oases	9 participants, 2 women, 7 men

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
05/12/2025 Regional Directorate of Crafts of Tozeur	Regional Director of handicrafts, Director of "Espace Entreprendre" in Tozeur, local NGO	**Key points of the meeting:** - Progress in preparing a project to support entrepreneurship in the field of handicrafts and the valorization of oasis by-products, - Possible methods of project implementation and beneficiary support, identification of key stakeholders	9 participants, 2 women, 7 men
08/12/2025 Seat of the Governorate of Tozeur	Governor of Tozeur, Delegate from the Governorate Headquarters, Regional Director of Development	***Bilateral meeting with the Governor of Tozeur*** **Key points of the meeting:** - Briefing on the results of consultations and site visits, - Proposals and discussion of the main components and activities of the project (AF)	6 participants, 1 woman, 5 men
06/03/2026 Tamerza Delegation	Delegation of Tamerza, Municipality of Tamerza, Local council, CTV, GDAs, ULAP	***Meeting with local stakeholders in the Tamerza Delegation :*** **Key points of the meeting:** - Presentation of an initial organizational proposal and the main activities proposed within the framework of the traditional oasis adaptation (FA) project, - Discussions on the modalities of implementation of the project at the local level, role and intervention of the GDAs and private agricultural service companies.	16 participants, 0 women, 16 men
09/03/2026 Nafta Delegation	Delegate Nafta, Nafta Commune, GDAs, SMSAs, CTV agriculture, Local Union of Agriculture	***Meeting to discuss the roles and interventions of community support structures and the private sector in the implementation of good agricultural practices resilient to climate change,*** **Key points of the meeting:** - Presentation of an initial organizational proposal and the main activities proposed within the framework of the traditional oasis adaptation (FA) project, - Identification of the needs for strengthening the administrative, technical and logistical capacities of agricultural support structures in the governorate of Nafta.	20 participants 5 women 15 men

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
09/03/2026 Nafta Delegation	Delegate Nafta, Nafta Commune, Women Artisans, Regional Directorate of Artisans, " Shanti " Association	***Meeting for discussions on local know-how in the field of crafts and the valorization of oasis agricultural by-products, through youth and women's entrepreneurship:*** **Key points of the meeting:** - Presentation of value-added sectors within the delegation, - Discussions on the implementation methods for community adaptation projects, - Identifying the needs for capacity building and technical support for women and young entrepreneurs.	25 Participants 20 women 5 men
11/03/2026 (Entrepreneurship section)	Director of the "Entrepreneurship" space, Ministry of the Environment, UNDP	***Meeting concerning the modalities of support and capacity building in the field of entrepreneurship for the most vulnerable communities:*** **Key points of the meeting:** - Presentation of a proposal for the implementation of a community project to support entrepreneurship in the artisanal sectors of adding value to oasis products and by-products (wood, basketry, aromatic and medicinal plants, traditional weaving) - The role of the "Entrepreneurship" space in the supervision and monitoring of the direct beneficiaries of the project, particularly young people and women.	5 participants: 1 woman, 4 men
13/03/2026 Governorate of Tozeur	Governor of Tozeur, Delegates from the 5 targeted localities, all relevant technical departments, municipalities concerned, regional council, GDAs	***Regional workshop to present a preliminary project organization (FA), main components and activities:*** **Key points of the meeting:** - Presentation of the preliminary version of the project (FA) by the Ministry of the Environment and support experts, - Discussions of the next steps in preparing the project document, - Discussion of the general organization of the project (Steering Committee, Regional Advisory Committee, management unit at national and regional level, etc.	Participants: 32 Women: 11 Men: 21

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
		- Validation of the proposed version by all stakeholders.	
06/05/2026 Tamerza GDA premise	GDA of the Oasian Woman of Tamerza	- Administrative and organizational support (establishing a new board, mobilizing women artisans, preparing a GDA work program, developing a product catalogue, etc.) - Technical and logistical support to improve product quality (certification/labeling, alignment with new market requirements and demand, exploration of new potential markets, particularly emerging tourism structures in the region such as the new Tamerza Palace Hotel (4-star), acquisition of improved production equipment) - Support for product marketing (sales outlets, online marketing, product certification, etc.), participation in artisanal fairs at regional and national levels.	Participants: 11 Women: 6 Men: 5
		-	
06/05/2026 Midès	Ettahaddi GDA	- Support for the development of a production space ensuring better functionality, taking into account the large number of members, - Support for administrative organization and strengthening of the GDA's logistical capacities (office equipment, IT equipment, audiovisual tools), as well as technical assistance, - Training support to improve the quality of marketed products (technical training by product type, etc.), and support for obtaining professional artisan certification (officially recognized certificates issued by competent authorities) enabling access to national support mechanisms, - Logistical support (production equipment, distillers, grinders, sieves, traditional weaving tools, etc.) and raw materials (weaving supplies, dyes, agricultural products, wool, etc.), - Marketing and commercialization support, including labeling, packaging, establishment of a sales point, development of a product catalogue, and online sales systems, - Support for the creation of new value chains, in particular the establishment of a mill for processing agricultural	Participants: 11 Women: 10 Men: 1

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
		products and an oven for cooking and processing food products (juices, sugar, pasta, jam, etc.), - Development of sheep and goat livestock farming value chains.	
02/06/2026	Tamazegh Delegate	- Discussed overall conditions in the area and challenges including over abstraction of groundwater, need for dams, limited activity of women GDAs.	Participants: 5 Men: 3 Women: 2
02/06/2026	GDA Women Midas	- The main challenge for women is that they need different spaces for different activities as they now do all types of activities in the same space (cooking and weaving). - Another challenge is that the presentation of the products needs improvement. - In terms of household role, the women were initially not encouraged by their family (mainly the husband) to participate due to household duties) but when the benefits in terms of income were appreciated, the husbands started helping (in sourcing primary material). However, household duties remained fully with the women. - Generally, the women agree that capacity building is needed.	Participants: 15 Men: 5 Women: 10
02/06/2026	Tamazegh GDA for Women	- The women GDA is registered but still has not been activated due to the lack of common vision and understanding between members about the details of the GDA and how it would operate. The GDA currently has 32 members. - None of the women are registered through their work in social security, which includes insurance health insurance. They have some coverage through husbands or fathers. - Generally, the women agree that capacity building is needed.	Participants: 12 Men: 5 Women: 7
02/06/2026	Oasis Farm in Chbeika	- Young people are no longer interested in working in the farms due to limited revenue and hard work. The young men state that their job is limited to certain periods, mostly in the morning when they check the oasis and water, and clean, mostly in the fall.	Participants: 12 Men: 10 Women: 2

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
		- Occupational health and safety hazards they are exposed to include heat stress, injuries from spikes in the palm tree and falling off during picking and fertilization (one of the youth interviewed had fallen once but sustained minimal injuries but they were aware of several other fatal incidents in the past). They have other jobs, mostly in the tourism sector in the area. - Climate change impacts have led to a reduction in the quality of the products making farming the oasis less feasible. It also led to quicker spread of diseases. Climate change has also affected the picking schedule, which had been set and used by the farmers for a long time but is now changing. - Challenges in terms of storage, packaging and marketing of products.	
03/06/2026	La Ruche	- Climate change has led to a reduction in availability of water and soil quality and increase in diseases and pests. - There has also been a reduction in quantity of primary inputs or material from the oasis. However, this is not true for all inputs. - There has been a decrease in working hours due to heat periods hence reduction in productivity. - There are production system challenges related to energy and human resource. - Marketing challenges include transport of products and timing of sales. For example, it is more effective to go to Tozeur in the evening to sell products because this is when most of the customers (tourists) will come. This is difficult for women for reasons of safety and household duties.	Participants: 18 Women: 14 Men: 4
03/06/2026	Delegate of Nafta, Association for Persons with Disabilities, Union of the Blind	- In terms of public system, women, youth and children issues are under one ministry making support for women scattered and with no specific entity to focus on them. - Short term workers lose social coverage if offered temporarily by a project.	Participants: 10 Women: 4 Men: 6

Date /Location	Stakeholder met/engaged (Individual, group, organisation)	Key Discussion Points	Participants
		- There is no specific link between oasis and the Association for Persons with Disabilities but plan to use palm waste. However, required machinery is not yet available due to lack funding. - Agricultural activities provided are limited to gardening for children within the Association for Persons with Disabilities premises. Water consumption is a major challenge for these activities.	

4. Project Stakeholders

The identification of key stakeholders for the project was made from the stakeholder analysis, through which it was made sure that all their interests are well understood in order to effectively plan their participation in the project. The methodology used for the preparation of this analysis responded to the UNDP, SES and included the following components: a. identification of stakeholders directly and/or indirectly affected by the project, b. identification of stakeholder interests, c. identification of stakeholders potential influence on project outcomes or operations, d. consideration of the capacities of the various stakeholder groups to effectively participate in the stakeholder engagement activities (and identification of measures to support them where capacity is limited), e. Identification of project-affected marginalized and disadvantaged stakeholders, including persons with disabilities.

The main groups of stakeholders identified for this project include:

- National Coordination Unit on Climate Change (UGPO-CC) (Government)
- Scientific research centres (Universities/research centres)
- Civil society, GDAs/Agricultural Coops, experts, activists, women's associations (NGOs/CSOs)
- Donors
- Entrepreneurial and SMEs financial institutions (Private sector)
- Community representatives

The **stakeholder analysis** provided the basis for the development of this Comprehensive Stakeholder Engagement Plan, where measures to support and accommodate engagement of the most vulnerable groups are identified.

The plan follows UNDP guidelines to help the project identify stakeholders and establish effective lines of communication and working relationships.

The following table identify the common stakeholders for the entire project, taking into account the level of impact and influence.

Stakeholder Group	Stakeholder Interest	Perception of the impacts of the project on interests (+, -, neutral)	Importance 1=Low/No Importance 2=Some Importance 3=Moderate Importance 4=Very Important 5=Critical player	Resources/influence 1=Low/No Influence 2=Some influence 3=Moderate Influence 4=Significant Influence 5=Very Influential	Target groups or Potentially Affected Groups
Farmers (smallholders, oasis producers)	Access to water, land, climate-resilient agriculture, training, and income stability	+	5	4	Potentially Affected Groups
GDAs (water user groups/irrigation associations)	Water distribution management, infrastructure upgrading, governance strengthening	+	5	4	Potentially Affected Groups
Traders & value chain actors	Market access, product quality, branding, commercialization opportunities	+	4	4	Target groups
Women/women groups and cooperatives including women GDAs	Access to finance, productive assets, decision-making, livelihood diversification (handicrafts, processing)	+	5	3	Target group Potentially Affected Groups
Youths/Youths groups	Employment, green entrepreneurship, skills development, reduced migration pressure	+	5	3	Target group Potentially Affected Groups
Men/head of Household	Resource allocation, land and water use decisions, market participation	+	5	4	Target groups
Landowners	Decision making on land and resources use	+	5	4	Target groups
Government agencies	Influence on policies, decision making processes, possible role on conflict prevention and resolution, involvement in project activities	+	5	5	Target groups
Regional authorities	Influence on policies, decision making processes, possible role on	+	4	3	Target groups

Stakeholder Group	Stakeholder Interest	Perception of the impacts of the project on interests (+, -, neutral)	Importance 1=Low/No Importance 2=Some Importance 3=Moderate Importance 4=Very Important 5=Critical player	Resources/influence 1=Low/No Influence 2=Some influence 3=Moderate Influence 4=Significant Influence 5=Very Influential	Target groups or Potentially Affected Groups
	conflict prevention and resolution, involvement in project activities				
Municipalities	Influence on policies, decision making processes, possible role on conflict prevention and resolution, involvement in project activities	+	5	4	Target groups
Contractors and subcontractors	Involvement in project activities	+	5	3	Potentially Affected Groups
Private sector	Involvement in the market and in project activities	+	5	5	Potentially Affected Groups
Donor agencies	Support to policy makers, investment in project initiatives, Advocacy	+	5	3	Potentially Affected Groups
UNDP	Facilitate the project implementation, support policy makers, support stakeholder engagement	+	5	5	Potentially Affected Groups
Universities and Research Institutions	Support to policy makers, evidence-based research, data driven advocacy, involvement in project activities	+	4	3	Potentially Affected Groups
NGOs (Non-Governmental Organizations), CSOs (Civil Society Organizations) and CBOs (Community Based Organizations)	Support to policy makers, support to advocacy on project activities, support to and involvement in project activities	+	5	4	Potentially Affected Groups Target groups

Stakeholder Group	Stakeholder Interest	Perception of the impacts of the project on interests (+, -, neutral)	Importance 1=Low/No Importance 2=Some Importance 3=Moderate Importance 4=Very Important 5=Critical player	Resources/influence 1=Low/No Influence 2=Some influence 3=Moderate Influence 4=Significant Influence 5=Very Influential	Target groups or Potentially Affected Groups
Berber/Amazigh Communities	Access to water, climate-resilient agriculture, training, project activities	+	4	4	Target groups Potentially affected groups

The identified stakeholders are summarized in the below Stakeholder impact and influence matrix.
The prioritization of the stakeholders is made through this matrix that organizes the interested parties according to "impact" and "influence", into four groups: 1) stakeholders with high impact / low influence; 2) high impact / high influence stakeholders; 3) low impact / low influence stakeholders; and 4) low impact / high influence stakeholders.

<table>
<tr><td rowspan="3">Impact
Low---------->High</td><td>Group 1: Stakeholders with high importance / low influence:
Landowners
Contractors and Subcontractors
Donor Agencies
Regional authorities
Nomadic people</td><td>Group 2: Stakeholders with high importance / high influence:
Farmers
Individual and groups involved in water management (GDAs)
Traders
Women/women groups and cooperatives
Youth groups
Men/head of Household
Government agencies
Private sector
UNDP
Universities and Research Institutions
NGOs (Non-Governmental Organizations), CSOs (Civil Society Organizations) and CBOs (Community Based Organizations)</td></tr>
<tr><td>Group 3: Stakeholders with low importance / low influence:
Municipalities</td><td>Group 4: Stakeholders with low importance / high influence:
N/A</td></tr>
<tr><td colspan="2">Influence
Low---------->High</td></tr>
</table>

5. Stakeholder Mapping

Tozeur's climate adaptation strategy requires a collaborative effort involving a wide range of interconnected stakeholders, reflecting the complexity and vulnerability of oasis ecosystems. These stakeholders include ministries, public agencies, international development partners, research institutions, civil society organizations, and private sector actors, each playing distinct yet complementary roles in water governance, sustainable agriculture, and socio-economic resilience. These efforts are further reinforced by cross-cutting priorities such as gender equality, youth engagement, and the improvement of rural livelihoods, ensuring that adaptation strategies are both environmentally sustainable and socially inclusive.

Stakeholder interests in Tozeur's climate adaptation strategy are varied, but they mostly center on climate resilience, socioeconomic development, and sustainable natural resource management. Government institutions primarily focus on aligning policies and actions with national development priorities, with particular attention to water governance, agricultural sustainability, and climate resilience. In parallel, international organizations are primarily interested in effective project implementation and alignment with global climate frameworks and the Sustainable Development Goals, while also supporting institutional capacity-building and inclusive governance.

At the community level, civil society organizations prioritize community empowerment, social inclusion, gender equality while advocating for participatory approaches and the integration of local knowledge. Meanwhile, private sector actors, including farmers, cooperatives, and agri-businesses, are mainly driven by concerns related to productivity, market access, and the adoption of affordable, climate-resilient technologies. Furthermore, research and technical institutions focus on promoting evidence-based solutions aimed at improving agricultural practices, enhancing water efficiency, and supporting ecosystem restoration.

1. Government and Public Institutions

- **Ministry of Environment:** responsible for environmental protection, sustainable development integration, nature conservation, and quality of life improvement. It develops national environmental policies,

enforces environmental laws, and addresses pollution, biodiversity loss, and climate change impacts. It promotes ecological governance across sectors and coordinates adaptation and mitigation strategies.

- **Ministry of Agriculture, Water Resources, and Fisheries:** responsible for developing national policies related to agriculture, water resources, fisheries, and climate change adaptation. Its priorities include sustainable natural resource management, development of smart and ecological agriculture systems, and strengthening agroecological engineering.
- **Ministry of Development, Investment and International Cooperation (MDICI)**: Responsible for regional development planning, investment promotion, and international cooperation. It designs development policies, supports infrastructure and regional planning, and promotes public-private and international partnerships. It also coordinates climate-related development financing and SDG implementation.
- **Commissariat Général du Développement Régional (General Commission for Regional Development-CGDR)**: Oversees regional development policies, planning, and public investment programs. It supports local development, SDG implementation, and coordination of development financing, including climate-related projects.
- **Centre International des Technologies de l'Environnement de Tunis (Tunis International Centre for Environmental Technologies- CITET)**: Promotes environmental technologies, capacity building, and innovation in environmental management. It supports technology transfer, training, and development of sustainable environmental solutions.
- **Agence Nationale de Protection de l'Environnement (National Agency for Environmental Protection-ANPE)**: Responsible for pollution control, environmental monitoring, and enforcement of environmental regulations. It addresses environmental risks, industrial pollution, and environmental degradation across Tunisia.
- **Institut National de la Statistique (National Institute of Statistics-INS)**: is the central statistical authority in Tunisia. It produces data on population, agriculture, environment, economy, and climate-related indicators to support national planning and policy.
- **Observatoire National de la Migration (National Migration Observatory-ONM)**: monitors migration trends, collects and analyzes migration data, and supports research on migration patterns, including climate-related migration issues.
- **Agence de Promotion des Investissements Agricoles (Agricultural Investment Promotion Agency- APIA)**: Promotes private investment in agriculture, fisheries, and agri-industrial sectors. It supports agricultural entrepreneurship and project development.
- **Tozeur Governorate & Municipalities:** Responsible for coordinating and implementing climate adaptation policies at the local level. They play a key role in local planning, public service delivery, water and land management coordination, and ensuring alignment between national strategies and local development priorities.
- **Commissariat Régional au Développement Agricole de Tozeur (CRDA Tozeur)**: Implementation of irrigation works, agricultural support, coordination at regional level, supervision of field activities
- **Agence Nationale pour la Maîtrise de l'Énergie (National Agency for Energy Management- ANME)**: Integration of renewable energy solutions (solar pumping), technical guidance on energy efficiency
- **Centre Technique des Dattes (Date Palm Technical Center)**: Promote soil fertility enhancement practices (organic amendments, composting, manure use) to improve water retention and reduce climate sensitivity
- **Société Tunisienne de l'Électricité et du Gaz (Tunisian Company for Electricity and Gas-STEG)**: Responsible for the production, transmission, distribution and sale of electricity and natural gas in Tunisia
- **Directrice Régionale de l'Artisanat (National Handicrafts Office- ONAT)**: Implementing policies for the promotion and preservation of cultural crafts. Assisting with registration, investment procedures, and access to funding through partners like the Tunisian Solidarity Bank.

2. International Organizations (MIEs)/Donors

- **UNDP**: Accountable to the AF for the implementation of this project. This includes oversight of project execution to ensure that the project is carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering AF project cycle management services and for the Project Assurance role of the Project Board/Steering Committee.

- **Mercy Corps**: Supports civil society, youth empowerment, local governance, and community resilience. Works in Médenine, Gafsa, and Tunis to strengthen NGOs, promote employment and entrepreneurship, and improve cooperation between communities and authorities.
- **French Development Agency (AFD)**: Provides loans, grants, and technical support for public and private sectors, focusing on sustainable development, infrastructure, and socio-economic transition.
- **World Bank (WB)**: Major international financial institution supporting Tunisia through loans and projects in energy, agriculture, education, SMEs, and youth employment. Focuses on economic resilience, infrastructure, and sustainable development reforms.
- **KfW Development Bank (KfW)**: German development bank financing infrastructure and environmental projects in Tunisia. Key focus is water management and irrigation modernization, especially in the Medjerda Valley, to improve agricultural efficiency and sustainability.
- **German Agency for International Cooperation (GIZ)**: German cooperation agency working in Tunisia on governance, employment, water management, climate change, and rural development. Supports capacity building, sustainable agriculture, and local development, including GDAs and environmental projects.

3. Civil Society and Local Associations (CSOs)

- **SHANTI**: Build innovative and creative solutions to today's social, economic, cultural and environmental problems. SHANTI implements these solutions through projects and services, participating in the construction of a united and inclusive society based on equal opportunities and access to rights.
- **Association de sauvegarde de la Médina de Tozeur (Association for the Preservation of the Medina of Tozeur- ASM Tozeur)**: Dedicated to the protection and enhancement of the historical heritage of the city of Tozeur, particularly its old city
- **Association des Femmes de Tozeur (Nefta Branch):** Focused on social and economic development and women's empowerment in the Tozeur and Nefta region of Tunisia. These associations often concentrate on handicrafts, training, and community support
- **Association IRADA pour le Développement Tozeur**: It primarily works on youth employment, entrepreneurship support, capacity building, and community development, especially in underserved and rural areas. The association also supports skills training, social inclusion, and awareness initiatives, often in collaboration with national and international partners to strengthen local development outcomes.
- **La Ruche pour la Citoyenneté et le Développement de Tozeur**: It focuses on women's empowerment, climate change impacts on oasis livelihoods, and linking local actors with development partners to strengthen sustainable community initiatives.
- **Association régionale de la protection de la nature et de l'environnement de Tozeur (Regional Association for Nature and Environmental Protection of Tozeur- ARPNE Tozeur)**: It is a regional environmental association based in Tozeur focused on protecting nature and promoting environmental sustainability in the oasis region.
- **Association Tunisienne du Développement Agricole et Rural (Tunisian Association for Agricultural and Rural Development- ATUDAR):** It promotes rural employment, youth entrepreneurship, and small-scale agricultural projects. It supports participatory rural planning and works with government and international partners. Its objectives include improving agricultural production, strengthening rural organizations, sustainable natural resource management, and job creation in rural areas.
- **Syndicat des Agriculteurs de Tunisie (Tunisian Farmers' Union- SYNAGRI)**: It represents farmers across Tunisia, mainly medium and large-scale producers. It advocates for farmers' interests, supports agricultural development, and strengthens professional agricultural organizations. It also provides regional representation for farmers and cooperatives.
- **Association Tunisienne de l'Agriculture Environnementale (Tunisian Association of Environmental Agriculture- ATAE)**: Promotes sustainable and ecological agriculture. It focuses on soil protection, reducing environmental impacts of industrial farming, and promoting sustainable agricultural practices. It works on knowledge-sharing and restoring soil fertility and ecosystem health.
- **Association Abel Granier (Abel Granier Association-AAG):** Focuses on sustainable agriculture and soil restoration. In Tunisia, it collaborates with ATAE to promote environmentally friendly farming practices and improve soil and ecosystem health.
- **Réseau Alternatif des Jeunes Tunisiens (Alternative Network of Young Tunisians- RAJ Tunisie):** RAJ Tunisie is a youth-led NGO working on civil society engagement and environmental activism. It focuses on

climate change, climate migration, and youth participation in development. It also organizes awareness campaigns and climate-related forums.

4. **Private Sector**

- **Union Régionale de l'Agriculture et de la Pêche (Regional Union of Agriculture and Fisheries- URAP)**: These are regional branches of the Tunisian Union of Agriculture and Maritime Fishing (UTAP). They are actively involved in regional issues, such as support for farmers, providing agricultural resources, and organizing solidarity initiatives for breeders
- **Groupement Interprofessionnel des Dattes (GID)**: Focused on regulating, supporting, and promoting the production and export of dates. It works on quality control and supports producers in the agricultural sector.
- **GDA (Groupements de Développement Agricole)**: GDAs are a local agricultural development groups/cooperatives designed to manage natural resources, especially water, and support rural development. They empower rural communities, promote sustainable agriculture, and manage irrigation/drinking water systems.
- **Groupement Interprofessionnel des Fruits (Interprofessional Fruit Grouping- GIFRUITS)**: Responsible for regulating and promoting Tunisia's fruit sector, particularly dates and export fruits. It ensures coordination between producers, processors, and traders, improves product quality, supports commercialization, and contributes to export development. It also collects and analyzes sector data to support market regulation and decision-making.
- **Sociétés Mutuelles de Services Agricoles (Mutual Agricultural Service Companies-SMSAs)**: These are farmer-led mutual cooperatives established to provide shared services, including input supply, equipment leasing, and technical training. These organizations strengthen local economies, support sustainable agricultural practices, and assist with marketing, often focusing on high-value products like dates, figs, and prickly pears.
- **Union Tunisienne de l'Agriculture et de la Pêche (Tunisian Union of Agriculture and Fisheries -UTAP)**: UTAP is a major national agricultural trade union representing farmers and fishers in Tunisia. It participates in national decision-making bodies and supports sector development.
- **Smallholder farmers**: Adoption of climate-resilient agricultural practices, participation in training and pilot activities
- **Solar energy companies**: Supply and installation of photovoltaic pumping systems
- **Irrigation equipment suppliers**: Provision of drip irrigation and water-saving technologies
- **Agro-processing companies**: Processing and packaging of agricultural products, particularly dates and other oasis products.
- **Tourism operators (eco/agro-tourism)**: Development of sustainable tourism services linked to oasis ecosystems
- **Traders and wholesalers**: Focus on ensuring stable supply chains, minimizing transaction costs and post-harvest losses, maintaining product quality, and securing profitable market access under increasingly climate-sensitive production conditions.
- **Exporters**: maintaining product quality standards, ensuring consistent supply, improving post-harvest handling, accessing international markets, and adopting climate-resilient and water-efficient production practices to safeguard export competitiveness under increasing climate stress.
- **Retailers / local markets**: Sale of oasis products
- **Farmer cooperatives / producer groups**: Focused on improving productivity, reducing production costs, accessing technical support and financing, and ensuring fair market conditions for smallholder farmers.
- **Women / women's groups and cooperatives**: Focused on improving access to resources (land, water, credit), strengthening income opportunities, building skills, and enhancing participation in decision-making processes, while also promoting gender equality and social inclusion in climate adaptation initiatives.
- **Berbers (Amazigh communities)**: Indigenous minority of Tunisia who still maintain distinct cultural traditions and dialect and whose rights, livelihoods and cultural heritage may need specific consideration if project activities affect them.

5. **Research & Technical Institutions**

- **Centre Régional de Recherches en Agriculture Oasienne (Regional Center for Oasis Agriculture Research CRRAO)**: Conducts applied research and experiments to improve production systems, study processing and conservation of oasis products, and address environmental and socio-economic issues. It also supports technology transfer, extension services, and training for farmers and technicians.
- **Centre Technique des Dattes (Technical Date Center-CTD)**: supports the date palm sector focusing on applied research transfer, farmer training, technical extension, and improving production techniques to enhance productivity and quality in oasis agriculture.
- **Institut des Régions Arides [Arid Regions** Institute – IRA]: carrying out the research necessary for the development of the agricultural sector, the protection and conservation of natural resources and the fight against desertification in arid and desert regions
- **Institution de la Recherche et de l'Enseignement Supérieur Agricoles (Agricultural Research and Higher Education Institute- IRESA)**: Coordinates agricultural research and higher education in Tunisia. It promotes research programs, manages funding, and ensures that research institutions support agricultural production and development.
- **Institut National de Recherches en Génie Rural, Eaux et Forêts (National Research Institute for Rural Engineering, Water and Forestry- INRGREF)**: It is a multidisciplinary research institute focused on rural engineering, water use, forestry, and ecosystem management. It conducts scientific research and runs field stations across Tunisia. It also collaborates internationally on water and environmental research.
- **Centre Technique de l'Agro-Alimentaire (Technical Agrifood Centre- CTAA):** Provides technical support to Tunisia's agrifood industry under the Ministry of Industry and Trade. It focuses on food quality, safety, environmental issues, and industrial innovation, helping improve performance and standards in the food processing sector.
- **Institut National Agronomique de Tunisie (National Agricultural Institute of Tunisia – INAT]**: It is a leading higher education and research institution in sustainable agriculture and environmental sciences. It specializes in biodiversity, ecosystems, water resources, marine environments, and animal production, producing research that supports agroecology and agribusiness development.
- **Centre de Recherches et des Technologies des Eaux [Water Research and Technology Centre – CERTE]**: Conducts research and innovation in water resources management. Its work includes water treatment, recycling, non-conventional water use, and sustainable water governance. It also supports national and international projects on water integrity, efficiency, and sustainability.
- **Centre de Formation Professionnelle de Dégache**: A public vocational training institution operating under the national system of professional training in Tunisia. It plays an important role in skills development and local capacity building, particularly in regions like Tozeur where economic diversification is essential.

6. Stakeholder Engagement Program

Purpose and Goals of the Program

This Comprehensive Stakeholder Engagement Plan is a management instrument aimed at achieving the successful involvement and participation of stakeholders linked to the design and implementation of the project. The main objective of this Plan is "to support the development of solid, constructive and responsive relationships for the design and implementation of the project."

Inclusive, open, transparent and culturally appropriate stakeholder participation is essential for the project's formulation, implementation and monitoring process.

Properly designed and implemented stakeholder participation can improve environmental and social sustainability, increase acceptance by and capacity building of the communities, and support risk management.

This Plan will support effective coordination mechanisms to have a positive impact on the overall management of the project.

This should be applied in conjunction with the other project's safeguard processes, especially with the Gender Analysis and Action Plan.

Stakeholder engagement is an overarching term that encompasses a range of activities and interactions with stakeholders throughout the project cycle. The SES (Social and Environmental Standards) defines stakeholder engagement as an ongoing process that may involve, to varying degrees, the following elements:

- Stakeholder analysis and planning
- Disclosure and dissemination of information
- Consultation and meaningful participation
- Dispute resolution and grievance redress
- Stakeholder involvement in monitoring and evaluation
- Ongoing reporting to affected communities and other stakeholders.

Stakeholder engagement supports the development of strong, constructive, and responsive relationships that are critical for sound project design and implementation. Effective stakeholder engagement enhances project acceptance and ownership and strengthens the social and environmental sustainability and benefits of supported interventions.

It is both a goal in itself – upholding the rights of citizens and others to participate in decisions that may affect them – as well as an effective means for achieving project outcomes, including those related to democratic governance, protecting the environment, promoting respect for human rights, and preventing and resolving conflict.

Full and effective stakeholder engagement is one of the six overarching SES policy objectives and seeks to:

- provide meaningful access to dialogue and decision-making in development processes
- strengthen development results through effective partnerships
- identify stakeholder priorities to better tailor project activities, opportunities and benefits
- seek to ensure no one is left behind and disadvantaged and vulnerable project stakeholders have a voice in project development and implementation
- identify potential constraints and conflicts that could affect project effectiveness
- ensuring transparency, accountability and integrity
- learn from and incorporate local knowledge to improve project design and avoid and mitigate project-related risks and impacts
- provide a feedback and monitoring mechanism to ensure the project is achieving its intended results, and identifies potential unintended consequences

The project must take into consideration the key SES stakeholder engagement requirements:

- Ensure meaningful, effective, informed participation of stakeholders in the formulation and implementation of UNDP programmes and projects, providing stakeholders opportunities to express their views at all points in the project decision-making process on matters that affect them
- Conduct stakeholder analysis and engagement in a gender-responsive, culturally sensitive, non-discriminatory and inclusive manner, identifying potentially affected vulnerable and marginalized groups and providing them opportunities to participate
- Develop appropriately scaled Stakeholder Engagement Plans, with level and frequency of engagement reflecting the nature of the activity, magnitude of potential risks and adverse impacts, and concerns raised by affected communities
- Meaningful, effective and informed consultation processes need to be free of charge and meet specified criteria, including free of intimidation and external manipulation; initiated early and iterative; inclusive; gender and age responsive; culturally appropriate and tailored to language preferences; and based on timely disclosure of relevant, accessible information regarding the project and its social and environmental risks and impacts
- Include differentiated measures to allow effective participation of disadvantaged or vulnerable groups, including persons with disabilities (PWDs)
- Undertake measures to ensure effective stakeholder engagement occurs where conditions for inclusive participation are unfavourable
- Document consultations and report them in accessible form to participants and the public
- Ensure early and iterative meaningful stakeholder engagement throughout the assessment and management of potential social and environmental risks and impacts

- Ensure that stakeholders who may be adversely affected by the project can communicate concerns and grievances through various entry points, including, when necessary, an effective project-level grievance mechanism, and also UNDP's Stakeholder Response Mechanism and Social and Environmental Compliance Unit
- For projects that affect rights, lands, territories, resources, and traditional livelihoods of indigenous peoples/local communities marginalised or at risk of marginalization, ensure meaningful consultations and free, prior informed consent (FPIC).
- For projects that may involve physical or economic displacement, ensure activities are planned and implemented collaboratively with meaningful and informed participation of those affected
- Provide ongoing reporting to affected communities and individuals for projects with significant adverse social and environmental impacts
- Seek to identify, reduce and address the risk of retaliation and reprisals against people who may seek information on and participation in project activities, express concerns and/or access project-level grievance redress processes/mechanisms or UNDP's Stakeholder Response Mechanism or Social and Environmental Compliance Unit

The main goals of the Stakeholder Engagement Program are:

- Provide meaningful access to dialogue and decision-making, allowing **stakeholder views** to be taken into account in project design and environmental and social performance.
- In order to better adapt the activities, opportunities and benefits in the design and implementation of the project and in order to avoid and mitigate risks and impacts related to the project, take into account the experiences, **knowledge,** and skills of each stakeholder.
- **Promote inclusive and effective participation** of affected parties throughout the project cycle in relation to issues that could have an impact on them and provide the necessary means for such participation.
- Ensure that adequate **information** on environmental and social benefits, risks, and impacts is **disclosed** to stakeholders in a format and in a manner that is accessible, timely, understandable, and appropriate.
- Provide project-affected parties with **accessible and inclusive means to raise issues and complaints and manage a timely response to them.**

This Plan promotes effective participation in the design and implementation cycle, which includes the appropriate tasks for the inclusion and distribution of the project's benefits, against which the following **strategic actions** are proposed:

- The project will have different professionals within its management unit to coordinate the project, with whom the full and effective participation of stakeholders will be promoted. The PMU will establish intercommunication mechanisms for project stakeholders and to ensure the successful implementation of the project.
- This PMU will ensure the involvement of different stakeholders, especially **vulnerable groups** (women, youth, elderly, pastoralist or other resource-users' groups who practice traditional livelihoods), to support the local consultation and participation activities of each of the project components, ensure their participation in the project life cycle and communicate the results of this work.
- **Local facilitators** will be involved to work with communities, to have a relationship with the actors of the territory, and to be able to stimulate the actions of each component.
- The project will have several **spaces for participation**, such as: workshops, trainings and community and institutional meetings.
- Different information and consultation meetings will be organized at **regional and at national level**, paying attention to the diversity of the stakeholders. These spaces will be provided with adequate and specialized staff for each topic to be dealt with, and their contents and **communication methods will be adapted to the needs of each audience.**
- There will be **close work with local communities**. Different spaces for dialogue will be allowed.
- Dissemination of the **Gender Action Plan** to the interested parties and regular consultations, particularly with women in the implementation sites (in their capacity as local communities and/or members of groups) on necessary advancements and changes.
- **Periodic consultations and review mechanisms** facilitated through the regular delivery of documents in advance, local meetings, dissemination of information through the local communication channels, and the coordination with the civil society, local officials and representatives of the entities involved in the project's areas. These mechanisms will help address potential risks and adverse impacts directly with local

stakeholders and in accordance with their feedback and allow the project to periodically implement necessary adjustments and corrections.

- Since this project may have possible adverse social and environmental impacts (Substantial project risk category), stakeholders will need to have **timely, accessible and appropriate information** from the specific assessments and management plans. This information will be disclosed in advance as part of the stakeholder consultation process, in an accessible place, and in a form and language understandable to affected individuals and other stakeholders.
- **Intercommunication channels** are established for the reciprocal transmission of information, knowledge and experiences resulting from the project, using different participation methods such as: correspondence by email/telephone, meetings, workshops, website, videos, memories and learning documents, etc.
- The necessary mechanisms are provided to ensure the **adequate incorporation of comments, visions, needs and concerns** from the stakeholders involved in the project.

After identifying the strategic actions that will make up this plan, the various engagement mechanisms that the project will require are identified below:

a. **Inform:** with the aim of allowing stakeholders to understand the situation, the processes developed, the different alternatives and their implications. It is a one-way communication.
b. **Capacitate:** with the objective of responding to the key stakeholders' knowledge demands on more specific issues from each component in order to strengthen their capacities and broaden their range of understanding and action on the subject.
c. **Consult**: in order to obtain feedback from stakeholders on situations, alternatives, scenarios and decisions. It is a two-way communication. It allows the project to take into account interests, priorities, needs and concerns.
d. **Involve:** includes a mechanism for integrating relevant stakeholders into the different stages of the project in order to generate open and participatory processes which allows for their observations, needs and/or contributions to be included in each of the four components.
e. **Decision-making:** it is the highest degree of integration, the objective of which is that stakeholders can make informed decisions about the processes developed within the project's framework.

Information dissemination process

The project will develop a communication strategy, which will take into account the comprehensive stakeholder engagement plan. In order to guarantee and ensure the effective participation of stakeholders, respecting the right and access to information of all the project's intervening parties, stakeholders and partners, the PMU, in constant coordination with the Safeguards and Gender Specialist hired by the project, will work jointly. Their work will have the aim of collecting, analyzing and disseminating information about the project and promoting feedback from stakeholders in different dialogue spaces. The information will be disseminated through culturally appropriate forms. Methods for communicating may vary depending on the target audience.

The Project Management Unit will be in charge of maintaining a flow of communication with the group of stakeholders involved through both traditional media and using new information technologies. Below is a list of the methods that will be used to engage and/or consult the stakeholders.

- **Email/phone correspondence**: distribute project information to partners and stakeholders and inform stakeholders about meetings, consultations, workshops, etc.
- **Use of virtual institutional channels, live broadcasts and social networks**: to communicate through conversations, forums, congresses or any type of massive event.
- **Communication via printed matter, newsletters, and documents**: Documents (brochures, bulletins, booklets, infographics) to disseminate information about the project will be in a format that is accessible to the general public (visually attractive, in simple language and pedagogically appropriate to groups of interest).
- **Radio, television, local newspapers**, **and video**: to convey project information such as project announcements, achievements, lessons learned, and will include testimonials from key stakeholders and beneficiaries.
- **Technical documents**: Documents that contain information organized in a structured way and that efficiently present information about the project.

Stakeholder engagement methods

The stakeholder consultation processes began during the project's PPG phase. Likewise, in order to successfully achieve the proposed objectives, these processes will continue to be sustained throughout the project cycle. There are several proposed consultation methods, including in-person spaces where biosafety protocols required for these spaces will be implemented.

The project design includes participation mechanisms such as:

- **Trainings** for local and regional focal points and community members through biannual workshops and annual simulation exercises**,** as planned to achieve outputs under project component 1.
- **Awareness raising activities adapted to the needs of women and vulnerable communities** to build ownership by the beneficiaries and to create an incentive to sustain behavioral change towards the more adaptive practices.
- **Interviews:** Build personal relationships with stakeholders; ask for opinions. These can be done digitally, by phone, or in person. Likewise, surveys could be used if deemed necessary. This mechanism will be key for project feedback, and will integrate monitoring and reporting processes.
- **Formal meetings**: Build relationships with project partners; distribute technical documents, and present information using PowerPoint. Support documents are prepared for the discussions, comments/questions posed, and answers. These can be developed through the use of information and communication technologies.
- **Focus group meetings**: Small group meetings of 5-10 people will be facilitated to allow them to share their views and opinions about the project. Support documents for the discussions, comments/questions posed, and answers will be prepared.
- **Workshops**: Present project information to a group of key stakeholders, use participatory exercises to facilitate group discussions, exchange ideas, analyze information, and develop recommendations and strategies. Support documents for the discussions, comments/questions posed, and answers will be prepared.
- **Site visit:** Gather feedback from individual stakeholders by visiting project areas.
- **Exchanges of experiences** includes socialization processes and knowledge exchange between stakeholders from different project areas. This will mainly link stakeholders who play an important role in the incorporation of best practices in the project areas.
- **Community networks:** facilitate the creation of networks of groups of direct beneficiaries for the implementation of monitoring systems and comprehensive information on use of resources.
- **Consultations with experts:** these consultations can be made for each of the project's components and for their subsequent strategic aspects. They can be carried out personally, through focus groups, or specific workshops.

Participation and consultation with relevant groups such as women, youths, indigenous communities, and other marginalized groups will be taken into account throughout the project's implementation. These stakeholders will participate in project inception workshops, in annual progress meetings, and in the project closure workshop. Participatory methodologies will be used, to collect all the opinions and feedback.

The participation and the engagement in the decision-making processes of women, youths, indigenous communities or any marginalized groups will be ensured especially through the Gender Action Plan.

Comprehensive Stakeholder Engagement Plan

Stakeholder Group	Why included (interests)	Participation methods	
		Stakeholder Engagement Activities	Responsibility
Farmers	Access to land and resources and involvement in project activities	Under Outputs 1.1.2, 2.1.1, 2.1.4 and 2.1.5: Conduct inclusive consultations, awareness sessions and technical training with farmers on equitable access to shared-use equipment, safe agricultural practices, phytopathology and pesticide handling, OHS measures, irrigation management and infrastructure, climate-resilient agricultural technologies and improved practices. Farmers will also participate in feedback sessions and GRM awareness activities.	PMU
Individual and groups involved in water management (GDAs)	Access to resources and involvement in project activities	Under Outputs 1.1.2, 1.1.4, 2.1.1 and 2.2.1: Organize participatory planning meetings with GDAs to ensure transparent allocation and management of irrigation systems, photovoltaic systems and shared-use resources. Engagement activities will include consultations on beneficiary selection criteria, operation and maintenance responsibilities, performance, and grievance mechanisms.	PMU
Traders	Access to market and resources, and involvement in project activities	Under Outputs 2.2.2 and 2.2.3: Engage traders through consultations and market coordination meetings regarding the establishment of regional markets, commercialization systems, certification and labeling schemes, and inclusive market access opportunities and participation in fairs and sales events for vulnerable groups including women and youth.	PMU
Women/women groups and cooperatives	Access to resources and involvement in project activities	Under All Project Activities and Outputs 1.1.2, 1.1.3, 2.2.3, 2.3.1 and 2.3.2: Conduct targeted consultations, leadership workshops, household and livelihood trainings programs and participatory planning activities to ensure women's meaningful participation and equitable access to project benefits including climate-resilient tourism-related businesses and services and shared-use equipment. Activities will follow the Gender Analysis and Action Plan (GAAP) and include regular feedback collection and GRM awareness sessions.	PMU
Youth groups	Access to resources and involvement in project activities	Under Outputs 1.1.1, 1.1.3, 2.2.3, 2.3.1 and 2.3.2: Organize awareness campaigns, entrepreneurship training, skills development workshops and consultations to strengthen youth participation in climate-resilient livelihoods, climate-sensitive income sources, handicrafts, eco-tourism and commercialization activities.	PMU
Men/head of Household	Decision making on access to market and resources use	Under All Project Activities: Conduct community meetings and awareness sessions on equitable resource use, climate adaptation benefits, gender inclusion, and participation in project decision-making and consultation processes.	PMU

Stakeholder Group	Why included (interests)	Participation methods	
		Stakeholder Engagement Activities	Responsibility
Landowners	Decision making on land and resources use.	Under Outputs 1.1.1, 1.1.4, 2.1.6, 2.2.1 and 2.2.2: Conduct consultations regarding land use, local ownership, cleaning campaigns, wells and irrigation systems, markets, infrastructure siting, access restrictions and potential resettlement-related impacts. Landowners including farmers will also be informed about grievance mechanisms and mitigation measures.	PMU
Government agencies	Influence on policies, decision making processes, possible role on conflict prevention and resolution, involvement in project activities	Under Outputs 1.1.1, 1.1.2, 3.1.1, 3.1.2, 3.1.3 and 3.1.4: Organize coordination meetings, technical workshops and validation sessions with government agencies to support climate adaptation planning, policy integration, integrated organic waste management mechanism, environmental and social safeguards implementation, and dissemination of lessons learned.	PMU
Regional authorities	Influence on policies, decision making processes, possible role on conflict prevention and resolution, involvement in project activities	Under Outputs 1.1.1, 2.1.3, 2.1.6, 2.2.1,2.2.2, 2.3.1, 2.3.2: Conduct stakeholder coordination meetings and consultation workshops on land use planning, infrastructure development, environmental and social safeguards, regional markets establishment, fire rapid response capacities, cultural and eco-tourism infrastructures, oasis by-products and conflict prevention and resolution.	PMU
Municipalities	Influence on policies, decision making processes, possible role on conflict prevention and resolution, involvement in project activities	Under Outputs 1.1.1, 2.1.6, 2.2.2 and 2.3.2: Engage municipalities through consultations and planning meetings related to waste management systems, tourism infrastructure, market development, environmental management and local service coordination.	PMU
Contractors and subcontractors	Involvement in project activities	Under Outputs 2.1.1, 2.1.6, 2.2.1 and 2.2.2: Conduct mandatory induction sessions and regular supervision meetings on labor standards, OHS requirements, waste management procedures, pollution prevention measures and compliance with ESMP requirements.	PMU
Private sector	Involvement in the market and in the project activities. involvement in co-financing the project	Under Outputs 1.1.2, 2.1.6, 2.2.2 and 2.2.3: Organize consultations and partnership meetings with private sector actors on waste valorization, commercialization systems, renewable energy solutions, market opportunities and inclusive value chain development.	PMU
Donors agencies	Support to policy makers, investment on project initiatives, Advocacy	Under Outputs 3.1.3 and 3.1.4: Conduct periodic coordination and information-sharing meetings to present project progress, lessons learned, knowledge products and opportunities for replication and scaling-up.	PMU
UNDP	Facilitate the project implementation, support policy	Under All Project Activities: Facilitate regular project review meetings, safeguard monitoring, stakeholder engagement oversight, grievance	PMU

Stakeholder Group	Why included (interests)	Participation methods	
		Stakeholder Engagement Activities	Responsibility
	makers, support stakeholder engagement, ensure project Quality and Accountability processes.	mechanism follow-up and quality assurance processes in line with UNDP and AF requirements.	
Universities and Research Institutions	Support to policy makers, evidence-based research, data driven advocacy, Involvement in project activities	Under Outputs 1.1.1, 3.1.1, 3.1.3 and 3.1.4: Organize technical consultations, research collaboration meetings and dissemination workshops to support climate data analysis, GIS mapping, monitoring systems and documentation of good practices and lessons learned.	PMU
NGOs (Non-Governmental Organizations), CSOs (Civil Society Organizations) and CBOs (Community Based Organizations)	Support to policy makers, support to advocacy on project activities framework, support to and involvement in project activities	Under Outputs 1.1.4, 2.2.3, 2.3.1 and All Project Activities: Conduct participatory consultations, community outreach activities, awareness campaigns and capacity-building sessions to support inclusive stakeholder engagement, vulnerable group participation and dissemination of project information.	PMU
Berber/Amazigh Communities	Access to resources, preservation of traditions and culture and involvement in project activities	Under Outputs 2.1.6, 2.2.1, 2.2.2, 2.3.1 and 2.3.2: Conduct culturally appropriate consultations with Amazigh (Berber) communities regarding potential impacts on traditional livelihoods, land use, cultural heritage and access to natural resources. Engagement activities will ensure inclusive participation and involvement in project activities and trainings, respect for traditional knowledge systems, and application of FPIC processes if required and applicable.	PMU

In the Stakeholder Engagement Plan, a specific focus will be put on the following processes:

- Engagement of women, especially young women.
- The involvement of youths is ensured all along the project cycle (from designing phase, to implementation and M&E) to fulfil the project objectives, especially to open opportunities of sustainable livelihoods
- Identification of the groups marginalised or at risk of marginalisation impacted by the project.
- Identification of the power relations between different stakeholders groups, including the ones coming from abroad.
- Engagement of marginalised (or at risk of marginalisation) groups and of any group considered as cultural minority such as the Amazigh (Berbers)
- Map out different social characteristics (e.g. power, political and cultural dimensions, gender) required to implement an effective and equitable governance
- Careful attention will be paid to identifying stakeholders that are essential for achieving long-term impacts and scaling.

The aim of the Stakeholder engagement process is to be inclusive, at times it may be needed to adapt engagement activities to enable some communities or individuals to fully participate.

Specific groups include, but not limited to, the groups listed above and, in particular, minority groups, women, young people and indigenous communities. Things to be mindful of while engaging with specific groups include:

- Identify local representatives.
- Communicate consistently.
- When possible, provide opportunities smaller meetings.
- Timing and location of meetings.
- Allowing enough time for the groups to participate.
- Accessible meeting locations and venues.
- Accessible and respectful information.
- Work with existing community networks.

The stakeholder needs have been mapped in the Theory of Change, to anticipate their role in the phases of project implementation, and to anticipate whether barriers could exist for their engagement (e.g. levels of literacy, cultural barriers). A strong focus will be on engaging with women, youth and indigenous communities beyond merely 'consulting' and awareness raising, ensuring that gender and youths-focused NGOs and CBOs are invited to participate at meetings, seminars, workshops and discussion groups that address the objectives of the project.

6. Resources and responsibilities

The implementing agency and the executing partner will be responsible for carrying out all the specific participatory activities for the stakeholders. The project will have a Project Steering Committee, which is the project's strategic political body, responsible for approving strategies and taking the necessary corrective measures to guarantee that the project achieves its desired results. In order to ensure the ultimate accountability of UNDP, Project Steering Committee decisions must be made in accordance with standards that ensure the management of results for development, better value for money, fairness, integrity, transparency and effective international competition.

Those who ensure compliance with the Comprehensive Stakeholder Engagement Plan in the highest instance are the implementing agency, UNDP, and the project's executing partner. Those responsible for the execution of the plan are the Project Manager and the Safeguards and Gender specialist, with the support of the SES professional who are part of the Project Management Unit and who will guarantee the implementation, follow-up and monitoring of the proposed activities.

7. Grievance mechanism

The grievance mechanism describes:

- The process by which people concerned with or potentially affected by the project can express their grievances for consideration and redress.
- Who will receive grievances, how and by whom will they be resolved, and how will the response be communicated back to the complainant.

The grievance mechanism ensure reference is made to and stakeholders are informed of the availability of UNDP's Accountability Mechanism as additional avenues of grievance redress.

The Grievance mechanism is based on the following UNDP standards and documents:

- UNDP SES Supplemental Guidance_Grievance Redress Mechanisms.
- Sample Terms of Reference - Project-level Grievance Redress Mechanism (found in the Project's Environmental and Social Management Framework).

UNDP's SES recognize that even with strong planning and stakeholder engagement, unanticipated issues can still arise. Therefore, the SES are underpinned by an Accountability Mechanism with two key components:

1. A Social and Environmental Compliance Review Unit (SECU) to respond to claims that UNDP is not in compliance with applicable environmental and social policies; and
2. A Stakeholder Response Mechanism (SRM) that ensures individuals, peoples, and communities affected by projects have access to appropriate grievance resolution procedures for hearing and addressing project-related complaints and disputes.

UNDP's Accountability Mechanism is available to all of UNDP's project stakeholders.

The Social and Environmental Compliance Unit (SECU) investigates concerns about non-compliance with UNDP's Social and Environmental Standards and Screening Procedure raised by project-affected stakeholders and recommends measures to address findings of non-compliance.

The Stakeholder Response Mechanism helps project-affected stakeholders, UNDP's partners (governments, NGOs, businesses) and others jointly address grievances or disputes related to the social and/or environmental impacts of UNDP-supported projects. Further information, including how to submit a request to SECU or SRM, is found on the UNDP website at:

http://www.undp.org/content/undp/en/home/operations/accountability/secu-srm/

The project will establish a Project Level Grievance Redress Mechanism (GRM) within the first six months of the project, in order to receive and facilitate resolution of any complaints and grievances. The GRM will be established at the three project sites and at the national level to address grievances that are escalated to higher levels. Information about the GRM will be widely disseminated, and a system for tracking complaints will be established. Interested stakeholders may raise a grievance at any time to the Project Management Unit, UNDP or the AF. During project implementation, interested stakeholders may raise a grievance at any time to the Project Management Unit (PMU), to the Executing Agency or to the AF Implementing Agency (UNDP).

Due diligence efforts will be made by the local project representatives to first resolve grievances locally, in a manner sensitive to local social and cultural norms. If the local process does not result in resolution of a grievance, the case will be upgraded to the PMU, with the process managed by the Project Manager providing guidance and signing off on written responses to grievances. The UNDP Country Office, as the AF Implementing Agency, will be the next reference for resolving grievances if the case is not resolved at the local level or by the Executing Agency. The Resident Representative will identify a member of the Country Office management team to oversee and manage the grievance through the UNDP Stakeholder Response Mechanism (SRM). The SRM ensures individuals, peoples, and communities affected by projects have access to appropriate grievance resolution procedures for hearing and addressing project-related complaints and disputes.

9. Monitoring and reporting

The implementation of the Comprehensive Stakeholder Engagement Plan will be monitored and evaluated through the 60 months of project implementation. Stakeholder engagement activities will be added in project reports and the consultations and information activities reports will be supported by minutes of meetings, with a focus on the feedback from project beneficiaries and the other stakeholders. The feedback from vulnerable groups and marginalized groups will be taken into consideration as inputs to adapt the project and the method of work. Monitoring and evaluation of the implementation of the stakeholder engagement plan are part of the project M&E plan as outlined in the ProDoc. The project team will **review and update the Comprehensive Stakeholder Engagement Plan once a year**, to keep updated the list, the analysis of stakeholders and the activities for stakeholder engagement that can change during the project implementation period. In addition,

the project team will ensure to communicate with and inform the stakeholders when some change in project's activities can affect their interests and their participation.

Gender Analysis and Gender Action Plan

Strengthening adaptive capacity and livelihood in most vulnerable traditional oases in the Governorate of Tozeur (Tunisia)

~~**Mainstreaming Cross-Sectoral Climate Change Adaptation Strategies in Traditional Oasis of the Governorate of Tozeur**~~

The UNDP recognizes that for its project interventions to achieve their objectives, particular attention must be paid to improving the contributions of women and their empowerment. Gender relations play a key role in access to and use of agriculture resources, as well their management within highly vulnerable ecosystems. The oasis territories in Tunisia have been subject to several changes recently due to climate change which has affected the health of populations and their lifestyle and habits. Moreover, the UN affirms that women are the most concerned by these changes[1]. For example, women and men at the oases often have different knowledge and activities when it comes to the agriculture sector. While men work in the fields, women play a major role in the contribution to local economy and the preservation of the biodiversity of Tozeur oases, mainly through processing of palm grove products, by-products and other fruits. Building institutional capacity for the oasis management in the public sector and civil society and developing concrete adaptation measures that promote climate adaptation and livelihood enhancement may affect women's daily tasks unless alternative options are proposed. Thus, an analysis of the gender gaps in the oases of the Governate of Tozeur is necessary to define activities that respect the principles of gender equality and allow communities in general and women living in these areas in particular to fully contribute to the objectives of strengthening adaptive capacities of these communities and secure their livelihood.

Numerous case studies around the world have demonstrated that biodiversity conservation efforts become more effective and efficient when women and vulnerable groups are empowered to participate as equal partners in information sharing and production, education and training, technology transfer, organizational development, financial assistance and policy development. The women of Tozeur have played an important role in the management and conservation of biodiversity and have a great experience and knowledge in processing and recovery of date palm products, other fruits, palm grove by-products and surrounding species. In Maghreb countries including Tunisia, women are often underrepresented in local climate adaptation and mitigation discussions, despite being disproportionately affected by climate change. Civil society organizations are working to address this gap. Recognizing the link between gender and climate is essential, as women's knowledge and experiences can help shape more effective strategies and prevent the worsening of existing gender inequalities.

The objective of this Gender Analysis and Action Plan (GAAP) is to ensure that gender equality issues are taken into account in the implementation and monitoring & evaluation of planned activities for the proposed Project. The GAAP will help strengthen gender equality within the frame of the project. By integrating a gendered approach in the project interventions, ideally both women and men will receive culturally-compatible economic and social benefits. Additionally, a gender-focused approach will also contribute to deeper knowledge about the inequalities between men and women in the proposed Project target areas and improve the participation of local women and women's associations in decision-making processes, through multi-stakeholder dialogue and women's empowerment, leadership development and livelihood activities.

Methodology for gender analysis and design of the Gender Action Plan

In order to prepare this GAAP, a literature review was conducted and available data were assessed from various studies and legal texts on gender issues in Tunisia, with focus on research and projects undertaken in Tozeur Governorate. Next, consultations and field visits were conducted across the project area. These engagements have involved a diverse range of key stakeholders, with particular attention to the active participation of women and youth. This approach ensured that the perspectives, constraints, and priorities of different social groups were adequately captured and reflected in the

[1] EMWF. (2018). Climate Change and women's economic empowerment in Tozeur. The Foundation - Economy / Employment - Tunisia. Euro-Mediterranean Women's Foundation. Available at https://www.euromedwomen.foundation/pg/en/news/view/8281/climate-change-and-womens-economic-empowerment-in-tozeur Accessed on 09/01/2026

design of the Gender Action Plan. Over 50 meetings were conducted consulting women and men representing various entities including ministerial, the UNDP, Tozeur Governorate regional and local authorities, regional technical departments, public institutions and research centers, agricultural and community organizations, civil society, and NGOs and entrepreneurship and economic support structures. The meetings that mainly focused on women and youth included visiting small private family businesses and initiatives focused on the valorization of oasis products and by-products, discussion meetings on local know-how in the field of handicrafts and the valorization of oasis agricultural by-products, through youth and women's entrepreneurship and meeting on the modalities of support and capacity building in the field of entrepreneurship for the most vulnerable communities including women and youth.

Institutional and Legal Framework for Gender Equality

Promoting Gender Equality

Over the past years, Tunisia has made progress in promoting and defending women's rights by developing a strong legislative framework and international instruments supporting and protecting women and gender equality. Since 1956, Tunisia has had inscribed in its Code of Personal Status the principle of equality in terms of access to health, education and justice, and this principle has been further enshrined in the country's legal framework through the 2022 Tunisian constitution, which guarantees the right to equal access of public goods and services between men and women and to be able to exercise their personal, public and professional lives in all domains, including environmental activities.

Tunisia officially established a family planning policy in 1966 with the creation of the National Office for Family and Population (ONFP). However, several preparatory measures have already been implemented beforehand, including:

- 1956: Adoption of the Code of Personal Status, which strengthened women's rights (prohibition of polygamy, regulation of divorce, etc.).
- 1961: Authorization of contraception under certain conditions.
- 1966: Official institutionalization of family planning at the national level.
- 1973: Legalization of abortion under certain conditions, making Tunisia one of the first Arab and African countries to permit it.

~~The new 2022 Constitution which was signed and promulgated in 2014 and then amended in 2022 has been of particular significance for the Tunisian women.~~

The Government of Tunisia issued a Decree No. 626 of 2016 on the creation of a National Peer Council for Equality and Equal Opportunities between Women and Men but it is not functional to date. The country prepared and adopted the National Strategy for the Economic and Social Empowerment of Women and Girls in Rural Areas (2017-2020). In 2018, the Health Law No.18/11 with an entire section on maternal and child health included health care and services for women and girls including areas of reproductive health and family planning. Law No. 7 of 2017, amending Law No. 16 of 2014 introduced gender quotas requiring the inclusion of women on electoral lists for both national and local elections to include equal numbers of male and female candidates[2].

Other national policies which touch on gender include Integrated Public Policy for the Protection of Children (2016–2020), Child Protection Code (1995), National Action Plans on Women, Peace & Security (2018-2022). Tunisia has developed national action plans aligned with UN Security Council Resolution 1325 to support women's inclusion, protection from gender-based violence, and women's roles in governance and peacebuilding. The UN Women Strategic Note (2022–2025) lays out priorities to strengthen women's economic opportunities, political participation and protection services.

Tunisia has undertaken, since the early 2000s and more intensively after 2011, a profound reform of its public financial management system through the implementation of results-based budgeting (RBB). Within this reform context, Tunisia has progressively integrated the gender dimension into budget management through gender-responsive budgeting (GRB). This approach aims to take into account the different needs of women and men in the design, implementation, and evaluation of public policies. Since 2020, integrating gender considerations has become a requirement in the preparation of the

[2] soawr. (2026). Protocol Watch. Tunisia. Solidarity for African Women's Rights. Available at https://soawr.org/protocol_watch/tunisia/ Accessed on 16/02/2026

Commented [SH1]: Since 1956, Tunisia has had inscribed in its Code of Personal Status the principle of equality in terms of access to health, education and justice, and this principle has been further enshrined in the country's legal framework through the 2022 Tunisian constitution, which guarantees the right to equal access of public goods and services between men and women and to be able to exercise their personal, public and professional lives in all domains, including environmental activities

Commented [SH2]: Bien qu'il existe, ce mécanisme n'est pas fonctionel

Commented [SH3]: La Tunisie a officiellement instauré une politique de planning familial en **1966**, avec la création de l'**Office National de la Famille et de la Population (ONFP)** Cependant, plusieurs mesures préparatoires avaient déjà été prises auparavant dont :
•**1956** : adoption du Code du Statut Personnel, qui améliore les droits des femmes (interdiction de la polygamie, encadrement du divorce, etc.).
•**1961** : autorisation de la contraception dans certaines conditions.
•**1966** : institutionnalisation officielle du planning familial à l'échelle nationale.
•**1973** : légalisation de l'avortement sous certaines conditions, faisant de la Tunisie un des premiers pays arabes et africains à le permettre.

State budget. Gender-responsive budgeting is therefore fully embedded within the RBB framework, constituting an essential cross-cutting dimension. By combining performance and equity, it contributes to improving the quality of public expenditure and promoting greater social justice. Thus, Tunisia's budget reform aims not only at economic efficiency but also at strengthening inclusion and equality among citizens.

The National Strategy for Gender Equality and Women's Empowerment (2016) in Tunisia aims to promote gender equality as a fundamental principle across all areas of public and private life. It seeks to reduce disparities between women and men by strengthening women's economic, social, and political participation, while ensuring equal access to rights, resources, and opportunities. At the core of this strategy is the objective of enhancing women's economic empowerment by improving their access to the labor market, supporting entrepreneurship, and addressing regional and social inequalities. In parallel, the strategy emphasizes the importance of human development by promoting equal access to education, vocational training, healthcare, and social protection services, particularly for vulnerable groups. Another key component focuses on increasing women's participation in decision-making processes and political life. This includes encouraging women's representation in elected bodies and leadership positions, as well as supporting their capacities through targeted training and empowerment programs. The strategy also prioritizes the elimination of all forms of discrimination and gender-based violence. It promotes preventive measures, strengthens legal protections, and supports services for victims, while fostering societal awareness and behavioral change. Finally, the strategy adopts a gender mainstreaming approach, integrating gender considerations into all public policies, programs, and budgets. This includes the development of gender-sensitive indicators, monitoring systems, and the implementation of gender-responsive budgeting to ensure that public resources contribute effectively to reducing inequalities. Overall, the strategy reflects a comprehensive and integrated approach, combining economic inclusion, social protection, political empowerment, and institutional reform to achieve sustainable gender equality in Tunisia.

Combatting Gender-based Violence

Regarding gender-based violence (GBV), in July 2017, the Parliament of Tunisia unanimously adopted a comprehensive law, the first in North Africa, addressing all forms of violence against women as well as psychological, economic and physical violence. It mandates treatment for the victims and highlights the fundamental importance of education in support of the principles of human rights and gender equality. Following the adoption of this law, Tunisia has proved that violence against women is not a private phenomenon but concerns the whole society. Based on this law, withdrawing a complaint no longer stops legal action against an offender, and perpetrators of rape cannot avoid prosecution by marrying the victim. Hiring minors for domestic work is now a criminal offense punishable by imprisonment. The law also strengthens support for unions addressing gender-based violence and workplace sexual harassment[3].

In 2016, Tunisia adopted Law No. 61 on the Prevention and Control of Trafficking in Person, which prohibits all forms of exploitation that persons can be subjected to, especially women and children, and combats it by preventing persons from being trafficked, preventing perpetrators from trafficking, and protecting and assisting victims.

Several efforts have been made to improve the legal protection of women. Tunisia adopted its first national procedural manual for women's shelters in 2020, endorsed by the Ministry of Women, Children and Family, with support from the International Development Law Organization (IDLO) and funding from Italy. The manual establishes uniform guidelines for shelters providing legal and protection services to women and children survivors of gender-based violence, ensuring consistent standards across the country. This initiative builds on Tunisia's Fundamental/Organic Law No. 58 in 2017 on the elimination of violence against women and reflects the country's broader commitment to advancing women's rights following the 2014 Constitution. The manual strengthens access to justice

[3] IUF. (2017). Tunisia: comprehensive new law on violence against women. International Union of Food. Available at https://www.iuf.org/news/tunisia-comprehensive-new-law-on-violence-against-women/ Accessed on 15/04/2026.

and improves service quality, especially as shelters play a key role in providing protection, legal assistance, education, and socioeconomic reintegration support[4].

The National Strategy to Combat Gender-Based Violence (2018–2023) in Tunisia is part of a broader effort to strengthen the legal and institutional framework, particularly following the adoption of Law No. 2017-58 on the elimination of violence against women. It reflects the commitment of the Tunisian state to establish a comprehensive, integrated, and sustainable approach to addressing this issue. The main objective of this strategy is to eliminate gender-based violence and ensure that women and girls can live free from violence. To achieve this goal, it seeks to enhance the effectiveness of public policies, improve the quality and accessibility of services for victims, and prevent violence by addressing its root causes, particularly inequalities and discriminatory social norms. It also emphasizes the importance of producing reliable data to better understand the scale of the problem and to guide public decision-making. By combining prevention, protection, coordination, and evaluation, it aims to establish an integrated public policy grounded in human rights and focused on promoting equality and social justice.

Commented [SH4]: @ghalia: est ce qu'il n'y a pas une stratégie actualisée ?

Tunisia established a network related to gender equality and combating violence against women that includes representatives from government bodies, ministries, and public institutions and several civil society associations active in the field of prevention and protection of women. Moreover, promoting and advancing women's rights was achieved by many women who became members of the Supreme Body for the Achievement of the Revolution's Goals, Political Reform, and Democratic Transition and representing diverse political parties, associations, and NGOs (following the 2011 revolution)[5].

Tunisia prepared its National Action Plan for the Elimination of Violence against Women (NAPEVW - 2013) which aims to end violence against women through the dissemination of information materials, the use of free hotline services and by strengthening and increasing access to comprehensive care for domestic violence survivors.

Government Initiatives

The RAÏDET program in Tunisia was officially launched in 2022 as part of the government's efforts to promote women's economic empowerment and gender equality. This program is a key public initiative aimed at promoting women's economic empowerment and strengthening gender equality, particularly in access to economic opportunities and resources. The main objective of the program is to support and develop women's entrepreneurship by facilitating access to financing and encouraging investment among women, especially those in vulnerable situations. It seeks to reduce gender disparities in the labor market by promoting women's economic inclusion, fostering innovation, and supporting income-generating activities across different regions, including rural and disadvantaged areas. To achieve these goals, the program is structured around several core components. First, it provides financial support through adapted funding mechanisms, including subsidized loans and investment schemes designed specifically for women-led projects. Second, it offers technical assistance and capacity-building services, helping beneficiaries design, launch, and manage their businesses effectively. Third, the program adopts an inclusive approach by targeting a wide range of women, including young graduates, rural women, and those with limited access to traditional financing systems. It also promotes sectoral diversification by encouraging projects in agriculture, services, handicrafts, and innovative industries, depending on regional economic potential. Since its implementation, the RAÏDET program has achieved significant results. It has supported thousands of women entrepreneurs across the country, contributing to the creation of numerous small and medium-sized enterprises. This has led to the generation of thousands of direct jobs and has stimulated local economic development. Moreover, the program has helped improve women's access to financial resources and strengthened their role in economic decision-making, thereby contributing to greater gender equality in practice. Overall, the RAÏDET program represents an important tool in Tunisia's strategy to translate gender equality from a legal principle into concrete economic outcomes. By

[4] IDLO. (2020). Manual for women's shelters in Tunisia becomes law. International Development Law Organization. Available at https://www.idlo.int/news/manual-womens-shelters-tunisia-becomes-law Accessed on 15/04/2026.
[5] Ibid

combining financial support, technical guidance, and social inclusion, it plays a crucial role in empowering women and promoting inclusive and sustainable development.

Global and Regional Commitments

At the global level, the Declaration on the Elimination of Violence against Women (CEDAW) adopted by the UN General Assembly in 1979 and particularly the General recommendation No. 35 of 2017 recognize the importance of ending gender-based violence against women[6]. In March 2018 the UN Commission on the Status of Women, at its meeting to discuss 'Challenges and opportunities in achieving gender equality and the empowerment of rural women and girls', agreed to eliminate harmful practices, such as female genital mutilation and child labour undertaken by girls, early and forced marriage[7].Up until the SIGI 2023 data collection period, Tunisia did not have data comparable to that of other countries on the prevalence or attitudes towards FGM/C practices[8].

Relevant international gender policies and strategies for this project include: Convention on the Political Rights of Women, (1967); The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (2011); Council of Europe Convention on preventing and combating violence against women and domestic violence (known as Istanbul Convention) signed in 2011; International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights both ratified in 1969; the International Labour Organisation (ILO) Convention No. 100 on Equal Remuneration ratified by Tunisia since October 1968; and the UNDP Gender Equality Strategy (2022-2025).

The Ministry of the Environment in close coordination with the Ministry of Women, Family and Seniors developed the national action plan gender - climate change of Tunisia in order to implement their international commitments and strengthen the integration of gender in public policies, including those related to climate change. This institution collaboration is a continuation of the National Gender Institutionalization Action Plan 2016-2020 developed by the peer council and represents a first translation of the international gender action plan adopted by the Conference of the parties (COP 23) and reinforced in the framework of the COP 25 for a period of 5 years until 2024. This contributes to the systematic consideration of gender by all sectors in a progressive manner (priority sectors planned in national and cross-cutting climate policies) in particular those not traditionally associated with women, especially in the waste, transport and energy sectors, etc. and establishes a new gender-sensitive climate governance.

Based on the principle that women and men represent heterogeneous groups, integrating gender means taking this social diversity of gender, which is in line with the principle of "Leaving no one behind" and the resolutions of the Human Rights Council on human rights and climate change. It also means that fundamental rights for all within the framework of a human rights approach, especially for the benefit of children youth, the elderly and people with disabilities etc. are duly guaranteed.

The mandate of the national action plan follows a threefold chronology: that instituted by the international action plan on gender-CC (2024) and by the major national climate policies (2030 & 2050) and the one developed by the Global Gender Equality Acceleration Plan (2026).

Indeed, the national action plan allow the harmonization of a gender-sensitive climate policy between the different ministries and offer a global vision of the country in this area.

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[6] OECD Development Centre. (2025). "Tunisia Social Institutions and Gender Index (SIGI) Country Profile". SIGI 2023 Country Profiles. Available at https://webfs.oecd.org/devsigi/SIGI%202023%20Country%20Profiles/Africa/country_profile_TUN_Tunisia.pdf Accessed on 16/04/2026.

[7] UN Women. (2018). Challenges And Opportunities in Achieving Gender Equality and the Empowerment of Rural Women and Girls. 2018 Commission on the Status of Women Agreed Conclusions. Available at https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/62/CSW-Conclusions-62-EN.PDF Accessed on 16/04/2026

[8] OECD Development Centre. (2025). "Tunisia Social Institutions and Gender Index (SIGI) Country Profile". SIGI 2023 Country Profiles. Available at https://webfs.oecd.org/devsigi/SIGI%202023%20Country%20Profiles/Africa/country_profile_TUN_Tunisia.pdf Accessed on 16/04/2026.

Its cross-cutting nature provides an opportunity for all sectors to find anchor points and to develop synergies in harmony with national climate policies while promoting a specific cross-cutting monitoring and evaluation system that is gender sensitive. The methodology for implementing the activities of the national action plan follow a synchronized gender approach that recognizes the need to work intentionally with men and women in order to promote mutual integration of men's and women's efforts and knowledge in addressing climate change while helping to develop a transformational gender approach by moving beyond the gender-sensitive adaptation and mitigation framework and addressing the causes of gender inequalities by involving all stakeholders at the household and/or community level. The national action plan defines actions and activities aligned with the five priority areas of the international Gender Action Plan that aim to advance knowledge and understanding of gender-responsive climate action and its coherent integration into implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.

Tunisia's NDC 3.0 of 2025 was structured to ensure full alignment with the work on the Global Goal on Adaptation (GGA) under the United Nations Framework Convention on Climate Change. The resilience objectives of NDC 3.0 incorporate seven priority thematic areas, four complementary areas, and four cross-cutting areas. Gender-differentiated vulnerabilities and priorities are strongly reflected in NDC 3.0, both within each thematic area (food security, agriculture and fisheries; water resources and sanitation; health and healthcare services; ecosystems and biodiversity; infrastructure and human settlements; cultural heritage and knowledge; poverty and livelihoods) and across the cross-cutting priority areas. In particular, resilience challenges specific to women, youth, and the most vulnerable populations are strongly integrated within the third cross-cutting area, which focuses on the involvement of young people and leading groups in the implementation of the NDC and the strengthening of the resilience of families, women, and children.

Commented [SH5]: The Ministry of the Environment in close coordination with the Ministry of Women, Family and Seniors developed the national action plan gender - climate change of Tunisia in order to implement their international commitments and strengthen the integration of gender in public policies, including those related to climate change. This institution collaboration is a continuation of the National Gender Institutionalization Action Plan 2016-2020 developed by the peer council and represents a first translation of the international gender action plan adopted by the Conference of the parties (COP 23) and reinforced in the framework of the COP 25 for a period of 5 years until 2024. This contributes to the systematic consideration of gender by all sectors in a progressive manner (priority sectors planned in national and cross-cutting climate policies) in particular those not traditionally associated with women, especially in the waste, transport and energy sectors, etc. and establishes a new gender-sensitive climate governance.
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At the regional level, Tunisia is part of: The African Charter on Human and Peoples' Rights was signed in 1982; the Protocol on the Rights of Women in Africa (the Maputo Protocol) signed in 2015 and ratified in 2018; The African Charter on Human and Peoples' Rights (1991); The Protocol on the African Court on Human and Peoples' Rights (ratified in 2007); The Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women (2005); The African Charter on the Rights and Welfare of the Child (signed in 1992); the Common Market for South and East Africa (COMESA).

While many frameworks have been developed and adopted with a strong foundation, they have not directly removed discrimination and inequalities for Tunisian women. Moreover, regional instabilities and the COVID-19 pandemic have increased inequalities, poverty and discrimination for women and girls. Women have been subject to harmful social norms that remain embedded in institutions and legal frameworks; elevated unemployment rates, especially for young women; more frequent economic, political violence and violent extremism and low rates of women in governance[9].

Agricultural Development Groups (GDAs)

The Agricultural Development Groups (Groupements de Développement Agricole – GDAs) in Tunisia are essential local structures for the management of natural resources, particularly in rural and oasis areas.

Agricultural Development Groups (GDA) in Tunisia were established under Law No. 99-43 of 10 May 1999 relating to development groups in the agriculture and fisheries sector, as well as the texts that have modified, amended, or supplemented it, including in particular:

- Law No. 2001-28 of 19 March 2001 concerning the simplification of administrative procedures in the agriculture and fisheries sector.
- Law No. 2004-24 of 15 March 2004 amending and supplementing Law No. 99-43 of 10 May 1999 relating to development groups in the agriculture and fisheries sector.
- Decree No. 99-1819 of 23 August 1999 approving the standard statutes of development groups in the agriculture and fisheries sector.
- Decree No. 2005-978 of 24 March 2005 approving the amendment of the standard statutes of Agricultural Development Groups (GDA).

[9] UN Women. (2023). Tunisia 2022-2025. Strategic Note. Available at https://www.unwomen.org/sites/default/files/2024-03/un-women-strategic-note-brochure-tunisia-2022-2025-en.pdf Accessed on 12/01/2026

Although the legal framework grants GDAs broad and diversified functions and responsibilities in supporting farmers across all agricultural development processes within their areas of competence, most GDAs operating in oasis ecosystems limit their interventions to irrigation water management. This includes organizing water distribution (allocation among farms through irrigation schedules), maintaining pumping equipment, collecting pumping fees from beneficiary farmers, and paying the Tunisian Company of Electricity and Gas (STEG).

Given the low participation of women in agricultural activities in traditional oases, the GDAs currently operating in the governorate of Tozeur remain community structures strongly dominated by men, both at the level of their executive board members and their general membership. At present, the governorate of Tozeur has 88 GDAs.

Over the past few years, 11 women's GDAs have been created in the oases of the Tozeur Governorate, including 7 in the delegation of Hazoua, 2 in the delegation of Tamerza, 1 in Tozeur, and 1 in Nefta. The 4 GDAs in Tamerza, Tozeur and Nefta are relevant to the project as they are located in the target areas.

Women's GDAs could thus play an important role in supporting female members, particularly in promoting entrepreneurship in areas related to the artisanal valorization of oasis products and by-products.

Non-Governmental Organizations

Key stakeholders such as researchers, NGOs, or development professionals looking to engage with gender and climate issues in Tozeur work at the intersection of oasis preservation, water rights, and women's economic empowerment., hence, the importance of consulting them and integrate their opinions and activities into such projects. Examples of these stakeholders are La Ruche Tozeur, Association pour la Protection de l'Oasis de Tozeur, Association des Femmes de Tozeur (Nefta Branch), and Association IRADA.

Socioeconomic Baseline Conditions and Gender Risk Analyses for the Proposed Project Area

The Governorate of Tozeur is located in the southwest of Tunisia, within the arid and Saharan bioclimatic zone, covering an area of 5,593 km² (3.5% of the country's total area). The governorate is characterized by a relatively diversified economy, centered on agricultural production, particularly date palm cultivation, and tourism activities, supported by hospitality infrastructure including 22 hotels, 27 travel agencies, and 4 tourist entertainment centers. The table below provides key figures for Tozeur Governorate[10].

	Governorate of Tozeur	National
Number of inhabitants	120,036	11,972,169
Area (km²)	5593	163,610
Number of households	31,619	3,472,188
Population density(inhabitants/km2)	21	73
Annual population growth rate (%)	1,07	0.87
Average rainfall (2024) (mm)	104.5	207.3
Active population (aged 15 and over	90,111	9,239,227
Unemployment rate (%)	17.1	17.2
Poverty rate (2015) (%)	14.6	15.2
Illiteracy rate (aged 10 and over)	12.5	17.3
Health coverage rate (%)	86.7	76.0
Social coverage rate (%)	34.6	42.1
Regional development indicator (RDI)	0.468	-
Rank (RDI) at the national level	10	-
Regional attractiveness rate	3.474	-
Rank (regional attractiveness)	4	-

[10] ODS (2025). Tozeur Governorate in Figures, 2024

Demography

As of November 2024, Tunisia had 11,972,169 inhabitants. Women represent 50.7% of the population against 49.3% for men. In Tozeur, the population was 120,036 in 2024 (around 1% of the total population of the country) of which 50.6% are women and 49.4% are men. Until 2004, men's population had surpassed women's populations. However, sex ratio was reversed after 2004. Several factors may account for this change, especially the difference in life expectancy between men and women, which averages more than four years. In addition, the fertility rate has fallen below the level required for generational replacement, and international migration tends to be predominantly male.

The majority of the population of Tozeur Governorate is concentrated in three delegations: Tozeur, Nafta, and Degache, which together account for 81% of the total population of the Tozeur Governorate. The other three delegations (Tamerza, El Hamma, and Hazoua) are characterized by vast expanses of land and non-arable areas (salt flats, Sahara, etc.) and a very low population density. The population distribution of the Tozeur Governorate by delegation and gender are represented in the table below[11]:

Delegation	Total population	% of the Tozeur Governorate total	Number of inhabitants	
			Male	Female
Tozeur	50,362	42	24,794	25,568
Dégache	24,426	20	11,971	12,455
Tamerza	6,904	6	3,460	3,444
Nafta	24,263	19	12,010	12,253
Hazoua	6,186	6	3,094	3,092
Elhamma	7,895	7	3,912	3,983
Total (governorate)	120,036	100	59,241	60,795

The table below presents age distribution percentages in Tozeur Governate, whereby the average age is 34[12]:

Table 1: Age Distribution Percentages in Tozeur Governate

Age Distribution	0-4	5-14	15-59	60 and above
Percentage	6.8%	18.1%	60.3%	14.7%

Education

The population distribution by educational attainment in high, secondary, primary and no school for the Governorate of Tozeur and nationally is presented in the table below.

	Education Level	High	Secondary	Primary	Nothing
Governorate	Tozeur	14.2%	40.7%	29.5%	15.6%
	National rate	16.1%	37.1%	28.6%	18.3%

In higher education, the number of Tunisian boys has drastically decreased. Currently, 62% of women registered in doctorate degrees and 70% of all university graduates in Tunisia are women. At 49.45%, Tunisia currently has the highest percentage of female students in STEM (science, technology, engineering, and mathematics) fields worldwide. In fields that have been known to be historically dominated by men, this shows clearly gender parity. In addition, this trend is also evident for the secondary school leaving qualification which favors girls. The percentage of girls who passed in 2025 was 63%, while the percentage for boys was 37%. Even though girls have long outperformed boys,

[11] MEP/INS. (2025). Population Distribution in Tunisia 2024. Institut National de la Statistique – Tunisie. Available at https://www.ins.tn/sites/default/files-ftp3/files/2025-05/Presentation%20RGPH%202024.pdf Accessed on 24/02/2026
[12] MEP/INS. (2025). Population Distribution in Tunisia 2024. Institut National de la Statistique – Tunisie. Available at https://www.ins.tn/sites/default/files-ftp3/files/2025-05/Presentation%20RGPH%202024.pdf Accessed on 24/02/2026

the difference appears to be widening[13]. In Tozeur Governorate, illiteracy rates are 16.2% for women and 8.6% for men, lower than the national rates of 22.4% and 12%, respectively[14].

Poverty

Tunisia has worked towards implementing several strategic measures to reduce poverty in the country. The AMEN Social Program was launched in 2019 with World Bank support targeting multidimensional poverty and serving as the country's social protection system. In addition, the program has implemented poverty reduction efforts targeting women by providing permanent cash transfers to 12% of the population, with women heading 54% of the beneficiary households[15]. In addition, digital transformation was a key priority in AMEN project, covering 44.4% of digitalized cash transfers and more than 76% of women benefiting from the social program are receiving payments digitally[16]. Table 2 presents poverty at different lines for the year 2021[17].

Table 2: Poverty at Different Lines for 2021

Poverty Line	Number of Poor (Thousands)	Rate (%)
National Poverty Line	1,952.8	16.6
International Poverty Line ($3.00/day)	78.8	0.7
Lower Middle Income Class Poverty Line ($4.20/day)	289.6	2.4
Upper Middle Income Class Poverty Line ($8.30/day)	2,490.2	20.7
Multidimensional Poverty Measure	-	0.8

The poverty rates distributed among different groups classified into area, gender, age structure and education levels are presented in Table 3 below[18]. Poverty rates in rural population (37.5%) is significantly higher than that of the urban population (12.7%) while there is little difference between poverty rates for males and females. The table also clearly demonstrates the link between poverty and lack of education, with the highest poverty rate (25.1%) for those aged 16 and above without education and the lowest (9.1%) with tertiary or post-secondary education.

Table 3: Poverty Rates of Various Groups

Groups	Poverty Rate (%)
Urban population	12.7
Rural population	37.5
Males	20.5
Females	20.8
0 to 14 years old	32.6
15 to 64 years old	18.2
65 and older	11.7
Without education (16+)	25.1
Primary education (16+)	20.7
Secondary education (16+)	14.3
Tertiary/post-secondary education (16+)	9.1

[13] Al Majalla. (2025). Culture & Social Affairs. Why Tunisian women are outpacing men in education. By Asmahan Al-Sha'abouni. Last update on 05 Dec 2025. Available at https://en.majalla.com/node/328608/culture-social-affairs/why-tunisian-women-are-outpacing-men-education Accessed on 04/03/2026

[14] MEP/INS. (2025). Population Distribution in Tunisia 2024. Institut National de la Statistique – Tunisie. Available at https://www.ins.tn/sites/default/files-ftp3/files/2025-05/Presentation%20RGPH%202024.pdf Accessed on 24/02/2026.

[15] WB. (2024). AMEN PROGRAM. Q3. Fact Sheet. The World Bank Group. Social Protection and Jobs. Available at https://thedocs.worldbank.org/en/doc/80c50f4cc6c081e16cd67957f83cd93a-0280012024/original/Fact-Sheet-Q3-24-WB-SPJ-EN.pdf Accessed on 26/02/2026.y

[16] World Bank. (2024). Feature Story. Tunisians Share How their Life Changed Through the AMEN Program. Available at https://www.worldbank.org/en/news/feature/2024/11/14/tunisians-share-how-their-life-changed-through-the-amen-program#:~:text=STORY%20HIGHLIGHTS,program%20affected%20her%20family's%20resilience. Accessed on 26/02/2026

[17] WB. (2025). Poverty and Equity Brief. Tunisia. By Trang Van Nguyen. Available at https://documents1.worldbank.org/curated/en/099509004222555951/pdf/IDU-1f085b02-7d1d-42a8-9538-e30cde142acc.pdf Accessed on 27/02/2026

[18] Ibid

The 2024 national population census has recorded alarming rates regarding illiteracy across several Tunisian governorates with significant gaps in gender where women are the most affected by illiteracy mainly in Jendouba Kairouan, Sidi Bouzid, Kasserine and Siliana. However, Tozeur was not included among these areas[19], as the poverty rate in the governorate is lower than the national rate (14.6% estimated in 2015).

Health

Health coverage rates in Tozeur Governorate are high, estimated at 86.7% in 2024; however, social coverage rate is much lower, at 34.6%. One of the most significant gaps in Tunisia's reproductive health policy implementation is the disparity in access to and availability of reproductive health services across regions. Reducing regional disparities in women's access to reproductive health care necessitates addressing its core causes: inadequate infrastructure, poverty, and political marginalization[20]. The prevalence of contraception is rising, life expectancy is increasing, and rates of maternal and newborn mortality are declining in Tunisia. However, there is a disparity in development between rural and more industrialized areas[21].

Food Security

Tunisia has not experienced any food shortages and/or severe supply difficulties leading to food insecurity for decades. In fact, Tunisia is one of only three African countries classified globally in the "good performance" category in terms of food and nutrition security. According to the Food and Agriculture Organization of the United Nations, Tunisia currently has a relatively low level of undernourishment, estimated at around 3% of the population[22]. However, this situation should not mask persistent vulnerabilities, particularly in rural areas and among low-income populations, where consistent access to sufficient food remains fragile. Moreover, the FAO highlights that the country's main challenge is no longer solely food availability, but increasingly its nutritional quality. Tunisia thus faces a "double burden" characterized by the coexistence of residual undernourishment and rising dietary imbalances, including nutritional deficiencies and overweight, in a context aggravated by economic pressures, climate change, and dependence on food imports.

People living in rural areas in the central-west and north-west regions, especially rural female-headed households, are among the most vulnerable groups in terms of food and nutrition. In general, women tend to have fewer resources to access food. The lack of resources and financial autonomy among women undermines not only their own food security but also that of the entire household, especially in female-headed households in rural areas.

In addition, Tunisia faces overlapping nutritional problems, including micronutrient deficiencies and obesity.

Access to Basic Services

According to Tunisia's 2024 Population and Housing Census, access to basic services is generally high but remains uneven across sectors. Nearly all households are connected to electricity, with coverage reaching about 97.6%. Access to drinking water is also relatively widespread, at around 86.8% of dwellings connected to the public water network. However, access to sanitation services is more limited, with approximately 61.9% of households connected to the sewerage system. The lowest level of coverage concerns natural gas, which reaches only about 21.4% of homes.

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[19] TN. (2025). Alarming Results from the 2024 Census: These Tunisian Regions Record the Highest Illiteracy Rates! Society.Tunisie Numérique. Available at https://news-tunisia.tunisienumerique.com/alarming-results-from-the-2024-census-these-tunisian-regions-record-the-highest-illiteracy-rates/?utm_source=chatgpt.com#google_vignetteAccessed on 16/04/2026

[20] Amroussia N, Goicolea I, Hernandez A. Reproductive Health Policy in Tunisia: Women's Right to Reproductive Health and Gender Empowerment. Health Hum Rights. 2016 Dec;18(2):183-194. PMID: 28559685; PMCID: PMC5395000.

[21] UNFPA. (2026). Transparency Portal. Results in Tunisia. Available at https://www.unfpa.org/data/transparency-portal/unfpa-tunisia Accessed on 15/04/2026.

[22] FAO, IFAD, UNICEF, WFP, WHO & UNESCWA. 2023. Near East and North Africa – Regional Overview of Food Security and Nutrition: Trade as an Enabler for Food Security and Nutrition. Cairo. https://doi.org/10.4060/cc4773en

Overall, the results highlight strong progress in essential infrastructure such as electricity and water supply, while also revealing persistent gaps in sanitation and energy distribution, particularly in terms of network connectivity.

Agriculture

Tozeur's economy is mostly based on agriculture, with palm date cultivation being the most significant sector in terms of area, volume, and revenue. Date palm monoculture has been supported by agricultural policy for decades. These policies resulted in encouraging over-exploitation of water resources and their depletion and the loss of local oasis knowledge, which used integrated agriculture to adapt to challenging climate conditions. This ancient three-layer farming system combining date palms at the top, mid-level fruit trees (oranges, bananas, pomegranates, apples), and at the shade ground-level crops (vegetables, fodder, cereals), created a protective microclimate that conserves water and supports biodiversity. However, the modern shift toward single-crop farming, coupled with rising temperatures and water shortages, is now threatening the stability of this ecosystem and the livelihoods of those who maintain it[23]. As part of efforts to support small-scale agriculture, particularly in regions vulnerable to climate change, protecting palm trees is essential to preserving local identity and ensuring sustainable income for farmers. Farmers are now calling for the establishment of agricultural insurance systems capable of ensuring the sustainability of their livelihoods and protecting palm groves. Oases are increasingly exposed to multiple risks, including fires, drought, pests, and climate-related hazards. In recent years, fires in particular have increased, causing significant losses, often without adequate compensation mechanisms for farmers. It is therefore necessary to establish local insurance structures that allow for better risk management and faster response in the event of disasters[24].

The role of Tozeur women is key in the management and the conservation of biodiversity. Moreover, they have the know-how to properly conserve, process and recover of date palm products, other fruits, palm grove by-products and surrounding species. Women in Tozeur usually do not work in the fields, but in activities such as irrigation, hoeing and weeding, contributing to maintaining soil quality[25].

In the semi-rural mountainous areas of Tamagheza, Chbika, and Mides, women are essential to the physical upkeep of the land. Their labor focuses on foundational field work, including land management activities such as irrigation, hoeing, and weeding to ensure soil health and livestock care activities such as maintaining herd hygiene and managing stable conditions. In the Hezoua region, life is defined by movement, as semi-nomads, women travel alongside their husbands, following the livestock in a constant search for viable desert pastures. In the larger urban centers of Tozeur and Nafra, there is a distinct separation between domestic life and field agriculture. While manual labor in the groves is traditionally reserved for men, women drive the value-added economy through date processing (Sorting, grading, and packaging dates for market), product transformation including Creating artisanal goods like date syrup, paste, and vinegar, diverse crafts such as producing traditional dairy products and weaving clothing or carpets using camel hide and recycled fabrics and oasis harvesting by utilizing secondary resources such as aromatic herbs, medicinal plants, and vegetable crops.

Therefore, while the specific tasks vary from the physical labor of the mountains to the processing and craftsmanship of the cities, women remain the backbone of the oasis economy and the primary stewards of its diverse natural products.

Women play a key role in adding value to palm grove products and processing them into local goods like date syrup, date paste, and date vinegar. They are also involved in crafting activities, particularly

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[23] EMWF. (na). Climate change and Tunisia's Tozeur oases: an opportunity to boost women's leadership and economic activity Article proposed and written by Euro – Mediterranean Women's Foundation's Secretary. Available at https://docs.euromedwomen.foundation/files/ermwf-documents/8935_climatechangeandtunisia%E2%80%99stozeuroases-anopportunitytoboostwomen%E2%80%99sleadershipandeconomicactivity.pdf Accessed on 17/04/2026

[24] La Presse. (2025). Tozeur: Preserver les oasis, un acte vital, face aux changements climatiques. Available at https://www.lapresse.tn/2025/08/03/tozeur-preserver-les-oasis-un-acte-vital-face-aux-changements-climatiques/ Accessed on 17/04/2026

[25] UN Habitat. (2021). Évaluation des progrès vers la prospérité urbaine Une application de l'Indice de Prospérité des Villes Pour la ville de Tozeur en Tunisie. Translated to English. Available at https://unhabitat.org/sites/default/files/2021/08/tozeur_tunisia_rapport.pdf Accessed on 17/04/2026

basket weaving using reeds. In addition, women utilize a wide range of other oasis products, including vegetable crops, goat cheese, traditional clarified butter (Dhane), and various agricultural products such as apricots, dates, olives, peppers, and carrots. They also work with aromatic and medicinal plants, and engage in producing textiles and crafts, including weaving clothing and carpets from camel skin and fabric remnants[26].

Employment and Economic Activity

The total number of workers in the Tozeur Governorate is estimated at 31,393 (see table below). Current employment shows significant variation and diversity across sectors of activity and by gender. The total number of employed women does not exceed 7,980, such that only 25.4% of total employees in the governorate are female, compared to 23,413 men (74.6%).

The major sector of economic activity in the governorate is the services sector, providing 66% of jobs, followed by agriculture (12.5%), construction and public works (12.2%), mining and energy (3%), and manufacturing industries (2.8%). It is important to note that agricultural work is predominantly carried out by men as women represent only 4.5% of employees in the sector.

The vast majority (90%) of female workers are employed in services sector, followed by manufacturing industries (5.5%). It is also important to highlight that manufacturing industries are largely dominated by agri-food industries, based on the processing and value addition of agricultural products.

The table below shows the distribution of the active population in the Governorate of Tozeur, by sector of activity and gender[27].

Economic Sector	Male	Female	total
Agriculture	3,941	186	4127
Manufacturing industries	898	437	1335
Mining and energy	958	66	1024
Construction and public works	3,832	64	3896
services	13,747	7204	20951
Undeclared	37	23	60
Total (economically active population)	23,413	7,980	31393

The 2024 General Population Census highlights significant gender gaps in the labour market. Men participate in the labour market twice as much as women (63.5% compared to 33.6%). The male employment rate (55.1%) is more than double that of women (25.3%). Women face higher unemployment nationally, with a rate of 24.6% compared to 13.1% for men. In Tozeur Governorate shows a similar trend, with higher overall unemployment rates than the national average (36.4% for women and 17.4% for men) and starker gender disparities, as shown in the table below:

Delegation/Sex	Unemployment Rate		
	Male (%)	Female (%)	Total (%)
Tozeur	15.3	34.2	25.5
Degache	20.8	34.6	28.5
Tamerza	35.0	36.0	35.4
Nafta	15.9	36.1	27.1
Hazoua	17.3	39.7	30.2
Governorate of Tozeur	17.4	36.4	27.0

Access to Land

26 EMWF. (2018). Climate Change and women's economic empowerment in Tozeur. The Foundation - Economy / Employment - Tunisia. Euro-Mediterranean Women's Foundation. Available at https://www.euromedwomen.foundation/pg/en/news/view/8281/climate-change-and-womens-economic-empowerment-in-tozeur Accessed on 09/01/2026

27 ODS (2025), Tozeur Governorate in Figures, 2024

In Tunisia, rural women are significantly disadvantaged relative to men with regard to their land rights, with women's land ownership being complex in rural areas. While land laws give rural women equitable access to landed property, in practice they often agree to give their share of inheritance to their brothers for financial compensation, while in the context of marriage, the property belongs to the man in 85% of the cases. According to the report by INS and UN-Habitat (2021)[28], the distribution of land registered in the National Land Registry System is 39% for women and 61% for men. According to the 2016–2020 action plan of the Council of Elders, only 3% of rural women own real estate compared to 12% of men.

Gender-Based Violence

According to the first national survey on violence against women conducted by the National Office of Family and Population (ONFP) in 2010, 47.6% of Tunisian women aged 18 to 64 reported have experienced one or more forms of violence during their lifetime, and 32.9% were victims of violence in the past 12 months. According to the same survey, 21.3% of women reported having been victims of sexual violence committed by a non-intimate partner, which corresponds to three times the global prevalence of this type of violence[29].

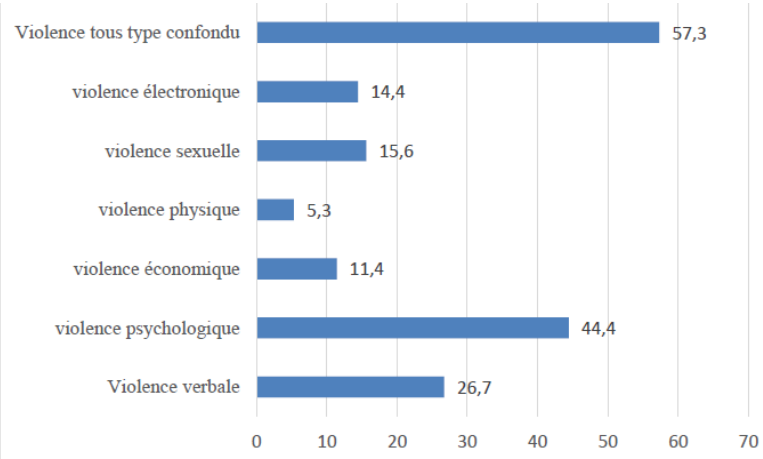
In 2022, the National Institute of Statistics carried out a national survey on violence against women aged 15 to 74, covering a sample of 11,610 households, representative at the level of major regions (Tunis District, South-East, South-West, Central-West, Central-East, North-West, and North-East). The main objective of this survey was to produce quantitative indicators to measure manifestations of violence and their frequency, as well as to identify the characteristics of female victims and perpetrators of assaults. The main results and conclusions of this inventory are summarized as follows:

- **Violence against women remains a phenomenon affecting Tunisian society:** The majority (84.7%) of women surveyed reported having been victims, since the age of 15, of at least one act of violence (all types combined), and 57.1% reported experiencing at least one episode in the 12 months preceding the survey. Psychological violence, including its two components (psychological and verbal violence), is the most common type of violence (49.3% in the 12 months preceding the survey), followed by sexual violence (15.6%), economic violence (11.4%), and finally physical violence (5.3%). 42.7% of married, divorced, or widowed women have experienced at least one act of violence from their husband or ex-husband.

- **Women most at risk are young, more educated, and those who are active in the economic and social spheres:** Certain characteristics of the surveyed female population appear to be more strongly associated with the prevalence of violence, across all types. Thus, during the 12 months preceding the survey, violence affected 73.7% of young women aged 15 to 24, 80% of students, 70% of women with higher education, 63.2% of employed women, 67.4% of single women, 59.7% of women in urban areas (compared to 51% of women in rural areas).

The table below shows the prevalence of violence (all types combined) during the 12 months preceding the survey[30].

[28] INS et ONU Habitat (2021), Evaluation de la disponibilité des données pour rendre compte des indicateurs des ODD sur la sécurité des droits fonciers.
[29] Office National de la Famille et de la Population (2010), Enquête Nationale sur la Violence a l'Egard des Femmes en Tunisia: Rapport de l'enquête, athttp://www.medcities.org/documents/10192/54940/Enqu%C3%AAte+Nationale+Violence+envers+les+femmes-+Tunisie+2010.pdf.
[30] UN Women (2022). Tunisia Gender Profile



It is important to note that the survey showed that for adolescents (15–17 years old), electronic/cyber violence represents a significant risk. Indeed, these young women are highly active on social networks (83.4% use Facebook, 65.7% use Instagram, 51.4% use WhatsApp, and 68.6% use TikTok), and nearly half (47.9%) connect with unknown people. It is also noteworthy that more than one-third of adolescent girls (37.1%) experienced at least one act of electronic/cyber violence in the 12 months preceding the survey.

Consultations with Women's GDAs

Consultation meetings were held with the two women's GDAs in the delegation of Tamerza were organized during the preparation of the project document, in order to assess this new experience of women's GDAs and to identify the needs and required support to ensure better guidance and greater involvement of women in implementing resilient good practices aimed at improving productivity and profitability in the oasis ecosystems targeted by the project.

Women Oasian of Tamerza" GDA

In July 2024, the "Women Oasian of Tamerza" GDA was established under Law No. 99-43 of 10 May 1999 relating to development groups in the agriculture and fisheries sector following a decision by the Governor of Tozeur. The internal regulations of the "Women Oasian of Tamerza" GDA define its objectives and areas of intervention. According to Article 5 of its statutes, these include in particular:

- Livestock development (sheep, cattle, camel, poultry farming, etc.),
- Valorization of oasis agricultural products and organic waste from the oasis,
- Promotion of organic agriculture,
- Climate change mitigation,
- Advisory support and guidance for members to improve agricultural productivity, adopt best farming practices, and enhance the value of oasis products.

Currently, the GDA board includes 3 women and several members. However, the "Women Oasian of Tamerza" GDA has been inactive since its creation due to a lack of administrative and organizational capacity, as well as insufficient resources to support its functioning and the services it could provide to its members.

Participants in the meeting nevertheless confirmed the willingness of women artisans to improve the functioning of the GDA, in the presence of a significant number of skilled women artisans, including graduates, and a diverse range of high-quality artisanal products with strong market potential.

Potential products that could be developed by the "Women Oasian of Tamerza" GDA include:

- Agricultural products derived from dates and other oasis products,
- Strong capacities and expertise in the production of essential vegetable oils (for food consumption, cosmetics, or paramedical uses),
- Most women artisans already possess practical expertise and theoretical knowledge in the sectors in which they operate (confirmed by recognized artisan certificates).

The GDA expressed the following needs for project support:

- Administrative and organizational support (establishing a new board, mobilizing women artisans, preparing a GDA work program, developing a product catalogue, etc.),
- Technical and logistical support to improve product quality (certification/labeling), alignment with new market requirements and demand, exploration of new potential markets, particularly emerging tourism structures in the region such as the new Tamerza Palace Hotel (4-star), acquisition of improved production equipment),
- Support for product marketing (sales outlets, online marketing, product certification, etc.), participation in artisanal fairs at regional and national levels.

Ettahaddi GDA

The "Ettahaddi" GDA in the oasis of Midès (Tamerza delegation) is a women's agricultural development group established in January 2024 in accordance with Law No. 99-43 of 10 May 1999 relating to development groups in the agriculture and fisheries sector. The GDA board is composed of three women and has 53 female members.

Its current areas of activity include supporting the creation of income-generating activities for the women of Midès through the valorization of oasis products. The main current activities are:

- Valorization of agricultural products
- Processing of aromatic and medicinal plants
- Artisanal weaving
- Livestock farming (mainly sheep and goats).

Experiences, skills, and value chains developed by the GDA include the following:

- Expertise in the production of various agricultural and artisanal products,
- Products reflecting the richness of oasis resources and the specific products of the Midès oasis (chili peppers, citrus fruits, common date varieties, etc.),
- Production of carpets and rugs reflecting local culture, strongly influenced by Berber heritage,
- Commercial activities benefiting from the touristic appeal and attractiveness of the Midès oasis.

The GDA expressed the following needs for project support:

- Support for the development of a production space ensuring better functionality, taking into account the large number of members,
- Support for administrative organization and strengthening of the GDA's logistical capacities (office equipment, IT equipment, audiovisual tools), as well as technical assistance,
- Training support to improve the quality of marketed products (technical training by product type, etc.), and support for obtaining professional artisan certification (officially recognized certificates issued by competent authorities) enabling access to national support mechanisms,

- Logistical support (production equipment, distillers, grinders, sieves, traditional weaving tools, etc.) and raw materials (weaving supplies, dyes, agricultural products, wool, etc.),
- Marketing and commercialization support, including labeling, packaging, establishment of a sales point, development of a product catalogue, and online sales systems,
- Support for the creation of new value chains, in particular the establishment of a mill for processing agricultural products and an oven for cooking and processing food products (juices, sugar, pasta, jam, etc.),
- Development of sheep and goat livestock farming value chains.

The GDA discussed the following topics:

- In terms of household role, the women were initially not encouraged by their family (mainly the husband) to participate due to household duties) but when the benefits in terms of income were appreciated, the husbands started helping (in sourcing primary material). However, household duties remained fully with the women.
- More than one woman works on each textile product (especially carpets). However, they all share the income of the cooperative. All women know how to execute all the tasks and new members are welcomed and trained on them.
- In terms of self-identification, the women consider their products traditional Amazigh designs but modernized. They are unique because of their quality (they have won several awards and certifications). They are proud of their Amazigh heritage, which they identify with through cuisine and textiles. In terms of language, they mostly speaking Arabic with some Amazigh words.
- Their main success factor is trust between members and the income generated.

Gender Analysis

Tozeur is experiencing a deterioration of its oasis environment. The oasis ecosystem continues to undergo profound changes at the social, economic, ecological, and climatic levels. Oases are currently facing increased soil salinization, poor drainage caused by irrational and unsustainable use of water resources, which contributes to the degradation of soil and water resources, increased pollution of air, soil, and water, and consequently the intensification of biological loss. The city is currently experiencing rapid urban expansion, mainly due to the priority given by public authorities to Saharan tourism. This is reflected in the creation of a continuously expanding tourist zone and an increase in the urban population[31].

The "Feminization" of Vulnerability

Despite their key economic and environmental contributions, women in Tozeur remain underrepresented in political decision-making, holding mainly deputy mayor positions after the 2018 elections despite some leadership in electoral lists. In civil society, women constitute 70% of members in surveyed organizations, yet only 30% hold leadership roles, indicating a strong gap between participation and decision-making power. Gender integration in local development projects is insufficient, with women's needs poorly reflected; only 3 out of 40 Sustainable Management of Oasis Ecosystems (SOME) projects are dedicated to women. Women are also largely excluded from resource governance structures, representing only 3% of GDA members responsible for managing water, forests, and pasture resources (in addition to 11 women's GDAs in the governorate).

In Tozeur, climate change has accelerated a shift in labor dynamics. As the productivity of traditional date palm oases declines due to heat stress and water shortages, many men migrate to urban centers or the tourism sector in search of more stable income leaving women to manage the oases without formal land titles or legal authority over water rights which are traditionally held by men. Research indicates that women's roles in livestock rearing and rangeland management in southern Tunisia are

[31] UN Habitat. (2021). Évaluation des progrès vers la prospérité urbaine Une application de l'Indice de Prospérité des Villes Pour la ville de Tozeur en Tunisie. Translated to English. Available at https://unhabitat.org/sites/default/files/2021/08/tozeur_tunisia_rapport.pdf Accessed on 17/04/2026

often "policy blind." Because they are not officially recognized as "farmers," they are frequently excluded from climate adaptation training and agricultural subsidies[32].

Water Scarcity

Women's vulnerability to climate change is strongly shaped by gendered roles, particularly their responsibility for water collection, household use, and irrigation. Limited access to natural resources, mainly water, combined with restricted access to land, finance, and technology, significantly constrains their ability to adapt. As water scarcity intensifies, women face increased workloads and reduced mobility, making them more exposed to climate risks and worsening food insecurity and economic instability. In Tunisia, droughts and heatwaves further strain water availability, directly disrupting women's roles in agriculture and daily resource management. Although women's development groups provide support through training, credit, and collective action to improve water access, rural women remain highly vulnerable as water scarcity continues to limit their adaptive capacity[33].

Economic Disparities in Adaptation

Women in Tunisia face limited access to land ownership and loans. Only about 5% of women farmers nationwide own a land. Therefore, their capacity to respond to climate change and manage their livelihoods independently is significantly constrained. In addition, they carry a double burden, combining agricultural work with household responsibilities, which increases their workload and stress levels. Ongoing drought conditions, along with restrictive government measures, further constrain women activities and make it difficult for them to access markets and sell their produce and by-products. Women also have limited access to training on climate change adaptation and water management. As a result, many women farmers lack the knowledge needed to adjust their agriculture practices, strengthen resilience, and sustain their incomes[34].

Gender Risk Assessment and Mitigation Measures for Local Communities

In the traditional oases of Tozeur Governorate, gender-related barriers may make it harder for local communities mainly women and youth to fully take part in and benefit from climate adaptation activities. These risks include limited access for women to training, resources, agricultural inputs, income-generating opportunities, markets and community decision-making processes, as well as social norms that may restrict their participation in public and economic activities. In addition, many women carry heavy unpaid care responsibilities and may have limited mobility, which further reduces their ability to engage in project activities.

In terms of project activities, women may face increased workloads by combining income-generating activities with existing domestic and caregiving responsibilities, while their effective control over generated income and productive assets may remain limited. Social, cultural, mobility, or time constraints could also restrict equitable participation, particularly for the most vulnerable women. In addition, the intervention could inadvertently reinforce traditional gender roles by concentrating women in low-value activities or create intra-household tensions linked to shifts in economic roles and access to income. Tourism development could unintentionally reinforce gender inequalities by limiting women's access to decision-making, quality employment, and control over economic benefits, while increasing their workload.

To address these challenges, the project will work in a more inclusive and practical way that actively brings women and vulnerable groups into the process and facilitates their involvement in community discussions, training sessions, livelihood activities, cooperatives, and local adaptation efforts. It will also include reaching out directly to women, organizing trainings at times and places that are easier for them to attend, supporting women-led income-generating activities, encouraging their

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[32] Wikigender. (2019). Climate Change and Tunisia's Tozeur Oases: An opportunity to boost women's leadership and economic activity. *Article proposed and written by Euro – Mediterranean Women's Foundation's Secretary*. Available at https://wikigender.oecdcode.org/index.html%3Fp%3D24009.html?utm Accessed on 20/04/2026

[33] Mazhoud, H., Boucif, A., Ouhibi, A., Hajji-Hedfi, L., & Chemak, F. (2025). Investigating the Gender-Climate Nexus: Strengthening Women's Roles in Adaptation and Mitigation in the Sidi Bouzid Region. Climate, 13(8), 164.

[34] VCA. (2026). Rim Ben Soud: a woman farmer in Tunisia with initiative and solutions. Local Voices. Voices for Just Climate Action. Available at https://voicesforjustclimateaction.org/rim-ben-soud-a-woman-farmer-in-tunisia-with-initiative-and-solutions/#:~:text=Water%20shortage%20is%20a%20big,resilience%20and%20maintain%20their%20incomes. Accessed on 20/04/2026

representation in local committees and raising awareness in the community to ensure fair participation and sharing of benefits across oasis communities.

Key Findings and Conclusions

- Recent agricultural policies promoting date palm monoculture have contributed to the overexploitation of water resources, increasing environmental stress in oasis systems.
- Climate change impacts, including rising temperatures and the spread of new plant diseases, have further pushed farmers toward monoculture practices while leading to the abandonment of local crop varieties. This shift has reduced access to raw materials traditionally used by women for producing local artisanal goods.
- Despite their active participation in community and civil life, women remain underrepresented in decision-making roles within public institutions and civil society organizations.
- There is also a notable lack of coordination, collaboration, and awareness regarding the importance of integrating women's needs into public and community development projects, as well as their participation in natural resource governance.
- While climate change exacerbates existing inequalities in Tozeur, recent gender-sensitive policies are beginning to recognize women not just as victims of climate change, but as essential agents of adaptation whose participation is vital for the survival of the Tunisian oasis system.
- Women are often underrepresented in the GDAs (Water Groups). Since these groups decide who gets water and when, the lack of female representation means that "kitchen gardens" managed by women are often the first to be cut off during droughts in favor of male-owned commercial groves.

Gender Action Plan

The Gender Action Plan provides a gender-balanced and responsive approach to the Project. It identifies gender equality issues, design activities and measures and includes targets. It also takes into consideration risks/impacts and mitigation actions and other relevant issues identified during consultations

Outputs	Action	Gender Indicators	Timeline	Responsible
Impact Statement: Increased climate resilience and improved socio-economic conditions of women and girls from Tozeur community through gender mainstreaming and technical and financial assistance to gender-specific activities				
Component 1: Institutional Capacity Building and Governance Strengthening				
Outcome: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems				
Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalizsed	Consult women to collect data on their specific vulnerabilities and issues regarding climate change to ensure effective update and validation of adaptation plans and the preparation of the methodological guide and actively engage women in consultations at delegation and oasis level Adaptation plans to incorporate gender-responsive measures, with monitoring based on gender-disaggregated indicators and differentiated targets."	**Target:** At least 30 institutions/local organizations, including GDAs/SMSAs/CSOs Five delegation-level plans updated through stakeholder consultation that involve at least 50% women	Semi-annual	UGPO-CC, CRDA, delegations, municipalities
Output 1.1.2 – Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems	Ensure capacity-building and training is provided for women in national and local institutions, in the 29 GDAs in targeted oases, with focus on the 4 women's GDAs, and those working as private agricultural actors	**Target:** At least 500 trained, at least 40% women, at least 80% show improved post-training scores	Semi-annual	PMU, CRDA, CRRAO, CTD, ANME, tourism/culture/artisanat directorates
Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities	Ensure that women's and youth household needs are identified and that business skills trainings and specialized trainings (agricultural, handicraft, tourism, entrepreneurship, and	**Target:** At least ~~300~~ 370 households trained/coached; at least ~~50~~80% women and youth are trained including 100 individuals/enterprises processing	Semi-annual	Espace Entreprendre, local NGOs, PMU

Commented [SH6]: Pas que les consultation uniquement. Il faut que les plan d'adaptation inclus des mesures genrées, suivi par des indicateurs et cibles différenciés

Outputs	Action	Gender Indicators	Timeline	Responsible
	employment support structures) are provided to women and youth	agricultural products, 150 artisans and 120 touristic enterprises		
Output 1.1.4 – Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions	Ensure the assessment of local and civil society actors include women and that the training on technical, organizational, and participatory skills is provided to women	**Target:** At least ~~29~~ 30 GDAs/local organizations and at least 5 SMSA/community service mechanisms supported including the 4 women's GDAs	Annual	PMU, CRDA, local NGOs
Component 2: **Implementation of community-based adaptation projects in the targeted oases**				
Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases				
Output 2.1.1 – Climate-~~smart~~-resilient irrigation systems established and operational in four targeted oases	Ensure construction and rehabilitation works of networks and boreholes are properly executed to secure the safety of women living in households and ensure their farming activities are not interrupted	**Target:** Women living and working in ~~the Oases of Tamerza, Midès, Fom El Khanga and Dghoumes~~at least 15 oases showing a 20% reduction in irrigation water intensity, while maintaining or improving minimum irrigation service reliability	Quarterly during works; annual after commissioning	CRDA Tozeur, CTD, PMU
Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables)	Ensure women participate in the selection, propagation and management of climate-resilient varieties in nurseries, pilot farm and local seed bank and that the new varieties are providing additional income opportunities while maintaining overall production levels	**Target:** Women working in pilot areas (drought-adapted date palm, fruit tree, vegetable/fodder varieties), seed bank or living nearby	Semi-annual	CRRAO, CTD, PMU
Output 2.1.3 – Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level	Ensure women are included in the equipped and operational pilot local fire response units within GDAs and the decentralized rapid response hub	**Target:** Women within at least 5 delegation- level or local fire response mechanism operational including at least 1 decentralized rapid response hub~~GDAs and the decentralized rapid response hub~~	Semi-annual; after incidents	Regional Civil Protection, CRDA, GDAs
Output 2.1.4 – Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	Involve women in the testing and training on climate-resilient agricultural technologies and practices in the 5 pilot oases	**Target:** At least 300 farmers trained; at least 60% of pilot farmers adopting at least two practices	Semi-annual	CTD, CRDA, GDAs

Outputs	Action	Gender Indicators	Timeline	Responsible
Output 2.1.5 – Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems	Consult women to capture their knowledge on plant health issues and diseases encountered and ensure their access to equipment, training and application of integrated pest management (IPM)	**Target:** Women preparing by-products	Seasonal; annual synthesis	CTD, CRDA
Output 2.1.6 – Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels	Encourage women to take part in the cleaning campaigns and to work in the composting facilities in Tamerza as paid employees and ensure they are benefitting from the provided logistical capacity support to the SMSAs and GDAs Ensure that the women living in nearby households are not affected by the activities of cleaning and development of the composting facilities	**Target:** Women living in the selected oases dedicated for cleaning campaigns and near the composting facility site	Semi-annual	Regional Council, CRDA, SMSAs/GDAs, private operator
Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access				
Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	Ensure women are consulted during the preparation of the technical and socio-economic feasibility study that will assess the expected economic, environmental, and social effects. To consider women during the identification of direct beneficiaries	**Target:** At least 20% for supported GDAs of which 50% are women	Quarterly first year after installation; annual	Regional Council, CRDA, ANME, STEG
Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products	Consult women during the establishment of the market and take their opinion in the exhibition spaces designs where their agriculture products are displayed and the tools and equipment needed to preserve these products Highly encourage women to participate in this market and sell their products	**Target:** At least 300 producers/SMEs use market services annually of which 50% are women	Quarterly during establishment; annual after launch	Regional Council, Ministry of Commerce, PMU

Outputs	Action	Gender Indicators	Timeline	Responsible
Output 2.2.3 – New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products	Ensure the process of certification and labeling schemes is easily accessible to women Provide women with simple digital tools training for direct sales and online commercialization as well as home compatible equipment for packaging, labeling, grading and conditioning if possible Heavily encourage women and youth to participate in fairs, exhibitions and sales events related to oasis products	**Target:** Targeting at least 85~~5~~0% of women/youth	Semi-annual	Espace Entreprendre, local NGO, PMU
Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources				
Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization	Highly encourage women and youth of the regional handicraft administration in Tozeur to access the provided logistical capacities and participate in the supported fairs and sales events. Highly encourage women and youth entrepreneurs to be involved in the individualized support in the sectors of palm wood, cosmetics and essential oils, basketry and traditional artisanal weaving	**Target:** At least ~~2~~150 artisans supported; at least ~~8~~70% women; at least 4 product lines supported	Semi-annual	Direction Régionale de l'Artisanat de Tozeur/Local NGO
Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	Consult women regarding the selection of cultural and eco-tourism sites for the purpose of rehabilitation and that the provided support of tourism services and infrastructure covers women and youth	**Target:** At least 8 sites/services/enterprises operational across targeted delegations; at least ~~50% of~~120 enterprise beneficiaries (80%women/youth)~~women/youth~~	Semi-annual	Regional Directorate of Tourism, municipalities, NGO
Output 2.3.3 – Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives	Ensure shared-use equipment are provided to women organizations Highly encourage women to participate in the festivals, exchange events forums and thematic gatherings related to oasis preservation and cultural tourism	**Target:** At least 20 events over project period; at least 10 knowledge products/documentation outputs; participation sex- and age-disaggregated	Annual	Regional Directorate of Culture, NGO, PMU

Outputs	Action	Gender Indicators	Timeline	Responsible
Component 3: Knowledge production, management, and dissemination				
Output 3.1.1 – A GIS mapping and monitoring system for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use	Consult women in the different phases of establishing the GIS mapping and monitoring system including key indicators of ecosystems status and use, data collection and ensure they can use it efficiently	**Target:** 29 oases mapped and monitored using gender disaggregated data	Annual	CRRAO, CRDA, CNCT if involved, PMU
Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated	Consult women to identify the best models and options for the integrated organic waste management and help develop an economic assessment	**Target:** Women perspective included in the feasibility study	Once; update as needed	Regional Council, CRDA, PMU
Output 3.1.3 – Public communication tools and knowledge products on project results and lessons learned developed and disseminated	Ensure communication tools and project results are disseminated and easily accessible to women and youth	**Target:** At least 25 tools/products produced; 10,000 people reached (50% women and youth) through website, videos, guides, printed materials and events	Semi-annual	PMU, UGPO-CC, communications partners
Output 3.1.4 – Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication	Highly involve women in lessons learned conferences and knowledge sharing events	**Target:** At least 50% of women have access to good practice notes, exchange missions, and regional/national learning events completed	Annual	PMU, UNDP, UGPO-CC, CRRAO/CTD

Monitoring, Reporting and Evaluation of the Gender Action Plan

Implementation of the Gender Action Plan will build on the experience of the country and project partners, and further specific guidelines will be developed and compiled, and additional information on gender gaps will be generated. In this context, women's active participation will be ensured during the project implementation, monitoring and evaluation, according to the UNDP Policy on Gender Equality and the Stakeholder Engagement Plan of the Project. These activities will be under the responsibility of the Project Management Unit and will be delegated to a gender specialist within the project. The gender specialist will be in charge of developing surveys and activities (workshops, meetings and trainings among others) to promote women's participation and to receive their feedback on results of the gender strategy and the project's activities. The strategies to mainstream women's equality issues into the project will be analyzed and monitored yearly during the project's lifetime by the project team, including key project partners or consultants.

Measures will be identified in a participatory way with women, to compensate for possible gender-based disadvantages and gender-based inequalities within the Project. The advances will be presented to the Steering Committee of the Project and to UNDP through quarterly and annual reports. The gender strategy will be considered a living document throughout the project's lifespan, since the strategies will be developed each year as part of the project's annual plans. Therefore, activities will be adapted as needed so that the project can achieve results while promoting women's empowerment. This will include an annual review of progress and reporting to UNDP. In the case of any unforeseen circumstances or deliberate changes to the scope, design, or implementation of the Project that are likely to cause an adverse change in social risks or impacts on women, the Gender Action Plan will be put under immediate review. The review and process will include the following steps:

- The gender coordinator will review possible implications of the changes, including consulting with Affected People and other relevant stakeholders;
- Conduct additional risks/impact assessment(s) and update the Gender Action Plan strategy;
- Internal review and approval;
- Submission to UNDP for approval

Project: Strengthening adaptive capacity and livelihood in the most vulnerable traditional oases in the Governorate of Tozeur

Environmental and Social Management Framework

02-07-2026

Country: Tunisia	Budget*:* USD 205,000	Duration: XXX
UNDP Social and Environmental Screening Category: Moderate		UNDP Gender Marker: *GEN 03*
UNDP- PIMS ID number: 10443		

Public Consultation/Disclosure Notice

Date: XX

The United Nations Development Programme (UNDP) is requesting feedback on the attached draft Environmental and Social Management Framework and associated Social and Environmental Screening Procedures for this project.

Comments and questions can be sent to the following address:

United Nations Development Programme

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The last date for receiving of comments is XXXX (30 days from announcement).

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ACRONYMS

AF	Adaptation Fund
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
GAP	Gender Action Plan
GEF	Global Environment Facility
GRM	Grievance Redress Mechanisms
IPP	Indigenous Peoples Plan
MTR	Mid-Term Review
OHS	Occupational Health and Safety
PIR	GEF Project Implementation Report
PMU	Project Management Unit
PPG	Project Preparation Grant (GEF)
SECU	Social and Environmental Compliance Review Unit (UNDP)
SEP	Stakeholder Engagement Plan
SES	Social and Environmental Standards (UNDP)
SESA	Strategic Environmental and Social Assessment
SESP	Social and Environmental Screening Procedure (UNDP)
SRM	Stakeholder Response Mechanism (UNDP)
UGPO-CC	Unité de Gestion des Programmes et Projets - Changement Climatique
UNDP	United Nations Development Programme
UNDP-GEF	UNDP Global Environmental Finance Unit

EXECUTIVE SUMMARY

The Tozeur Oasis Project in Tunisia will promote the sustainable use of natural resources, climate-sensitive planning, and the adoption of practices that reduce degradation and enhance ecosystem resilience. Given the project's complexity and the diversity of activities involved, this Environmental and Social Management Framework (ESMF) has been developed to guide the identification, assessment, and mitigation of environmental and social (S&E) risks throughout implementation.

The project has been classified as **Moderate Risk** under UNDP's Social and Environmental Screening Procedure (SESP) and Category B under Adaptation Fund's Environmental and Social Policy (ESP). The ESMF outlines the applicable UNDP Social and Environmental Standards (SES), national legal frameworks, stakeholder engagement protocols, and gender equality commitments. It includes both **horizontal (project-wide)** and **targeted (activity-specific)** risk treatment measures.

Key components of the project include:

- Component 1: Institutional Capacity Building and Governance Strengthening
- Component 2: Implementation of community-based adaptation projects in the targeted oases
- Component 3: Knowledge production, management, and dissemination

The ESMF also includes a **Gender Action Plan** (Annex 1) and a **Stakeholder Engagement Plan** (Annex 2) to ensure inclusive participation, especially of women and small-scale producers. It defines roles and responsibilities for risk management, including oversight by gender, stakeholder and safeguards experts.

1 INTRODUCTION

This document has been prepared for the Strengthening adaptive capacity and livelihood in the most vulnerable tradional oases of the Governorate of Tozeur Project in Tunisia, and constitutes its Environmental and Social Management Framework (ESMF). The project has been classified by UNDP as involving **Moderate** social and environmental risks under its Social and Environmental Screening Procedure (SESP), equivalent to Category B under the Adaptation Fund (AF) Environmental and Social Policy (ESP).

The project involves a variety of activities whose design parameters are not yet fully defined and whose potential social and environmental risks cannot be fully assessed at the design stage, this ESMF provides guidance on identifying, assessing and managing such risks in accordance with UNDP's Social and Environmental Standards (SES), AF ESP and applicable national legislation.

The ESMF serves as a management tool to ensure that any adverse environmental or social impacts associated with project activities financed by the AF are properly addressed. Throughout project implementation, the implementing partner and relevant members of the Project Management Unit will oversee compliance with the ESMF and monitor progress on implementing the SES requirements, ensuring that environmental and social risks and impacts are thoroughly assessed and that appropriate management measures are in place prior to carrying out project activities.

Finally, the ESMF defines the steps for detailed risk assessment and establishes the requirements for preparing and approving the necessary management plans to avoid impacts wherever possible. When avoidance is not feasible, the plans will ensure that adverse environmental and social impacts are reduced, mitigated and managed effectively.

The ESMF presents:

- the social and environmental risks of the relevant project activities that require further attention,
- the prohibited actions that the project cannot support,
- the applicable UNDP SES requirements
- the applicable country law,
- the required stakeholder engagement and transparency measures, and
- integrated recommendations for meeting the UNDP requirements and country law during the project implementation through project-wide (horizontal) and targeted (outcome/activity-specific) S&E risk treatment measures.

The ESMF also specifies the responsibilities and resources for S&E risk management and provides annexes with the Gender Action Plan (GAP) (Annex 1), Stakeholder Engagement Plan (SEP) (Annex 2) and TOR for the Grievance Redress Mechanisms (GRM) (Annex 3) and advice for key S&E risk assessment and management instruments proposed in the main text of this ESMF.

2 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

Project implementation partner:

Expected Results:

COMPONENT 1 – Institutional Capacity Building and Governance Strenthening

Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems

- Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised
- Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems
- Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities
- Output 1.1.4 – Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions

COMPONENT 2 – Implementation of community-based adaptation projects in the targeted oases

Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases

- Output 2.1.1 – Climate-resilient irrigation systems established and operational in four targeted oases.
- Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).
- Output 2.1.3 – Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level
- Output 2.1.4 Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers
- Output 2.1.5 Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems
- Output 2.1.6 Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels

Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access

- Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency
- Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products
- Output 2.2.3. New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products

Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources

- Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.
- Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of

climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth

- Output 2.3.3. Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives

COMPONENT 3 – Knowledge production, management, and dissemination

Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems

- Output 3.1.1 – A GIS mapping and monitoring system for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use
- Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.
- Output 3.1.3 – Public communication tools and knowledge products on project results and lessons learned developed and disseminated
- Output 3.1.4 – Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.

Project duration: 60 months

2.2 Applicable Policy and Legal Framework

This section provides a preliminary review of the applicable policy, legal and institutional framework related to the potential risks and benefits of the implementation of the proposed activities. It includes a brief review of applicable national legislation, policies and regulations; and the UNDP SES.

2.2.1 UNDP Social and Environmental Standards

The project will comply with UNDP's Social and Environmental Standards (SES), which came into effect in January 2015. The SES underpin UNDP's commitment to mainstream social and environmental sustainability in its Programmes and Projects to support sustainable development. The objectives of the standards are to:

- Strengthen the social and environmental outcomes of Programmes and Projects
- Avoid adverse impacts to people and the environment
- Minimize, mitigate, and manage adverse impacts where avoidance is not possible
- Strengthen UNDP and partner capacities for managing social and environmental risks
- Ensure full and effective stakeholder engagement, including through a mechanism to respond to complaints from project-affected people

The SES are an integral component of UNDP's quality assurance and risk management approach to programming.

Key Elements of UNDP's Social and Environmental Standards (SES)

Overarching Policy	Project-Level Standards	Policy Delivery Process & Accountability
Human Rights Gender Equality and Women's Empowerment Sustainability and Resilience Accountability	Biodiversity and Sustainable Natural Resource Management Climate Change and Disaster Risks Community Health, Safety, and Security Cultural Heritage Displacement and Resettlement Indigenous Peoples Labour and Working Conditions Pollution Prevention and Resource Efficiency	Quality Assurance Screening and Categorization Assessment and Management Stakeholder Engagement and Response Mechanism Access to Information Monitoring, Reporting, and Compliance review

The Standards are underpinned by an Accountability Mechanism with two key functions:

- A Stakeholder Response Mechanism (SRM) that ensures individuals, peoples, and communities affected by UNDP projects have access to appropriate procedures for hearing and addressing project-related grievances; and
- A Compliance Review process tthat can investigate claims that UNDP is not in compliance with UNDP's social and environmental policies.

Through the AF Accreditation Process, the SES are acknowledged to be consistent with the Adaptation Fund's Environment and Social Policy (see section 4.2 below). The UNDP SES also require UNDP not to support

activities that do not comply with national law and obligations under international law, whichever is the higher standard (hereinafter "Applicable Law"). UNDP programmes and projects, therefore, must always comply with the beneficiary countries' national law (see section 0 below). The supported actions will therefore have to meet not only UNDP SES and Adaptation Funds Environment and Social Policy but also any additional requirements stipulated in the national law.

2.2.3 Adaptation Fund Environmental and Social Policy

The Adaptation Fund had established in March 2016 its own Environmental and Social Policy to ensure that the Fund does not support projects/programmes that unnecessarily harm the environment, public health or vulnerable communities. The Policy is built on 15 principles and also provides adequate opportunities for the informed participation of all stakeholders in the formulation and implementation of projects/programmes supported by the Fund.

As part of the implementing entities' responsibilities for the project/programme, the Fund requires the implementing entities to (i) have an environmental and social management system that ensures environmental and social risks are identified and assessed at the earliest possible stage of project/programme design, (ii) adopt measures to avoid or where avoidance is impossible to minimize or mitigate those risks during implementation, and (iii) monitor and report on the status of those measures during and at the end of implementation. These requirements are fully consistent with the UNDP Social and Environmental Standards. The table below outlines the consistency of the Adaptation Fund Environmental and Social Principles with the specific requirements stipulated by the UNDP's Social and Environmental Standards.

Table 2-1 **Analysis of the consistency of the Adaptation Fund Environmental and Social Principles with the UNDP Social and Environmental Standards**

Adaptation Fund Environmental and Social Principles	UNDP Social and Environmental Standards (relevant provisions only)
Compliance with the Law: Projects/programmes supported by the Fund shall be in compliance with all applicable domestic and international law.	See the See the UNDP SES Accountability Principle 4, item 30 states that 'UNDP does not support activities that do not comply with national law and obligations under international law, whichever is the higher standard (hereinafter "Applicable Law").
Access and Equity: Projects/programmes supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. Projects/programmes should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups.	See the See the UNDP SES Human Rights Principle, paragraph 14 and the Social and Environmental Screening questions related to: • P1.6 Risk of restricting access to resources or basic services.
Marginalized and Vulnerable Groups: Projects/programmes supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups, including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project/programme, the implementing entities shall	See the UNDP SES Human Rights Principle, paragraph 16 and the Social and Environmental Screening questions related to: • P1.5 Risk of inequitable or discriminatory impacts on affected populations.

assess and consider particular impacts on marginalized and vulnerable groups.	
Human Rights: Projects/programmes supported by the Fund shall respect and, where applicable, promote international human rights.	See the UNDP SES Human Rights Principle, paragraph 13 and the Social and Environmental Screening questions related to: • P1.4 Risk of adverse impacts on civil, political, economic, social or cultural rights.
Gender Equality and Women's Empowerment: Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men (a) have equal opportunities to participate as per the Fund gender policy (refer to Annex 4 for details); (b) receive comparable social and economic benefits; and (c) do not suffer disproportionate adverse effects during the development process.	See the UNDP SES Gender Equality and Women's Empowerment Principle, paragraphs 18-20 and the Social and Environmental Screening questions related to: • P2.9 Risk of adverse impacts on gender equality, • P2.10 Risk of discrimination against women, • and • P2.11 risks of limiting the women's access to natural resources.
Core Labour Rights: Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.	SES Standard 7, paragraphs 5-12, 20-24 and the Social and Environmental Screening questions related to: • S7.1 Risks of substandard labour & working conditions, • S7.2 Risks to freedom of workers association and collective bargaining, • S7.3 Child labour risks, • S7.4 Forced labour risks (incl. in supply chains), • S7.5 Risks of discriminatory working conditions, • S7.6 Occupational health and safety risks.
Indigenous Peoples: The Fund shall not support projects/programmes that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples.	Entire See the UNDP SES Standard 6 and the Social and Environmental Screening questions related to: • S6.1 Risks associated with activities taking place where indigenous peoples are present • S6.2 Risks associated with activities taking place on lands, territories claimed by indigenous peoples • S6.3 Risks to rights, lands, territories natural resources and traditional livelihoods of indigenous peoples • S6.4 Risk that activities will take place without meaningful, effective informed participation of indigenous peoples • S.6.5 Risk of utilizing/developing indigenous peoples resources without agreement and/or agreed benefit sharing • S6.6 Risk of forced eviction or physical/economic displacement of indigenous peoples

	• S6.7 Impacts on development priorities of indigenous peoples • S6.8 Risks to physical and cultural survival of indigenous peoples • S6.9 Risks of impacts on cultural heritage of indigenous peoples
Involuntary Resettlement: Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.	See the UNDP SES Standard 5 objective and its paragraphs 1,3,4 and the Social and Environmental Screening questions related to: • S5.1 Physical displacement risks • S5.2 Economic displacement risks • S5.3 Risk of forced evictions • S5.4 Risks of impacts on community-based rights to land, territories or resources
Protection of Natural Habitats: The Fund shall not support projects/programmes that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.	See the UNDP SES Standard 1, paragraph 13 and the Social and Environmental Screening questions related to: • S1.2 Risks to critical habitats
Conservation of Biological Diversity: Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species.	SES Standard 1, paragraph 13 and the Social and Environmental Screening questions related to: • S1.4 Risks to endangered species
Climate Change: Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.	SES Standard 2, paragraph 9 and the Social and Environmental Screening questions related to: • S2.4 risks of increased GHG emissions
Pollution Prevention and Resource Efficiency: Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.	• SES Standard 8, paragraph 4 and paragraphs 7-9 and the Social and Environmental Screening questions related to: • S8.1 risks of pollutants release • S8.2 risks of inadequate waste management
Public Health: Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.	See the UNDP SES Standard 3, paragraphs 2,3,6, and 7 and the Social and Environmental Screening questions related to: • S3.1 construction-related risks

	• S3.2 Emissions, noise, traffic, hazards and effluent risks • S3.3 safety risks due to failure of project structural elements • S3.4 risks of water/vector-borne diseases
Physical and Cultural Heritage: Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programmes should also not permanently interfere with existing access and use of such physical and cultural resources.	See the UNDP SES Standard 4, paragraphs 1, 2, and 14 and the Social and Environmental Screening questions related to: • S4.1 risks to cultural heritage sites • S4.2. risks of unknown archaeological heritage damage • S4.3 risks to tangible and intangible forms of cultural heritage
Lands and Soil Conservation: Projects/programmes supported by the Fund shall be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.	See the UNDP SES Standard 1, paragraph 21 and the Social and Environmental Screening questions related to: • S1.7 risks of soil degradation

As required by the Adaptation Fund Environmental and Social Policy, the above requirements will be fully respected within the project and will guide project design, implementation, and monitoring of any identified environmental and social risks.

2.2.3 APPLICABLE COUNTRY LAW

Discrimination

- Organic Law No. 2016-61 of August 3, 2016 on preventing and combating human trafficking people ;
- Organic Law No. 2018-50 on racial discrimination;
- The organic budget law n°15 of February 13, 2019 introduces in its article 18 the taking into account of equality and equivalence of opportunity and stipulates that: “The head of the program oversees the preparation of the budget according to objectives and indicators guaranteeing equality and the equivalence of opportunities between women and men and in general between the different social categories, without discrimination, and which will be the subject of assessment on this basis.”
- Law n° 2020-30 of June 30, 2020, relating to the social and solidarity economy
- Law No. 379-2019, relating to the social security system for certain categories of agricultural and non-agricultural workers

Gender

- The 2022 Constitution guarantees equal opportunities for women and men in all responsibilities and encourages equal representation in elected bodies. Article 23 and 51 guarantees equal opportunities for women and men to access all levels of responsibility in all fields.
- Organic Law No. 2017-58 (2017): Establishes a comprehensive framework to prevent, criminalize, and respond to all forms of gender-based violence.
- Government decree no. 2016-626 of May 25, 2016, establishing the Council of Peers for equal opportunities between women and men;

Environmental Impact Assessment

- Environmental Impact Assessment (EIA) Decree (Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval.
- Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management.
- Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments.

Biodiversity

- Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity.

Pollution

- Water Code (Law No. 75-16): Governs water resource management and protects against water pollution.
- Waste Management Provisions (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination.

Labor

- Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment.
- Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations.
- Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks.
- Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation.

2.3 Social and Enviornmental Management System for the Project

During the project preparation phase, the UNDP's Strategic Environmental and Social Screening (SESP) tool was used to identify potential social and environmental risks. The project was analysed based on its type, location and scale, as well as the sensitivity and magnitude of its potential social and environmental impacts. This included an assessment of all project activities, such as support for planning, policy advice, capacity building, and site-specific physical interventions. The assessment emphasised the project's approach to integrating human rights, gender equality, women's empowerment, accountability, and environmental sustainability.

The project involves potential social and environmental risks outlined in the table below.

Table 2: Potential Social and Environmental Risks associated with Project Outputs/Activities

Project's outputs/activities	Potential S&E risks	Risk rating
Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems		
Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised	P1.5 Risk of inequitable or discriminatory impacts on affected populations S2.3 Maladaptation risks	*Moderate*
Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems	P1.5 Risk of inequitable or discriminatory impacts on affected populations P2.10 Risk of discrimination against women S7.6 Occupational health and safety risks.	*Moderate*
Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities	P1.5 Risk of inequitable or discriminatory impacts on affected populations P2.9 Risk of adverse impacts on gender equality	*Moderate*

Project's outputs/activities	Potential S&E risks	Risk rating
	P2.10 Risk of discrimination against women	
Output 1.1.4 – Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions	P1.5 Risk of inequitable or discriminatory impacts on affected populations	*Moderate*
Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases		
Output 2.1.1 – Climate-resiient irrigation systems established and operational in four targeted oases.	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.2 Risks due to sensitivity to climate change or disasters S 2.3 Maladaptation risks S 2.4 Risk of increased greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management S8.6 Risks associated with consumption of raw materials, energy, and water	*Moderate*
Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	*Moderate*
Output 2.1.3 – Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level	N/A	*Moderate*
Output 2.1.4- Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S 2.4 Risks of increased GHG emissionsS3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	*Moderate*
Output 2.1.5 -Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working	*Moderate*

Project's outputs/activities	Potential S&E risks	Risk rating
	conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	
Output 2.1.6- Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S 2.4 Risks of increased GHG emissionsS3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	*Moderate*
Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access		
Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management	*Moderate*
Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products	P.1.5 Risk of inequitable or discriminatory impacts on affected populationsP2.10 Risk of discrimination against women S5.2 Economic displacement risks S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	*Moderate*
Output 2.2.3. New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products	P1.5 Risk of inequitable or discriminatory impacts on affected populations P2.9 Risk of adverse impacts on gender equality S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	*Moderate*
Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources		
Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-	P2.9 Risk of adverse impacts on gender equality S4.5 Risks of inappropriate utilization of intangible and tangible cultural heritage	*Moderate*

Project's outputs/activities	Potential S&E risks	Risk rating
generating activities based on oasis by-products valorization.	S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	
Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	P2.9 Adverse impacts on gender equality and/or the situation of women and girls S 2.4 Risk of increases of greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S4.1 Risks to cultural heritage sites S4.3 Risks to tangible and intangible forms of cultural heritage S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	*Moderate*
Output 2.3.3- Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives	P1.5 Risk of inequitable or discriminatory impacts on affected populations	*Moderate*
Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems		
Output 3.1.1 – A GIS mapping and monitoring system for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use	N/A	N/A
Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.	S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	*Moderate*
Output 3.1.3 – Public communication tools and knowledge products on project results and lessons learned developed and disseminated	N/A	N/A
Output 3.1.4 – Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.	N/A	N/A
Project-wide (horizontal) S&E risks	P2.9 Adverse impacts on gender equality and/or the situation of women and girls P2.10 Risk of discrimination against women P3.13 Risks of potential exclusion of affected stakeholders P3.14 Risks of stakeholder grievances	Moderate

More detailed description of the risks, along with the planned assessment and management measures, can be found in Annex 4 of this ESMF.

3 S&E Risk Treatment Measures

This section outlines the framework through which the project addresses its social and environmental (S&E) commitments and ensures alignment with UNDP's Social and Environmental Standards (SES). It establishes clear boundaries for project implementation by identifying actions that cannot be supported under any circumstances, and by defining measures that safeguard environmental sustainability, social inclusion, and respect for human rights across all levels of project activities. The section is structured to present three key elements: first, the prohibited actions that are categorically excluded from project support; second, the cross-cutting S&E risk treatment measures that apply project-wide or across multiple activities to ensure consistent standards of risk management; and third, the specific S&E risk treatment measures tailored to sub-projects and selected actions, ensuring that interventions are adapted to context-specific risks and opportunities. Together, these components form a comprehensive approach to risk management, enabling the project to deliver its intended outcomes while upholding environmental integrity and social responsibility.

3.1 Prohibited Actions

The project's implementation arrangements and the measures specified in the following sub-sections must ensure that no supported action in this specific project will:

Any sub-project or activity will be considered ineligible and must be adjusted or excluded from implementation if it:

- Harms biodiversity or critical habitats, including measurable adverse impacts on their ecological processes.
- Reduces the populations of any recognized Critically Endangered, Endangered, or Vulnerable species.
- Introduces species known to be invasive into new environments.
- Fails to comply with national health and safety laws or international good construction risk and safety management practices.
- Involves forced evictions or any displacement not authorized by national law.
- Fails to conduct culturally appropriate consultations with Indigenous Peoples with the objective of achieving Free, Prior and Informed Consent (FPIC).
- Employs any form of child labour or forced labour.
- Any action meeting one or more exclusion criteria will be considered ineligible and either duly adjusted or disqualified from further consideration.
- Any activity will be considered ineligible if it perpetuates gender-based discrimination, violence, or exclusion, including the denial of equal rights, opportunities, participation, or access to resources and benefits for women and gender-diverse groups.

3.2 Cross-cutting S&E risk treatment measures that apply to multiple activities or project-wide

This section outlines the set of social and environmental risk treatment measures that apply to the entire project, regardless of the specific activity or sub-project in which they are implemented. These measures are designed to provide a consistent framework for safeguarding environmental integrity, promoting social inclusion and ensuring accountability throughout the implementation process. Addressing systemic issues that cut across multiple dimensions of the project, they establish standards that all activities must meet. The project will implement two key measures: a Gender Action Plan to promote equity and inclusiveness and a Stakeholder Engagement Plan that includes a Grievance Redress Mechanism to ensure transparency, responsiveness and effective handling of concerns. The

following tables describe the key elements of each measure, detailing their scope, objectives and application across project interventions.

Horizontal measure	*Gender Action Plan*
Key S&E risks	P.9 Risk of adverse impacts on gender equality P.10 Risk of discrimination against women P.11 Risk of limiting women's access to natural resources
Relevant UNDP SES policy requirements	**Gender Equality and Women's Empowerment Principle:** • Promote gender equality and the empowerment of women, including advocating for women's and girls' human rights, combating discriminatory practices, and challenging the roles and stereotypes that create inequalities and exclusion • Promote gender equality and the empowerment of women, including advocating for women's and girls' human rights, combating discriminatory practices, and challenging the roles and stereotypes that create inequalities and exclusion • Programmes and projects are informed by gender analysis in their design and implementation, utilizing sex-disaggregated data and gender sensitive indicators • Promote equal access to programme and project resources and comparable social and economic benefits • Ensure that both women and men are able to participate meaningfully and equitably • Ensure programmes and projects do not discriminate against women and girls or reinforce gender-based discrimination or inequalities
AF ESP requirements	**AF Gender Policy**: • An equal opportunity for women & men to build resilience, address their differentiated vulnerability, and increase their capability to adapt to climate change impacts • To address and mitigate against assessed potential project risks for women & men in relation to concrete adaptation actions financed by the Fund • To contribute to addressing the knowledge and data gaps on gender-related vulnerabilities and to accelerate learning about effective gender-equal adaptation measures and strategies • To consult with affected women and men actively, considering their experiences, capabilities and knowledge throughout Fund processes **Gender Equality and Women's Empowerment principle:** • Projects must identify and consider gender-differentiated risks, particularly affecting women and girls. • Special attention must be given to ensuring women and girls are not disproportionately disadvantaged by project activities. • Adverse impacts on women and girls must be avoided wherever possible. • Where impacts cannot be avoided, projects must implement targeted and differentiated mitigation measures to address gender-specific vulnerabilities.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Women led enterprises Government institutions Civil society organizations Locals Governments
Applicable country law	Tunisia has made extensive efforts to institutionalise its ambition to reach gender equality. Apart from its international commitments as a signatory of the United Nations Declaration of Human Rights, the country has ratified multiple legal instruments in the form of laws and decrees to ensure that the discrimination and violence against women is eliminated, and that women have equal opportunities to pursue their personal and professional ambitions. Some of these initiatives include: • The 2022 Constitution guarantees equal opportunities for women and men in all responsibilities and encourages equal representation in elected bodies. Article 23 and 51 guarantees equal opportunities for women and men to access all levels of responsibility in all fields. • Organic Law No. 2017-58 (2017): Establishes a comprehensive framework to prevent, criminalize, and respond to all forms of gender-based violence. • Government decree no. 2016-626 of May 25, 2016, establishing the Council of Peers for equal opportunities between women and men; • Organic Law No. 2016-61 of August 3, 2016 on preventing and combating human trafficking people ; • Organic Law No. 2018-50 on racial discrimination; • The organic budget law n°15 of February 13, 2019 introduces in its article 18 the taking into account of equality and equivalence of opportunity and stipulates that: "The head of the program oversees the preparation of the budget according to objectives and indicators guaranteeing equality and the equivalence of opportunities between women and men and in general between the different social categories, without discrimination, and which will be the subject of assessment on this basis." • Law n° 2020-30 of June 30, 2020, relating to the social and solidarity economy • Law No. 379-2019, relating to the social security system for certain categories of agricultural and non-agricultural workers

Recommended S&E risk management and transparency arrangements	A Gender Analysis and Action Plan (GAAP) has been developed for the project to ensure that gender equality considerations are integrated into the implementation and monitoring and evaluation of all planned activities. The GAAP will support the strengthening of gender equality within the project framework. By adopting a gender-responsive approach, project interventions aim to ensure that both women and men benefit in culturally appropriate ways from economic and social opportunities. In addition, the gender-focused approach will enhance understanding of existing inequalities between men and women in the project target areas and promote the participation of local women and women's associations in decision-making processes. This will be achieved through multi-stakeholder dialogue, as well as activities supporting women's empowerment, leadership development, and livelihood improvement.
Capacity development needs	Ensure capacity-building and training is provided for women in national and local institutions, in the women GDAs in targeted oases and those working as private actors in various sectors
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	N/A
Oversight	MnE Expert/UNDP CO

Horizontal measure	Stakeholder Engagement Plan
Key S&E risks	P.13 Risks of potential exclusion of affected stakeholders P.15 Risk of retaliation or reprisals against stakeholders P.14 Risks of stakeholder grievances
Relevant UNDP SES policy requirements	Meaningful, informed and inclusive participation must be ensured at all stages of the project, paying special attention to vulnerable and marginalised groups. This entails ongoing consultation, timely access to information, and effective grievance and redress mechanisms.
AF ESP requirements	• Access and Equity: Projects/programmes supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. Projects/programmes should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups. • Marginalized and Vulnerable Groups: Projects/programmes supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups, including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project/programme, the implementing entities shall assess and consider particular impacts on marginalized and vulnerable groups. • Human Rights: Projects/programmes supported by the Fund shall respect and, where applicable, promote international human rights.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• The 2022 Constitution guarantees guarantees civil and political rights as well as freedoms of participation.(Article 46) • Environmental Impact Assessment Decree (Decree No. 2005-1991): Requires environmental impact assessments and includes public consultation as part of project approval. • Organic Law No. 2018-50: Criminalizes racial discrimination and protects individuals from hate speech and unequal treatment • Organic Law No. 2016-22 on the Right of Access to Information Guarantees citizens' access to information held by public institutions, which is essential for effective and inclusive participation. • Organic Law No. 2017-10 on Reporting Corruption and the Protection of Whistleblowers Provides protection measures against retaliation for individuals reporting abuses, acts of corruption, or violations.
Recommended S&E risk management and transparency arrangements	A SEP has been developed to engage a broad range of actors, including government institutions, civil society organizations, women's organizations, local communities, and private sector actors such as farmers, cooperatives, and agri-businesses. Tailored engagement strategies will be used to ensure that marginalized groups can meaningfully participate in project activities and effectively express their concerns and priorities In line with the SEP, the project will establish transparent and inclusive mechanisms for the planning, allocation, and management of shared-use equipment. It will also apply clear, transparent, and objective selection criteria during the identification and profiling of target beneficiary households. Comprehensive and inclusive mapping approaches will be used, drawing on diverse information sources, community consultations, and validation processes

	to ensure broad representation of stakeholders, with particular attention to marginalized and underrepresented groups.
Capacity development needs	Strengthening capacities for the effective use and operation of the Grievance Redress Mechanism Mechanism
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	N/A
Oversight	MnE Expert/UNDP CO

Horizontal measure	Grievance Redress Mechanism (GRM)
Key S&E risks	P13 Risks of potential exclusion of affected stakeholders P14 Risks of stakeholder grievances P15 Risk of retaliation or reprisals against stakeholders
Relevant UNDP SES policy requirements	Requires projects to establish an accessible, fair, and effective GRM. The GRM is designed to address complaints from project-affected people regarding social and environmental risks and impacts.
AF ESP requirements	Requires implementing entities to identify a grievance mechanism that provides people affected by projects/programmes supported by the Fund with an accessible, transparent, fair and effective process for receiving and addressing their complaints about environmental or social harms caused by any such project/programme. The mechanism can be pre-existing, national, local, or institution- or project-specific.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Organic Law No. 2018-50: Criminalizes racial discrimination and protects individuals from hate speech and unequal treatment. • Organic Law No. 2017-10 on Reporting Corruption and the Protection of Whistleblowers Provides protection measures against retaliation for individuals reporting abuses, acts of corruption, or violations. • Organic Law No. 2016-22 (2016); Guarantees the right of any natural or legal person to access information and administrative documents held by public authorities.
Recommended S&E risk management and transparency arrangements	The project will establish, maintain, and publicize a project-level GRM that provides accessible and trusted channels for stakeholders to raise concerns, provide feedback, or submit complaints related to project activities. Stakeholders will be informed of available escalation pathways, including relevant UNDP accountability mechanisms, as appropriate. The GRM will be designed to be culturally appropriate, gender-responsive, confidential, and accessible to workers, local communities, and other potentially vulnerable or underrepresented groups.
Capacity development needs	Strengthening capacities for the effective use and operation of the Grievance Redress Mechanism Mechanism
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	N/A
Oversight	MnE Expert/UNDP CO

3.3 TARGETED S&E RISK TREATMENT MEASURES

The project-wide S&E risk treatment will be supplemented with the following targeted measures that aim to avoid, minimize, or offset the S&E risks of actions proposed during the implementation of the following project outputs/activities:

Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems

- Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised
- Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance and management of oasis ecosystems
- Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities

Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases

- Output 2.1.1 – Climate-resilient irrigation systems established and operational in four targeted oases.
- Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).
- Output 2.1.4 Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers
- Output 2.1.5 Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems
- Output 2.1.6 Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels

Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access

- Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency

Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access

- Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products

Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources

- Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.
- Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth

Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems

- Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.

The tables below outline the basic parameters of these targeted S&E risk treatment measures.

Targeted S&E risk treatment	Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised
Key S&E risks	P1.5 Risk of inequitable or discriminatory impacts on affected populations S2.3 Maladaptation risks
Relevant UNDP SES policy requirements	Meaningful, informed and inclusive participation must be ensured at all stages of the project, paying special attention to vulnerable and marginalised groups. This entails ongoing consultation, timely access to information, and effective grievance and redress mechanisms.
AF ESP requirements	**Human Rights:** Projects/programmes supported by the Fund shall respect and, where applicable, promote international human rights. **Climate Change:** Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Impact Assessment Decree (Decree No. 2005-1991): Requires environmental impact assessments and includes public consultation as part of project approval.

	• Organic Law No. 2018-50: Criminalizes racial discrimination and protects individuals from hate speech and unequal treatment. • Organic Law No. 2016-22 (2016); Guarantees the right of any natural or legal person to access information and administrative documents held by public authorities.
Integrated S&E risk management	The project will ensure that delegation-level climate adaptation plans are based on robust climate, environmental, and socio-economic assessments and developed through participatory and inclusive consultation processes involving local authorities, technical experts, civil society, and vulnerable groups. Quality assurance and technical validation mechanisms will be established to ensure alignment with national policies, local priorities, and ecosystem-based adaptation principles, while minimizing risks of maladaptation. The draft adaptation plans will also undergo a screening process to evaluate potential economic and social impacts, including any discriminatory effects, to ensure that vulnerable populations are not disproportionately affected. Based on the results of this screening, it will be determined whether a Strategic Environmental and Social Assessment (SESA) is required.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES. The project will strengthen local institutional capacities on climate adaptation planning and establish monitoring and adaptive management mechanisms to allow periodic review and adjustment of proposed adaptation measures.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	-
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the management of oasis ecosystems
Key S&E risks	P1.5 Risk of inequitable or discriminatory impacts on affected populations S7.6 Occupational health and safety risks. P2.10 Risk of discrimination against women
Relevant UNDP SES policy requirements	Meaningful, informed and inclusive participation must be ensured at all stages of the project, paying special attention to vulnerable and marginalised groups. This entails ongoing consultation, timely access to information, and effective grievance and redress mechanisms. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws • Protect and promote the safety and health of workers;
AF ESP requirements	• **Gender Equality and Women's Empowerment:** Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men (a) have equal opportunities to participate as per the Fund gender policy (refer to Annex 4 for details); (b) receive comparable social and economic benefits; and (c) do not suffer disproportionate adverse effects during the development process. • **Human Rights:** Projects/programmes supported by the Fund shall respect and, where applicable, promote international human rights. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Labor Code of Tunisia: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law No. 66-27 of 1966: Regulates employment contracts, termination procedures, and employer–employee relations. • Law No. 94-29 of 1994: Sets requirements for occupational health and safety to protect workers from workplace risks. • Law No. 2004-71: Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Organic Law No. 2018-50: Criminalizes racial discrimination and protects individuals from hate speech and unequal treatment. • Organic Law No. 2016-22 (2016); Guarantees the right of any natural or legal person to access information and administrative documents held by public authorities.
Integrated S&E risk management	In line with the Stakeholder Engagement Plan (SEP), the project will establish transparent and inclusive mechanisms for planning, allocation, and management of shared-use equipment. This will include targeted measures to ensure equitable access for vulnerable groups such as smallholder farmers, women, youth, and low-income users. All training activities will incorporate OHS measures, including provision and use of appropriate personal protective equipment (PPE) (e.g., safety boots, gloves, hats, and eye protection as

	needed), safe use of tools and equipment, and adherence to site-specific safety protocols to minimize risks to participants.
Capacity development needs	Based on the capacity of IP staff related to stakeholder engagement, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	-
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.1.1 – Climate-smart irrigation systems established and operational in four targeted oases.
Key S&E risks	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.2 Risks due to sensitivity to climate change or disasters S 2.3 Maladaptation risks S 2.4 Risk of increased greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management S8.6 Risks associated with consumption of raw materials, energy, and water
Relevant UNDP SES policy requirements	**Standard 1: Biodiversity Conservation and Sustainable NRM** • Ensure activities do not degrade habitats or critical ecosystems. • Avoid or mitigate impacts on ecosystem services and biodiversity. **Standard 3: Community Health, Safety and Security** • Avoid or minimize community exposure to hazards, diseases and hazardous materials associated with project activities **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases. • Implement proper waste management practices of hazardous and non-hazardous substances and wastes, and promote a human rights-based approach to the management and disposal of hazardous substances and wastes.
AF ESP requirements	• **Conservation of Biological Diversity:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species. • **Public Health:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization. • **Pollution Prevention and Resource** Efficiency: Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity. • Water Code (Law No. 75-16): Governs water resource management and protects against water pollution. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and

	mitigate environmental impacts before project approval. • Waste Management Provisions (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation.
Integrated S&E risk management	The rehabilitation of water capture systems will undergo a targeted assessment of OHS risks and waste generation. Based on this assessment, OHS and Waste Management Plans will be developed. The project will also screen for potential drowning risks associated with the water capture systems. The installation and optimization of irrigation infrastructure will undergo a targeted assessment of OHS risks and waste generation. Based on this assessment, OHS and Waste Management Plans will be developed. The construction of replacement shallow boreholes will require a targeted assessment of hydrogeological conditions to protect water resources. In parallel, a targeted assessment of OHS risks will be conducted, resulting in an OHS Plan that includes the use of appropriate PPE and adherence to safe drilling and installation procedures. All Infrastructure activities that may trigger national EIA requirements under Decree No. 91-362 as amended by Decree 2005-1991 will be screened by ANPE to determine the need for EIA studies once the activities have been designed. The required assessments will be conducted and approvals obtained prior to commencing implementation.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES. Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	N/A
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).
Key S&E risks	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use
Relevant UNDP SES policy requirements	**Standard 1: Biodiversity Conservation and Sustainable NRM** • Ensure activities do not degrade habitats or critical ecosystems. • Avoid or mitigate impacts on ecosystem services and biodiversity. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases. • Implement proper waste management practices of hazardous and non-hazardous substances and wastes, and promote a human rights-based approach to the management and disposal of hazardous substances and wastes.
AF ESP policy requirements	• Protection of Natural Habitats: The Fund shall not support projects/programmes that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities. • Conservation of Biological Diversity: Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species. • Pollution Prevention and Resource Efficiency: Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international

	standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants. • Core Labour Rights: Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval. • Law on Wastes and the Control of their Management and Disposal (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Plant Protection Law (Law No. 92-72): Serves as the core legal framework for managing agricultural pesticides in Tunisia, regulating their import, manufacture, distribution, and registration. • Decree No. 2010-2973: Strengthens controls on the entire lifecycle of agricultural pesticides, including import, packaging, and storage
Integrated S&E risk management	The propagation and distribution of climate-resilient local varieties, and support to crop diversification and soil fertility enhancement will prioritize native and locally adapted species while minimizing the risk of introducing invasive alien species through careful species selection and management controls. All pesticides used in demonstration plots, the establishment of the pilot farm and the support to crop diversification and soil fertility enhancement will be screened for toxicity, and appropriate PPE will be provided. In addition, safe handling, storage, and application practices will be enforced to minimize occupational health and environmental risks.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	-
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.1.4 Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers
Key S&E risks	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S 2.4 Risks of increased GHG emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use
Relevant UNDP SES policy requirements	**Standard 1: Biodiversity Conservation and Sustainable NRM** • Ensure activities do not degrade habitats or critical ecosystems. • Avoid or mitigate impacts on ecosystem services and biodiversity. **Standard 2: Standard 2: Climate Change and Disaster Risks** • To reduce project-related greenhouse gas (GHG) emissions and intensity

	Standard 3: Community Health, Safety and Security • Avoid or minimize community exposure to hazards, diseases and hazardous materials associated with project activities **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases. • Implement proper waste management practices of hazardous and non-hazardous substances and wastes, and promote a human rights-based approach to the management and disposal of hazardous substances and wastes.
AF ESP requirements	• **Conservation of Biological Diversity:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species. • **Climate Change:** Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. • **Pollution Prevention and Resource Efficiency:** Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants. • **Public Health:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval. • Law on Wastes and the Control of their Management and Disposal (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Plant Protection Law (Law No. 92-72): Serves as the core legal framework for managing agricultural pesticides in Tunisia, regulating their import, manufacture, distribution, and registration. • Decree No. 2010-2973: Strengthens controls on the entire lifecycle of agricultural pesticides, including import, packaging, and storage
Integrated S&E risk management	The implementation of pilot parcels will adopt appropriate OHS measures, including farmer training, provision and use of PPE, adherence to safe handling practices, and scheduling of field activities to reduce exposure to heat stress. A targeted assessment of the mechanization of selected field operations will evaluate the impacts on biodiversity, OHS and pollution risks. Based on the findings, appropriate best management practices will be proposed and implemented to minimize these impacts, including efficient machinery use, proper maintenance, controlled pesticide application, and soil conservation measures. A targeted assessment of the impacts of mechanized pollination on biodiversity will be conducted. Based on this assessment, best management practices will be proposed and implemented to minimize these risks, including measures to protect pollinator habitats, maintain floral diversity, and ensure the proper cleaning and hygienic operation of pollination equipment.

Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.1.5 Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems
Key S&E risks	• S1.1 Risks to habitats and/or ecosystems and their services • S1.6. Risks of introducing or spreading invasive alien species • S7.1 Risks of substandard labour & working conditions • S7.5 Risks of discriminatory working conditions • S7.6 Occupational health and safety risks • S8.1 Risks of pollutants release • S8.5 Risks associated with pesticide use
Relevant UNDP SES policy requirements	**Standard 1: Biodiversity Conservation and Sustainable NRM** • Ensure activities do not degrade habitats or critical ecosystems. • Avoid or mitigate impacts on ecosystem services and biodiversity. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases. • Implement proper waste management practices of hazardous and non-hazardous substances and wastes, and promote a human rights-based approach to the management and disposal of hazardous substances and wastes.
AF ESP requirements	• **Conservation of Biological Diversity:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species. • **Pollution Prevention and Resource Efficiency:** Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval. • Law on Wastes and the Control of their Management and Disposal (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Plant Protection Law (Law No. 92-72): Serves as the core legal framework for managing agricultural pesticides in Tunisia, regulating their import, manufacture, distribution, and registration.

	• Decree No. 2010-2973: Strengthens controls on the entire lifecycle of agricultural pesticides, including import, packaging, and storage
Integrated S&E risk management	The provision of equipment and preventive treatment inputs will undergo screening to assess potential risks associated with pesticide use, natural resource depletion, and OHS. Appropriate measures will be proposed including safe handling and application of pesticides, efficient use of resources, and implementation of OHS procedures and training. The implementation of integrated plant disease management will include an assessment of pesticide-related risks, with particular attention to farmer exposure. Only approved pesticides will be used, and appropriate PPE will be provided to ensure safe handling of pesticides.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.1.6 Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels
Key S&E risks	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S 2.4 Risks of increased GHG emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management
Relevant UNDP SES policy requirements	**Standard 1: Biodiversity Conservation and Sustainable NRM** • Ensure activities do not degrade habitats or critical ecosystems. • Avoid or mitigate impacts on ecosystem services and biodiversity. **Standard 2: Climate Change and Disaster Risks** • Ensure that project activities are sensitive to climate change and disaster risks and strengthen resilience in order to achieve sustainable development outcomes • To reduce project-related greenhouse gas (GHG) emissions and intensity **Standard 3: Community Health, Safety and Security** • Avoid or minimize community exposure to hazards, diseases and hazardous materials associated with project activities **Standard 5: Displacement and Resettlement** • Anticipate and avoid, or, when avoidance is not possible, minimize adverse social and economic impacts from land or resource acquisition or restrictions on land or resource use • Ensure that resettlement activities are planned and implemented collaboratively with the meaningful and informed participation of those aected. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases.
AF ESP requirements	• **Conservation of Biological Diversity:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species. • **Climate Change:** Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. • **Involuntary Resettlement:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation. • **Pollution Prevention and Resource Efficiency:** Projects/programmes supported by the

	Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants. • **Public Health:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval. • Law on Wastes and the Control of their Management and Disposal (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Law No. 76-85: Establishes procedures for land acquisition by the state for public projects, including prior declaration of public interest and compensation to affected owners. • Organic Law No. 2018-50: Criminalizes all forms of racial discrimination, protecting individuals based on race, color, descent, or national/ethnic origin.
Integrated S&E risk management	Appropriate best practices will be adopted during pilot cleaning campaigns including provision and use of PPE, safety training for workers, provision of adequate hydration and rest breaks, and proper handling and disposal procedures for collected waste. The establishment of composting facilities will be screened to assess potential risks including resettlement, OHS risks, and pollution risks. Based on the screening results, a targeted assessment or Environmental and Social Impact Assessment (ESIA) will be conducted. The resulting Environmental and Social Management Plan (ESMP) will include an OHS plan and a Pollution Prevention Plan. Any impacts on livelihoods or land restrictions will require a Resettlement Action Plan (RAP) to be prepared and implemented. The componsting facilitiy, once designed, will also be screened by ANPE to determine the need for EIA studies. The required assessment will be conducted and approval obtained prior to commencing implementation. The selected company for collection, sorting, valorization, and commercialization of oasis waste products will be assessed for compliance with worker rights, including fair labor conditions and adherence to national labor standards, as well as OHS performance.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	-
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency
Key S&E risks	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks

	S2.2 Risks due to sensitivity to climate change or disasters S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management
Relevant UNDP SES policy requirements	**Standard 1: Biodiversity Conservation and Sustainable NRM** • Ensure activities do not degrade habitats or critical ecosystems. • Avoid or mitigate impacts on ecosystem services and biodiversity. **Standard 2: Climate Change and Disaster Risks** • Ensure that project activities are sensitive to climate change and disaster risks and strengthen resilience in order to achieve sustainable development outcomes **Standard 3: Community Health, Safety and Security** • Avoid or minimize community exposure to hazards, diseases and hazardous materials associated with project activities **Standard 5: Displacement and Resettlement** • Anticipate and avoid, or, when avoidance is not possible, minimize adverse social and economic impacts from land or resource acquisition or restrictions on land or resource use • Ensure that resettlement activities are planned and implemented collaboratively with the meaningful and informed participation of those affected. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases. • Implement proper waste management practices of hazardous and non-hazardous substances and wastes, and promote a human rights-based approach to the management and disposal of hazardous substances and wastes.
AF ESP requirements	• **Conservation of Biological Diversity:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species. • **Climate Change:** Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. • **Involuntary Resettlement:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation. • **Pollution Prevention and Resource Efficiency:** Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants. • **Public Health:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Law No. 85-48 of 25 April 1985 on Energy Management and Renewable Energy establishes the foundational legal framework for energy efficiency in Tunisia. It promotes energy conservation across all sectors, including agriculture, and supports the adoption of technologies that reduce energy consumption, such as efficient irrigation and water pumping systems. • Law No. 2004-72 of 2 August 2004 on Energy Management strengthens this framework by introducing operational mechanisms for energy efficiency, including energy audits,

	financial incentives, and energy-saving programmes. It contributes to reducing energy costs in productive sectors, including agricultural irrigation systems. • Law No. 2009-7 of 9 February 2009 on Renewable Energy promotes the development of renewable energy sources, particularly solar and wind power. It enables the integration of photovoltaic solutions for agricultural pumping systems, thereby reducing irrigation energy costs and improving sustainability. • Investment Code (Law No. 2016-71) Encourages investment in energy-efficient technologies and renewable energy. It provides financial incentives to modernize productive systems, including those in the agricultural sector.Law on Protected Areas and Biodiversity Conservation (Law No. 2009-49): Regulates the conservation of natural habitats, protected areas, and biodiversity. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval. • Law on Wastes and the Control of their Management and Disposal (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Law No. 76-85: Establishes procedures for land acquisition by the state for public projects, including prior declaration of public interest and compensation to affected owners. • Organic Law No. 2018-50: Criminalizes all forms of racial discrimination, protecting individuals based on race, color, descent, or national/ethnic origin.
Integrated S&E risk management	The establishment of photovoltaic configurations will be screened to assess potential risks, which may include resettlement, OHS risks, and pollution risks associated with e-waste generation. Based on the screening results, a targeted assessment or ESIA will be conducted. The resulting ESMP will include an OHS plan and a Pollution Prevention Plan to ensure proper management and mitigation of identified risks. Any impacts on livelihoods or land restrictions will require a RAP to be prepared and implemented. Once designed, the photovoltaic configurations will also be screened by ANPE to determine the need for EIA studies. The required assessment will be conducted and approval obtained prior to commencing implementation. In line with the SEP, the project will apply clear, transparent, and objective criteria in the selection of eligible GDAs and collective or community groups to ensure broad representation of stakeholders, with particular attention to marginalized and underrepresented groups. To complement this, a GRM will be established during implementation, providing affected populations with accessible and effective channels to raise concerns or complaints.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	-
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products
Key S&E risks	• P.1.5 Risk of inequitable or discriminatory impacts on affected populations • P2.10 Risk of discrimination against women • S5.2 Economic displacement risks • S7.5 Risks of discriminatory working conditions • S7.6 Occupational health and safety risks
Relevant UNDP SES policy requirements	**Standard 5: Displacement and Resettlement** • Anticipate and avoid, or, when avoidance is not possible, minimize adverse social and economic impacts from land or resource acquisition or restrictions on land or resource use • Ensure that resettlement activities are planned and implemented collaboratively with the meaningful and informed participation of those affected. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers;

	• Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards.
AF ESP requirements	• **Involuntary Resettlement:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• The 2022 Constitution guarantees equal opportunities for women and men in all responsibilities and encourages equal representation in elected bodies. Article 23 and 51 guarantees equal opportunities for women and men to access all levels of responsibility in all fields. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Law No. 76-85: Establishes procedures for land acquisition by the state for public projects, including prior declaration of public interest and compensation to affected owners. • Organic Law No. 2018-50: Criminalizes all forms of racial discrimination, protecting individuals based on race, color, descent, or national/ethnic origin.
Integrated S&E risk management	The establishment of a physical market and exhibition space will be screened to assess potential risks, which may include resettlement, OHS risks. Based on the screening results, a targeted assessment or ESIA will be conducted. The resulting ESMP will include an OHS plan to ensure proper management and mitigation of identified risks. Any impacts on livelihoods or land restrictions will require a RAP to be prepared and implemented. Once designed, the market will also be screened by ANPE to determine the need for EIA studies. The required assessment will be conducted and approval obtained prior to commencing implementation.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	-
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.
Key S&E risks	P2.9 Risk of adverse impacts on gender equality S4.5 Risks of inappropriate utilization of intangible and tangible cultural heritage S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks
Relevant UNDP SES policy requirements	**Standard 4: Cultural Heritage** • Promote the equitable sharing of benefits from the use of Cultural Heritage; • Promote meaningful consultation with stakeholders regarding preservation, protection, utilization and management of Cultural Heritage. **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards.
AF ESP requirements	• **Physical and Cultural Heritage:** Projects/programmes supported by the Fund shall be

	designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programmes should also not permanently interfere with existing access and use of such physical and cultural resources. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Protection of Archaeological and Historical Heritage (Law No. 94-35): Establishes the legal framework for the protection, conservation, and management of archaeological sites, historical monuments, and cultural heritage. • Law No. 2016-53 (2016): Allows the state to seize private property for historical, cultural, or archaeological preservation. It strengthens the state's ability to protect endangered heritage sites and structures deemed a public risk. • Labor Code (Law No. 66-27): Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Law No. 76-85: Establishes procedures for land acquisition by the state for public projects, including prior declaration of public interest and compensation to affected owners. • Organic Law No. 2018-50: Criminalizes all forms of racial discrimination, protecting individuals based on race, color, descent, or national/ethnic origin.
Integrated S&E risk management	OHS risks will be addressed through the application of best practices, including safe equipment use protocols, training and supervision. In addition, a SEP will be implemented to ensure inclusive outreach and participation, including targeted engagement of women, youth, and other vulnerable groups and culturally appropriate consultation mechanisms. The SEP will also include measures to safeguard cultural heritage by ensuring that project activities respect traditional knowledge systems and do not adversely affect local crafts and artisanal practices.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth
Key S&E risks	• P2.9 Adverse impacts on gender equality and/or the situation of women and girls • S 2.4 Risk of increases of greenhouse gas emissions • S3.2 Emissions, noise, traffic, hazards and effluent risks • S4.1 Risks to cultural heritage sites • S4.3 Risks to tangible and intangible forms of cultural heritage • S7.1 Risks of substandard labour & working conditions • S7.5 Risks of discriminatory working conditions • S7.6 Occupational health and safety risks
Relevant UNDP SES policy requirements	**Standard 4: Cultural Heritage** • Promote the equitable sharing of benefits from the use of Cultural Heritage; • Promote meaningful consultation with stakeholders regarding preservation, protection, utilization and management of Cultural Heritage. • **Standard 2: Climate Change and Disaster Risks** • To reduce project-related greenhouse gas (GHG) emissions and intensity **Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers;

	• Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards.
AF ESP requirements	• **Physical and Cultural Heritage:** Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programmes should also not permanently interfere with existing access and use of such physical and cultural resources. • **Climate Change:** Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. • **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Protection of Archaeological and Historical Heritage (Law No. 94-35): Establishes the legal framework for the protection, conservation, and management of archaeological sites, historical monuments, and cultural heritage. • Law No. 2016-53 (2016): Allows the state to seize private property for historical, cultural, or archaeological preservation. It strengthens the state's ability to protect endangered heritage sites and structures deemed a public risk. • Labor Code (Law No. 66-27): Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation. • Law No. 76-85: Establishes procedures for land acquisition by the state for public projects, including prior declaration of public interest and compensation to affected owners. • Organic Law No. 2018-50: Criminalizes all forms of racial discrimination, protecting individuals based on race, color, descent, or national/ethnic origin.
Integrated S&E risk management	The valorization and rehabilitation of selected tourist attraction sites will be screened to assess OHS risks, impacts on cultural heritage, pollution risks, and potential impacts on livelihoods. Based on the screening results, a targeted assessment or an ESIA will be conducted. The resulting ESMP will include an OHS plan to ensure the proper management and mitigation of identified risks throughout the implementation of the activities. The activities, once designed, will also be screened by ANPE to determine the need for EIA studies. The required assessment will be conducted and approval obtained prior to commencing implementation.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	
Oversight	MnE Expert/UNDP CO

Targeted S&E risk treatment	Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.
Key S&E risks	• S7.1 Risks of substandard labour & working conditions • S7.5 Risks of discriminatory working conditions • S7.6 Occupational health and safety risks • S8.1 Risks of pollutants release • S8.2 Risks of inadequate waste management
Relevant UNDP SES policy requirements	**UNDP Standard 7: Labour and Working Conditions** • Ensure compliance with labor laws and fair treatment of workers. • Protect and promote the safety and health of workers; • Prevent discrimination and promote equal opportunities. • Protect workers from occupational health and safety hazards. **UNDP Standard 8: Pollution Prevention and Resource Efficiency** • Prevent, minimize, and manage pollutant releases.

	• Implement proper waste management practices of hazardous and non-hazardous substances and wastes, and promote a human rights-based approach to the management and disposal of hazardous substances and wastes.
AF ESP requirements	• **Core Labour Rights:** Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization. • **Pollution Prevention and Resource Efficiency:** Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.
S&E risk rating	Moderate
Stakeholders concerned and required disclosure	Agricultural development groups/cooperatives (GDAs, SMSAs) Government institutions (UGPO-CC, CTD, CRDA Tozeur) International Organizations (UNDP) Research & Technical Institutions Civil society organizations Locals Governments
Applicable country law	• Environmental Protection Framework Law (Law No. 96-41): Establishes the general framework for environmental protection, including pollution prevention and sustainable resource management. • Law on the Creation of the National Environmental Protection Agency – ANPE (Law No. 88-91): Creates the national agency responsible for environmental control, pollution monitoring, and impact assessments. • Environmental Impact Assessment (EIA) Decree (Decree No. 91-362 as amended by Decree No. 2005-1991): Requires environmental impact assessments to identify and mitigate environmental impacts before project approval. • Law on Wastes and the Control of their Management and Disposal (Law No. 96-41): Regulates solid and hazardous waste to prevent environmental contamination. • Tunisian Labor Code: Establishes workers' rights, working conditions, wages, and prohibits discrimination in employment. • Law on Employment Relations and Contracts (Law No. 66-27 of 1966): Regulates employment contracts, termination procedures, and employer–employee relations. • Occupational Health and Safety Law (Law No. 94-29 of 1994): Sets requirements for workplace safety and protection of workers from occupational risks. • Social Security Law (Law No. 2004-71): Establishes social protection systems including pensions, healthcare, and workplace injury compensation.
Integrated S&E risk management	OHS risks and pollution risks will be analyzed, as part of feasibility assessment including potential worker exposure to hazardous waste, risks associated with waste collection and processing activities, and environmental impacts such as air emissions, leachate, and improper waste handling.
Capacity development needs	Based on the capacity of IP staff related to SES implementation, PMU will provide training to ensure alignment with UNDP SES Local actors and project support teams will receive guidance and tools to implement monitoring procedures and integrate environmental and social safeguards into local adaptation activities.
Primary responsibility for implementation of the SES measures	PMU
Direct costs (if any)	XXX
Oversight	MnE Expert/UNDP CO

4 PROCEDURES FOR SCREENING, ASSESSING AND MANAGING SOCIAL AND ENVIRONMENTAL RISKS

The SESP is a crucial tool used throughout the project lifecycle to identify and manage potential social and environmental risks and opportunities. The process is iterative, meaning it is applied at different stages of a project, starting in design, then iteratively under implementation. It is important to note that no project activities that could have adverse social and environmental impacts are allowed to proceed until these assessments are completed and appropriate mitigation measures are in place. These activities must be clearly identified in the SESP, the ESMF and the Project Document.

Screening and Categorization:
A full screening is mandatory before a project's official approval (Project Appraisal Committee) and this step confirms that the project design incorporates the necessary standards and includes specific risk management measures. The screening process results in an overall risk category for the project that may be Low, Moderate, Substantial or High risks. The project's final risk category is determined by the highest level of significance among all identified risks. Based on the screening and

assessment, management plans are developed to address identified risks. For projects with risks rated Moderate, Substantial, or High, these measures are recorded in the project's Risk Register, which in turn informs the project's Monitoring Plan.

In this project, the screening and categorization requirements have been met as detailed in the SESP (Annex 5). The risk categorization for this project is Moderate. Targeted assessments/ESIA and management plans will be prepared for Outputs 2.1.6, 2.2.1, 2.2.2 & 2.3.2, as determined through screening. SESA may be required for Output 1.1.1 based on screening outcomes. These activities cannot be carried out without targeted S&E risk treatment measures, which will result from assessment and management/mitigation actions as described in section 2.3. Additionally, to guide the progressive and orderly application of the products and tasks, the following guidance table has been developed to support the work planning process for the Project. The table indicates the project technical activities that cannot be implemented before further screening (using the template found in Annex 5), assessment and management planning are conducted, to manage the potential risks identified for those activities. The table also reminds the project team that the Gender Action Plan (Annex 1) and the Stakeholder Engagement Plan (Annex 2) must be applied during implementation of the project.

The following table outlines:

a) the first two columns marked as GAP & SEP are transversal SES mitigation measures and serve as a reminder for the PMU to implement gender activities or stakeholders' involvement, across all activities, as described extensively in each plan.

b) The rest of the columns determine which activities can be implemented without further preparation (marked in green) and those activities that entail potential risks (marked in yellow) and need to undergo a targted assessment by an Environemntal and Social Consultant (external) before implementation of the activity, as a condition sine qua non for successful implementation of this activity. These activities will undergo SES screening as part of the process of developoing the Targeted Assessment and /or the ESMP. The national normative frameworks will frame these assessmets and be assessed for gaps with UNDP SES Policy. The ESMP and targeted assessments will align and build on, where gaps exist, existing regulations.

Table 3: SES Checklist for Project Activities

Output	Activity	GAP	SEP	Start without screening	SES screening (SESP)	Targeted assessment / ESIA	SESA
Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems	Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised	✓	✓		✓		If needed
	Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the management of oasis ecosystems	✓	✓	✓			
	Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities	✓	✓	✓			
	Output 1.1.4 – Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions	✓	✓	✓			
Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural	Output 2.1.1 – Climate-smart irrigation systems established and operational in four targeted oases.	✓	✓	✓			
	Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).	✓	✓	✓			

Output	Activity	GAP	SEP	Start without screening	SES screening (SESP)	Targeted assessment / ESIA	SESA
production systems in targeted traditional oases	Output 2.1.3 – Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level	✓	✓	✓			
	Output 2.1.4 Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	✓	✓	✓			
	Output 2.1.5 Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems	✓	✓	✓			
	Output 2.1.6 Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels	✓	✓		✓	If needed	
Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access	Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	✓	✓		✓	If needed	
	Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products	✓	✓		✓	If needed	
	Output 2.2.3. New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products	✓	✓	✓			
Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources	Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.	✓	✓	✓			
	Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	✓	✓		✓	If needed	
	Output 2.3.3. Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives	✓	✓	✓			
Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems	Output 3.1.1 – A GIS mapping and monitoring system for traditional oases in the governorate of Tozeur established and operational, including key indicators of ecosystem status and use	✓	✓	✓			
	Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.	✓	✓	✓			
	Output 3.1.3 – Public communication tools and knowledge products on project results and lessons learned developed and disseminated	✓	✓	✓			

Output	Activity	GAP	SEP	Start without screening	SES screening (SESP)	Targeted assessment / ESIA	SESA
	Output 3.1.4 – Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.	✓	✓	✓			
	Project-wide (horizontal) S&E risks	✓	✓	✓			

5 RESPONSIBILITIES AND BUDGET FOR S&E RISK MANAGEMENT

This section outlines resources required to effectively manage social and environmental risks under the project. The table below specifies the key roles and responsibilities of project staff and associated agencies when applying the risk treatment measures identified in Section 2 of the ESMF. The table also details the budgets allocated to these tasks and provides an indicative schedule for their implementation. This ensures that responsibilities are clearly defined, adequately resourced and time-bound.

Table 4: Responsibilities and Budget for Risk Treatment Measures

Horizontal and targeted S&E risks treatment measures	Responsibility	Direct costs [$] (and project budget codes)	Monitoring indicators
Gender Action Plan	PMU	USD 30,000	GAP target indicators
Stakeholder Engagement Plan	PMU	USD 40,000	SEP Target indicators
Targeted assessments/ESIA and management plans for Outputs 2.1.6, 2.2.1, 2.2.2 & 2.3.2 (if required based on screening)	Environmental and Social Consultant (External)	USD 100,000	Targeted assessments done and management plans in place prior to commencement of activities
SESA for activities for Output 1.1.1 (if required based on screening)	Environmental and Social Consultant (External)	USD 35,000	Targeted assessments done and management plans in place prior to commencement of activities
Total costs		USD 205,000	

In addition to the above tasks, the UNDP will, in its 'project assurance' function, support the Project Board by carrying out objective and independent project oversight and monitoring functions. A UNDP Programme Officer, or M&E Officer, typically holds the Project Assurance role on behalf of UNDP.

The section below (Section 6) provides more detail on the monitoring requirements and roles and resposnbilities for this ESMF

6 MONITORING OF THE ESMF

The project management unit (PMU) is responsible for the implementation of the ESMF and also has the respoinsibility over the monitoring the ESMF, through the MnE staff or SES staff. The UNDP is responsible over the second line monitoring of the ESMF.

The project will ensure SES monitoring frameworks, SES mitigation mesures, assessments and management plans, such as GAP, SEP, and targeted assessments and actions that are streamlined within the Project Logframe are duly tracked, assessed and filed.

In addition to process monitoring, specific SES instruments that will be developed as per the ESMF requirements, such as Targeted Assessments and management plans will also contain monitoring frameworks with indicators specific to the activity and risks assessed. The PMU will be responsible over conducting monitoring under each plan. All information such as documents, minute meetings, Steering Committee dicisions, field visit reports, stakeholder consultation validation reports, etc. will be documented within the SES Monitoring System, to be filed as evidence.

Overall monitoring of the Projects SES requirements should be conducted at a minimum on a quarterly basis. It is recommended to align SES monitoring with regular monitoring of Project technical activities. The moniotirng frequency for the different activities and plans (Targeted assessments and management plans) will depend on the nature of the activity and be specified under each plan.

Regular field monitoring will be conducted by the PMU. Field monitoring should include monitoring the requirements of the GAP and the SEP, as they are transversal mitigation measures, in addition, to monitoring requirements of targeted assessment and ESMP.

Overall monitoring reports, will be provided to the UNDP Country Office, on a yearly basis through the Project Information Report (PIR) exercise, in line with the donor requirement or at any point in time, based on spot checks or audits requirements. The Project Monitoring System, will be based in the PMU, and will be quality assured by the Country Office.

In addition to the PIR exercise, the Country Office oversight role includes field monitoring of SES requirements. The frequency of such field visits by CO staff, will be set by the requirements of each SES activity, and the risk categorization.

The tables below provide monitoring frameworks to facilitate reporting to the Country Office by the PMU. These frameworks should be complemented by the MnE frameworks contained in the ESMP and Targeted assessments once completed.

Table 5: SES Monitoring Activities

Monitoring Activity	Description	Frequency / Timeframe	Expected Action	Responsibilities
Track progress of ESMF implementation	Implementation of this ESMF with results reported to project board on an annual basis.	Quarterly (until management plans are in place)	Required ESMF steps are completed in a timely manner.	MnE Officer and UNDP CO
Training and dissemination of the SES, GRM, GAP and SEP documents	Brief training to the PMU and project team about safeguards, GAP, SEP and potential management plans.	Inception phase	Training completed with the key responsible parties of the project implementation.	PMU
Training on gender equality to the PMU	Conduct a capacity building process to broaden the understanding in the project's team about the relevance of gender integration in the execution of the project.	At inception phase. Once a year.	Trainings completed and reported as GAP implementation activity.	PMU
Inception Workshop with key stakeholders	Project initiation to engage, inform and disclose the activities of the project and disseminate the GRM that is already operational.	Inception phase	Inception workshop completed with the key stakeholders	PMU
E&S screening for pilot projects, laws, and regulatory proposals.	Carried out for Outputs 2.1.6, 2.2.1, 2.2.2 & 2.3.2 as described in section 2.3 of this ESMF.	According to activities timeline (see multiyear workplan)	Potential impacts are assessed with support of external consultants and participation of project team and stakeholders; targeted	PMU

Monitoring Activity	Description	Frequency / Timeframe	Expected Action	Responsibilities
			assessment reports/ESIAs completed	
GRM dissemination	Training will be required on operationalization of the GRM	According to activities timeline (see multiyear workplan) before starting activities.	Training before starting activities	PMU
Implementation of management measures and plans and monitoring of potential impacts identified in targeted assessments	Permanent implementation and monitoring of management measures, in accordance with findings of targeted assessments and plans.	Annual, pre- PIR and then pre-MTR, and continuous	Implementation of management plans/measures; integration of management plans into project implementation strategies	PMU oversight by UNDP CO
Annual project quality assurance	The quality of the project will be assessed against UNDP's quality standards to identify project strengths and weaknesses and to inform management decision making to improve the project.	Annually	Areas of strength and weakness will be reviewed and used to inform decisions to improve project performance.	UNDP
Review and make course corrections	Internal review of data and evidence from all monitoring actions to inform decision-making.	At least annually	Performance data, risks, lessons and quality will be discussed by the project steering committee and used to make course corrections.	PMU
Annual project implementation reports	As part of progress report to be presented to the Project Steering Committee and key stakeholders, analysis, updating and recommendations for risk management will be included.	Annually	Updates on progress of ESMF will be reported in the project's annual PIRs. A summary of the avoidance and mitigation of potential social and environmental impacts will be included in the program annual report, sharing best practices and lessons learned across the programme.	PMU
Project review	The Project Steering Committee will consider updated analysis of risks and recommended risk mitigation measures at all meetings.	At least annually	Any risks and/ or impacts that are not adequately addressed by national mechanisms or project team will be discussed in project steering committee. Recommendations will be made, discussed and agreed upon.	PMU/UNDP CO

Table 6: SES Monitoring Template

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
Project-wide (horizontal) S&E risks						
All project activities	P1.5 Risk of inequitable or discriminatory impacts on affected populations	Moderate	A SEP (Annex 2) has been developed to engage a broad range of actors—including government agencies, community organizations, civil society, private sector actors, and ethnic minorities—through tailored strategies that ensure marginalized groups can meaningfully participate in project activities and voice their concerns.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	SEP activities implemented
All project activities	P2.10 Risk of discrimination against women	Moderate	A GAAP (Annex 1) has been developed to ensure gender-sensitive actions throughout project planning, implementation, and monitoring, promoting equal participation and safeguarding against sexual abuse and harassment.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	GAAP activities implemented
All project activities	P3.13 Risks of potential exclusion of affected stakeholders P3.14 Risks of stakeholder grievances	Moderate	A SEP (Annex 2) has been developed to engage a broad range of actors—including government agencies, community organizations, civil society, private sector actors, and ethnic minorities—through tailored strategies that ensure marginalized groups can meaningfully participate in project activities and voice their concerns. A grievance redress mechanism (GRM) will be established in line with the ToR (Annex 3) during implementation,		PMU (Implement) MnE Expert/UNDP CO (Oversight)	GRM ToR implemented

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
			providing affected populations with accessible and effective channels to raise concerns or complaints.			
Outcome 1.1: Enhanced capacity of national and sub-national institutions and local organizations to plan, coordinate and implement climate-resilient management of traditional oasis ecosystems						
Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised	P1.5 Risk of inequitable or discriminatory impacts on affected populations S2.3 Maladaptation risks	Moderate	The project will ensure that delegation-level climate adaptation plans are based on robust climate, environmental, and socio-economic assessments and developed through participatory and inclusive consultation processes involving local authorities, technical experts, civil society, and vulnerable groups. Quality assurance and technical validation mechanisms will be established to ensure alignment with national policies, local priorities, and ecosystem-based adaptation principles, while minimizing risks of maladaptation. The project will also strengthen local institutional capacities on climate adaptation planning and establish monitoring and adaptive management mechanisms to allow periodic review and adjustment of proposed adaptation measures. The draft adaptation plans will also undergo a screening process to evaluate potential economic and social impacts, including any discriminatory effects, to ensure that vulnerable populations are not disproportionately affected. Based on the results of this screening, it will be determined whether a Strategic		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Screening undertaken and SESA implemented if needed

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
			Environmental and Social Assessment (SESA) is required.			
Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the management of oasis ecosystems	P1.5 Risk of inequitable or discriminatory impacts on affected populations P2.10 Risk of discrimination against women S7.6 Occupational health and safety risks.	Moderate	In line with the Stakeholder Engagement Plan (SEP), the project will establish transparent and inclusive mechanisms for planning, allocation, and management of shared-use equipment. This will include targeted measures to ensure equitable access for vulnerable groups such as smallholder farmers, women, youth, and low-income users. All training activities will incorporate OHS measures, including provision and use of appropriate personal protective equipment (PPE) (e.g., safety boots, gloves, hats, and eye protection as needed), safe use of tools and equipment, and adherence to site-specific safety protocols to minimize risks to participants.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	SEP activities implemented OHS measures adopted
Outcome 2.1: Improved climate-resilient and resource-efficient management of water, agro-biodiversity, and agricultural production systems in targeted traditional oases						
Output 2.1.1 – Climate-smart irrigation systems established and operational in four targeted oases.	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.2 Risks due to sensitivity to climate change or disasters S 2.3 Maladaptation risks S 2.4 Risk of increased greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working	Moderate	The rehabilitation of water capture systems will undergo a targeted assessment of OHS risks and waste generation. Based on this assessment, OHS and Waste Management Plans will be developed. The project will also screen for potential drowning risks associated with the water capture systems. The installation and optimization of irrigation infrastructure will undergo a targeted assessment of OHS risks and waste generation. Based on this		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Assessments undertaken and measures adopted

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
	conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management S8.6 Risks associated with consumption of raw materials, energy, and water		assessment, OHS and Waste Management Plans will be developed. The construction of replacement shallow boreholes will require a targeted assessment of hydrogeological conditions to protect water resources. In parallel, a targeted assessment of OHS risks will be conducted, resulting in an OHS Plan that includes the use of appropriate PPE and adherence to safe drilling and installation procedures.			
Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	Moderate	The propagation and distribution of climate-resilient local varieties, and support to crop diversification and soil fertility enhancement will prioritize native and locally adapted species while minimizing the risk of introducing invasive alien species through careful species selection and management controls. All pesticides used in demonstration plots, the establishment of the pilot farm and the support to crop diversification and soil fertility enhancement will be screened for toxicity, and appropriate PPE will be provided. In addition, safe handling, storage, and application practices will be enforced to minimize occupational health and environmental risks.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Assessments undertaken and measures adopted

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
Output 2.1.4- Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S 2.4 Risks of increased GHG emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	Moderate	The implementation of pilot parcels will adopt appropriate OHS measures, including farmer training, provision and use of PPE, adherence to safe handling practices, and scheduling of field activities to reduce exposure to heat stress. A targeted assessment of the mechanization of selected field operations will evaluate the impacts on biodiversity, OHS and pollution risks. Based on the findings, appropriate best management practices will be proposed and implemented to minimize these impacts, including efficient machinery use, proper maintenance, controlled pesticide application, and soil conservation measures. A targeted assessment of the impacts of mechanized pollination on biodiversity will be conducted. Based on this assessment, best management practices will be proposed and implemented to minimize these risks, including measures to protect pollinator habitats, maintain floral diversity, and ensure the proper cleaning and hygienic operation of pollination equipment.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Assessments undertaken and measures adopted

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
Output 2.1.5 - Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use		The provision of equipment and preventive treatment inputs will undergo screening to assess potential risks associated with pesticide use, natural resource depletion, and OHS. Appropriate measures will be proposed including safe handling and application of pesticides, efficient use of resources, and implementation of OHS procedures and training. The implementation of integrated plant disease management will include an assessment of pesticide-related risks, with particular attention to farmer exposure. Only approved pesticides will be used, and appropriate PPE will be provided to ensure safe handling of pesticides.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Assessments undertaken and measures adopted

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
Output 2.1.6- Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S2.4 Risks of increased GHG emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	Moderate	Appropriate best practices will be adopted during pilot cleaning campaigns including provision and use of PPE, safety training for workers, provision of adequate hydration and rest breaks, and proper handling and disposal procedures for collected waste. The establishment of composting facilities will be screened to assess potential risks including resettlement, OHS risks, and pollution risks. Based on the screening results, a targeted assessment or Environmental and Social Impact Assessment (ESIA) will be conducted. The resulting Environmental and Social Management Plan (ESMP) will include an OHS plan and a Pollution Prevention Plan. Any impacts on livelihoods or land restrictions will require a Resettlement Action Plan (RAP) to be prepared and implemented. The selected company for collection, sorting, valorization, and commercialization of oasis waste products will be assessed for compliance with worker rights, including fair labor conditions and adherence to national labor standards, as well as OHS performance.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Screening and, assessments undertaken and management plans developed, if needed
Outcome 2.2: Enhanced climate-resilient livelihoods through improved profitability, diversified income sources, strengthened value chains, and market access						

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management	Moderate	The establishment of photovoltaic configurations will be screened to assess potential risks, which may include resettlement, OHS risks, and pollution risks associated with e-waste generation. Based on the screening results, a targeted assessment or ESIA will be conducted. The resulting ESMP will include an OHS plan and a Pollution Prevention Plan to ensure proper management and mitigation of identified risks. Any impacts on livelihoods or land restrictions will require a RAP to be prepared and implemented. In line with the SEP, the project will apply clear, transparent, and objective criteria in the selection of eligible GDAs and collective or community groups to ensure broad representation of stakeholders, with particular attention to marginalized and underrepresented groups. To complement this, a GRM will be established during implementation, providing affected populations with accessible and effective channels to raise concerns or complaints.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Screening and, assessments undertaken and management plans developed, if needed
Output 2.2.2 – A regional market for oasis products established, equipped and operational, improving the valorization and commercialization of date products	S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	Moderate	The establishment of a physical market and exhibition space will be screened to assess potential risks, which may include resettlement, OHS risks. Based on the screening results, a targeted assessment or ESIA will be conducted. The resulting ESMP will include an OHS plan to ensure proper management and mitigation of			Screening and, assessments undertaken and management plans developed, if needed

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
			identified risks. Any impacts on livelihoods or land restrictions will require a RAP to be prepared and implemented.			
Outcome 2.3: Landscape functions and local know-how of oasis communities valorized to generate resilient employment and reduce pressure on natural resources						
Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.	P2.9 Risk of adverse impacts on gender equality S4.5 Risks of inappropriate utilization of intangible and tangible cultural heritage S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	Moderate	OHS risks will be addressed through the application of best practices, including safe equipment use protocols, training and supervision. SEP will be implemented to ensure inclusive outreach and participation, including targeted engagement of women, youth, and other vulnerable groups and culturally appropriate consultation mechanisms. The SEP will also include measures to safeguard cultural heritage by ensuring that project activities respect traditional knowledge systems and do not adversely affect local crafts and artisanal practices.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	OHS measures implemented SEP activities implemented

Project Result Framework (Cause)	**Risk identified and Key concerns – list SES Principles & Standards that may be impacted** (Potential cause- effect- Impact)	**Risk rating**	***Assessment/management measures – treatment activities***	**Status of implementation of treatment measure (in-progress/ finalized)**	**Person/s or responsible of implementation**	**Data source** **Means of verification**
Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	P2.9 Adverse impacts on gender equality and/or the situation of women and girls S 2.4 Risk of increases of greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risksS4.1 Risks to cultural heritage sites S4.3 Risks to tangible and intangible forms of cultural heritage S5.2 Economic displacement risksS7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	Moderate	The valorization and rehabilitation of selected tourist attraction sites will be screened to assess OHS risks, impacts on cultural heritage, pollution risks, and potential livelihood impacts. Based on the screening results, a targeted assessment or an ESIA will be conducted. The resulting ESMP will include an OHS plan to ensure the proper management and mitigation of identified risks throughout the implementation of the activities.		PMU (Implement) MnE Expert/UNDP CO (Oversight)	Screening and, assessments undertaken and management plans developed, if needed
Outcome 3.1: Improved generation, management, and use of knowledge and evidence for adaptive management of climate-resilient oasis ecosystems						
Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.	S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	Moderate	OHS risks and pollution risks will be analyzed, as part of feasibility assessment including potential worker exposure to hazardous waste, risks associated with waste collection and processing activities, and environmental impacts such as air emissions, leachate, and improper waste handling.		PMU (Screen and Implement) MnE Expert/UNDP CO (Oversight)	Analysis undertaken

Annex 1: Gender Analysis and Action Plan

Annex 2: Stakeholder Engagement Plan

Annex 3: Project GRM Proposal (developed during PPG and to be reviewed and formally adopt at project start)

1. SCOPE

1.1. This document lays down the operational details of a Project-level Grievance Redress Mechanism (GRM) for "**….**" UDP Project **("the Project")**.

1.2. The Project-level GRM is established to address grievances related to the project's compliance with the UNDP Social and Environmental Standard (SES) in a timely and efficient manner. Grievances related to other topics should be referred to the appropriate mechanisms[1].

1.3. The Project-level GRM is an additional mechanism to the UNDP stakeholder response mechanism operated by the UNDP Country Office and the UNDP corporate level[2] which the relevant complainants may access too.

2. MANDATE AND FUNCTIONS

2.1. The GRM will:

(i) receive and address any concerns, complaints, notices of emerging conflicts, or grievances (collectively "*Grievance*") alleging actual or potential harm to the affected person(s) (the "*Claimant(s)*") arising from Project;

(ii) assist in the resolution of Grievances between and among Project Stakeholders; as well as the various government ministries, agencies and commissions, CSOs and NGOs, and others (collectively, the "*Stakeholders*") in the context of the Project;

(iii) conduct itself at all times in a flexible, collaborative, and transparent manner aimed at problem-solving and consensus-building.

2.2 When doing so, the GRM will:

(i) Receive, Log and Track all Grievances received;

(ii) Provide regular status updates on Grievances to Claimants, Project Board (PB) members and other relevant Stakeholders, as applicable;

(iii) Engage the PB members, Government institutions and other relevant Stakeholders in Grievance resolution;

(iv) Process and propose solutions and ways forward related to specific Grievances *within a period not to exceed sixty (60) days* from receipt of the Grievance;

(v) Identify growing trends in Grievances and recommend possible measures to avoid the same;

(vi) Receive and service requests for, and suggest the use of, mediation or facilitation;

(vii) Elaborate bi-annual reports, make said reports available to the public, and more generally work to maximize the disclosure of its work (including its reports, findings and outcomes);

(viii) Ensure increased awareness, accessibility, predictability, transparency, legitimacy, and credibility of the GRM process;

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[1] Namely, fraud, abuse, or misconduct-related grievances should be referred to the Office of Audit and Investigations (OAI).
[2] https://www.undp.org/accountability/audit/secu-srm/stakeholder-response-mechanism

(ix) Collaborate with Partner Institutions and other NGOs, CSOs and other entities to conduct outreach initiatives to increase awareness among Stakeholders as to the existence of the GRM and how its services can be accessed;

(x) Ensure continuing education of PB members and their respective institutions about the relevant laws and policies that they will need to be aware of to participate in the development of effective resolutions to Grievances likely to come before the GRM;

(xi) Monitor follow up to Grievance resolutions, as appropriate.

3. ELIGIBLE COMPLAINTS

3.1. To be eligible for the Project-level GRM, the complaint must pertain to a Project and its activities after the signature of the Project Document and before the Project closure, indicate how the Project has/may contribute to social or environmental harm, and be made by people who could be affected by the harm referenced (or by an authorized representative).

3.2. The Project-level GRM cannot respond to anonymous grievances. However, complainants may request and receive confidentiality.

3.3. If the complaint is related to Sexual Exploitation and Assault (SEA), the record-keeping and information sharing about SEA survivor assistance will adhere to the 'do no harm' and confidentiality principles, and the survivor's personally identifiable information will remain confidential unless the victim expressly consents to it being shared. Such cases should be referred to relevant investigative/assistance bodies.

3.4. With the complainant's agreement, the Project-level GRM will refer requests alleging non-compliance with UNDP fraud or corruption to the UNDP Office of Audit and Investigations (OAI) or the relevant national authority(ies).

3.5. The complainant may also decide to refer the case to the Stakeholder Response Mechanism (SRM) at the Country Office Level or Global level (see item 1.3 above).

4. STEPS FOR SUBMISSION AND REVIEW OF THE COMPLAINT

4.1. The complaint may be submitted to the GRM in person to the Project Manager or other Project team member or using any of the following means:

- Email:
- Phone:
- Messaging app:
- Regular post:

4.2. The Project support staff member[3] shall register the complaint immediately in a dedicated Registry; the registration number sample is as follows: Project Number/Year/compliant number.

4.3. The Project support staff member shall inform the complainant about the registration immediately but no later than five (5) days from submitting the complaint.

4.4. The Project Manager shall review the eligibility of the complaint within five (5) days after the registration. If eligibility cannot be evaluated based on the submitted complaint and accompanying documents, the Project manager or the Project support staff member may request the complainant's submission of additional documents that will be registered in the Registry. The complainant shall be given 10 days to submit additional documents.

4.5. The decision on eligibility shall be made within five (5) days in line with Attachment 1.

[3] The Project support staff member who will administer the GRM shall be defined by the Project Manager.

4.6. If the complaint is considered non-eligible, the Project Manager shall inform the complainant about the decision and advise about available options for the complaint review, including national dispute resolution mechanisms. The case is closed, and the relevant information is recorded in the Registry and the UNDP Deputy Resident Representative and/or SES Focal Points is informed by the Project Manager.

4.7. If the complaint is eligible, the Project Manager shall:

a) inform the UNDP Deputy Resident Representative and/or relevant UNDP CO SES Focal Point.

b) begin the complaint review process

c) Ensure that the response to the complainant is processed through a direct and good faith engagement to clarify issues, develop and seek agreement on options for resolution, and address and remedy risks and harms that the Project is causing or contributing to (with the option to provide technical assistance to the complainant to support the complainant's effective engagement).

5. REGISTRY FOR COMPLAINTS

5.1. The Project support staff member shall maintain a GRM Registry in line with Attachment 2 (enclosed).

5.2. All information should be filled promptly and maintained together with the project documents even after the Project’s completion.

GRM Attachment 1: Sample of a Decision on the eligibility of a complaint

Complaint #	
Name and Surname of the Complainant *If the complainant is an organization, registration number and official name should be included.*	
Contact details of the Complainant	
Complaint submission date	
Project title	

- The complaint satisfies the following criteria:

• Criteria	• Yes	• No
• The complaint is pertained to this UNDP Project and its activities after the signature of the Project Document and prior to the Project closure.	•	•
• It is indicated that how the Project has/may contributed to social or environmental harm	•	•

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- Justification, if the case is considered non-eligible:
- …….
-
-
- Justification for the need to create a panel:
- …….
-
-
- Composition of the Panel (if created):

• Name	• Position
•	• Project Manager
•	• Project support staff member
•	•
•	•
•	•

-
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- Name of the Project Manager: • Signature • Date
-
- Name of the Project support staff member • Signature • Date

GRM ATTACHMENT 2. REGISTRY SAMPLE

Registration #	Submission date	Complainant	Submitted by	Short description	Date of eligibility decision	Date of communication to the complainant on eligibility	Date of Creation of a Panel	Date of Agreement	Date of Case closure	Monitoring Activities, if applicable	List of Related Documents				Comment
											Submitted by the complainant	Requested from third parties	Requested from complainant	Other	

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Annex 4: Roadmap for Social and Environmental Risk Identification and Management (from SESP)

The table below is extracted from the SESP template (most recent template) and will serve to inform the Annual Work Planning exercise. The table provides the project output/activity framework aligned with the SES risks potentially triggered and the treatment/mitigation activies and measures that must be included in the Project workplans.Mitigation measures, assessments and management plans must be sequenced, to ensure their development and implementation before any activity implementation, that may result in the SES risk. This clearly indicated in the table 2 above.

1: Outputs or activities proposed in the project (Risk Causes)	**2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)**	**3: Comments** *(optional: provide contextual information on risks and their potential impacts as needed)*	**4: Risk Signifi-cance (L/M/S/H)**	**5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)**
Output 1.1.1 – Delegation-level climate change adaptation plans updated, validated and operationalised	P1.5 Risk of inequitable or discriminatory impacts on affected populations **S2.3 Maladaptation risks**	The preparation of draft adaptation plans can lead to discriminatory risks if the process does not ensure inclusive and equitable participation of all relevant stakeholders. Certain groups, such as women, youth, low-income households or rural communities may be underrepresented or excluded from consultations and decision-making processes, leading to adaptation priorities that do not reflect their needs or vulnerabilities. **Delegation-level climate adaptation plans may also be inadequately designed and/or updated due to limited data, weak stakeholder consultation, or insufficient integration of local socio-environmental specificities, leading to inappropriate or**	M	To mitigate this risk, the project will ensure that delegation-level climate adaptation plans are based on robust climate, environmental, and socio-economic assessments and developed through participatory and inclusive consultation processes involving local authorities, technical experts, civil society, and vulnerable groups. Quality assurance and technical validation mechanisms will be established to ensure alignment with national policies, local priorities, and ecosystem-based adaptation principles, while minimizing risks of maladaptation. The project will also strengthen local institutional capacities on climate adaptation planning and establish monitoring and adaptive management mechanisms to allow periodic review and adjustment of proposed adaptation measures. **The draft adaptation plans will also undergo a screening process to evaluate potential economic**

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
		maladaptive adaptation measures with negative impacts on ecosystems and vulnerable populations.		**and social impacts, including any discriminatory effects, to ensure that vulnerable populations are not disproportionately affected. Based on the results of this screening, it will be determined whether a Strategic Environmental and Social Assessment (SESA) is required.**
Output 1.1.2 –Technical capacities of national and local-level stakeholders across relevant sectors strengthened to integrate climate adaptation into the governance management of oasis ecosystems	P1.5 Risk of inequitable or discriminatory impacts on affected populations **P2.10 Risk of discrimination against women** S7.6 Occupational health and safety risks.	Certain groups, such as larger landowners, influential community members, or those with greater financial resources may dominate access to and use of the equipment. This can lead to the exclusion of vulnerable groups, including smallholder farmers, women, youth, and low-income users, thereby limiting their ability to benefit from improved services and technologies. Training activities can lead to Occupational Health and Safety (OHS) risks to participants and trainers including heat stress, physical strain during field exercises, and potential injuries from tools or equipment used in practical demonstrations.	M	In line with the Stakeholder Engagement Plan (SEP), the project will establish transparent and inclusive mechanisms for planning, allocation, and management of shared-use equipment. This will include targeted measures to ensure equitable access for vulnerable groups such as smallholder farmers, women, youth, and low-income users. All training activities will incorporate OHS measures, including provision and use of appropriate personal protective equipment (PPE) (e.g., safety boots, gloves, hats, and eye protection as needed), safe use of tools and equipment, and adherence to site-specific safety protocols to minimize risks to participants.
Output 1.1.3 – Capacities of households strengthened to develop and implement climate-resilient income-generating activities	P1.5 Risk of inequitable or discriminatory impacts on affected populations P2.9 Risk of adverse impacts on gender equality P2.10 Risk of discrimination against	The identification and profiling of target beneficiary households may present discriminatory risks if the selection process is not conducted in an inclusive manner. There is a risk that certain vulnerable groups, such as women-headed households, youth, poorer	M	In line with the SEP, the project will apply clear, transparent, and objective selection criteria during the identification and profiling of target beneficiary households. Targeting approaches will prioritize vulnerable groups, including women- and youth-headed households, to ensure equitable access and minimize discriminatory

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
	women	households, or marginalized communities, may be unintentionally excluded or underrepresented if vulnerability criteria are not consistently applied or if access to information and participation in the process is unequal. This could result in inequitable distribution of project benefits and reinforce existing social inequalities.		impacts on vulnerable groups. Local actors will be supported to organize consultations, awareness activities, and participatory processes with communities and beneficiaries.
Output 1.1.4 – Capacities of civil society organizations and local actors in targeted oases strengthened to plan, implement and manage climate change adaptation interventions	P1.5 Risk of inequitable or discriminatory impacts on affected populations	The mapping and assessment of civil society organizations and local actors may unintentionally favor better-connected organizations, while overlooking smaller or marginalized groups such as women-led associations, youth initiatives, or remote community actors. This can happen due to limited data availability, reliance on existing networks, or time constraints in rapid assessments.	M	In line with the SEP, the project will apply comprehensive and inclusive mapping approaches, including diverse information sources, community consultations, and validation processes to ensure broad representation of actors, with particular attention to marginalized and underrepresented groups.
Output 2.1.1 – Climate-resilient irrigation systems established and operational in four targeted oases.	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.2 Risks due to sensitivity to climate change or disasters S 2.3 Maladaptation risks S 2.4 Risk of increased greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risksS3.6 Health risks due	The rehabilitation of water capture systems and installation of irrigation infrastructure can lead to various OHS risks such as injuries from tools and machinery; exposure to dust and noise; and risks associated with working near or within water structures. There is also potential for waste generation (e.g., excavated material, debris, damaged pipes, and construction waste) requiring proper handling and disposal. In addition, rehabilitated or open water	M	The rehabilitation of water capture systems will undergo a targeted assessment of OHS risks and waste generation. Based on this assessment, OHS and Waste Management Plans will be developed. The project will also screen for potential drowning risks associated with the water capture systems. The installation and optimization of irrigation infrastructure will undergo a targeted assessment of OHS risks and waste generation. Based on this assessment, OHS and Waste Management Plans will be developed.

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
	to impacts on ecosystems/ecosystem services S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management S8.6 Risks associated with consumption of raw materials, energy, and water	structures may pose drowning risks, particularly for workers and nearby community members. The replacement shallow boreholes may lead to groundwater depletion if abstraction exceeds natural recharge rates, resulting in declining water tables as well as risks of groundwater contamination due to inadequate borehole design or construction. In addition, workers can also face OHS risks during construction and operation including injuries from heavy machinery, falls, noise exposure, and contact with hazardous materials, as well as risks associated with electrical systems.		The construction of replacement shallow boreholes will require a targeted assessment of hydrogeological conditions to protect water resources. In parallel, a targeted assessment of OHS risks will be conducted, resulting in an OHS Plan that includes the use of appropriate PPE and adherence to safe drilling and installation procedures. To avoid maladaptation, these boreholes will be strictly limited to community-managed systems serving existing irrigated oasis areas under GDA responsibility and will not support expansion of irrigated areas or private individual pumping. Before commissioning, each borehole will be subject to a governance and monitoring protocol agreed with the CRDA and the relevant GDA. The protocol will aim to optimize water allocation, minimize water losses, and prevent unsustainable increases in groundwater abstraction.
Output 2.1.2 – Drought-adapted local agro-biodiversity strengthened and conserved through the multiplication and adoption of climate-resilient local varieties (seeds and seedlings of date palms, fruit trees, vegetables).	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	The propagation and distribution of climate-resilient local varieties, and support to crop diversification and soil fertility enhancement, can lead to the introduction or spread of invasive alien species, which could compete with native flora, reduce biodiversity, and disrupt local ecosystems if non-native or poorly adapted varieties are used. The establishment of varietal collections demonstration plots, creation of a pilot	M	The propagation and distribution of climate-resilient local varieties, and support to crop diversification and soil fertility enhancement will prioritize native and locally adapted species while minimizing the risk of introducing invasive alien species through careful species selection and management controls. All pesticides used in demonstration plots, the establishment of the pilot farm and the support to crop diversification and soil fertility enhancement will be screened for toxicity, and appropriate PPE

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	S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	farm and support to crop diversification and soil fertility enhancement may involve the use of pesticides, which presents OHS risks to farmers and workers during handling, mixing, and application, which may lead to acute or chronic health effects if not properly managed. In addition, there is a risk of environmental contamination, including impacts on soil and water quality and harm to non-target organisms, such as beneficial insects and surrounding biodiversity[4].		will be provided. In addition, safe handling, storage, and application practices will be enforced to minimize occupational health and environmental risks.
Output 2.1.3 – Logistical and technical capacities for rapid response to oasis fires strengthened and operational at delegation level	N/A	N/A	N/A	N/A
Output 2.1.4 Climate-resilient agricultural technologies and practices implemented and demonstrated in pilot oases, with increased adoption by farmers	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S 2.4 Risks of increased GHG emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services	The implementation of pilot parcels may present OHS risks for farmers, including exposure to high temperatures, physical strain during fieldwork, and potential exposure to pesticides and other agricultural inputs during handling and application activities. The mechanization of selected field operations can lead to soil compaction	M	The implementation of pilot parcels will adopt appropriate OHS measures, including farmer training, provision and use of PPE, adherence to safe handling practices, and scheduling of field activities to reduce exposure to heat stress. A targeted assessment of the mechanization of selected field operations will evaluate the impacts on biodiversity, OHS and pollution risks. Based on the findings, appropriate best management

[4] Muñoz-Bautista, J.M.; Bernal-Mercado, A.T.; Martínez-Cruz, O.; Burgos-Hernández, A.; López-Zavala, A.A.; Ruiz-Cruz, S.; Ornelas-Paz, J.d.J.; Borboa-Flores, J.; Ramos-Enríquez, J.R.; Del-Toro-Sánchez, C.L. Environmental and Health Impacts of Pesticides and Nanotechnology as an Alternative in Agriculture. Agronomy 2025, 15, 1878. https://doi.org/10.3390/agronomy15081878

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	S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	and erosion due to repeated machinery movement, which can reduce soil fertility. There is also pollution risks associated with the use of fuel and lubricants during machinery operation, air and GHG emissions as well as potential contamination of soil and water from accidental spills. In addition, the use of pesticides in mechanized operations may pose risks to human health and the environment if not properly managed, including impacts on non-target species and water resources. Mechanized pollination may pose environmental risks, including the potential destruction of ground-nesting pollinators (such as bees), reduction of floral resources, and the possible transmission of bacterial or viral plant pathogens across fields[5].		practices will be proposed and implemented to minimize these impacts, including efficient machinery use, proper maintenance, controlled pesticide application, and soil conservation measures. A targeted assessment of the impacts of mechanized pollination on biodiversity will be conducted. Based on this assessment, best management practices will be proposed and implemented to minimize these risks, including measures to protect pollinator habitats, maintain floral diversity, and ensure the proper cleaning and hygienic operation of pollination equipment.
Output 2.1.5 Agriculture productivity in pilot oases improved through the implementation of integrated plant disease management systems	S1.1 Risks to habitats and/or ecosystems and their services S1.6. Risks of introducing or spreading invasive alien species S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working	The use of pesticides and chemical treatments under this output can pose health risks to workers and farmers through exposure during handling, mixing, and application, potentially leading to acute poisoning or long-term health effects if not properly managed. There is also a risk of environmental	M	The provision of equipment and preventive treatment inputs will undergo screening to assess potential risks associated with pesticide use, natural resource depletion, and OHS. Appropriate measures will be proposed including safe handling and application of pesticides, efficient use of resources, and implementation of OHS procedures and training.

[5] Eyles, A.; Close, D.C.; Quarrell, S.R.; Allen, G.R.; Spurr, C.J.; Barry, K.M.; Whiting, M.D.; Gracie, A.J. Feasibility of Mechanical Pollination in Tree Fruit and Nut Crops: A Review. Agronomy 2022, 12, 1113. https://doi.org/10.3390/agronomy12051113

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	conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.5 Risks associated with pesticide use	contamination, including soil and water pollution, as well as negative impacts on non-target organisms such as beneficial insects and surrounding biodiversity[6]. In addition, inefficient or excessive use of inputs may contribute to natural resource depletion and reduced ecosystem resilience. The implementation of integrated plant disease management may involve several OHS risks including farmer exposure to pesticides during handling, mixing, and application, which can lead to acute poisoning or long-term health effects if proper safety measures are not followed. There is also a risk of soil and water pollution, as well as negative impacts on non-target organisms such as beneficial insects and biodiversity.		The implementation of integrated plant disease management will include an assessment of pesticide-related risks, with particular attention to farmer exposure. Only approved pesticides will be used, and appropriate PPE will be provided to ensure safe handling of pesticides.
Output 2.1.6 Integrated organic oasis waste management mechanism established at governorate level, and operational at delegation and oasis levels	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S2.4 Risks of increased GHG emissions	Pilot cleaning campaigns may involve various OHS risks, including prolonged sun exposure, heat stress, and injuries or exposure to hazardous substances and sharp objects during waste handling.	M	Appropriate best practices will be adopted during pilot cleaning campaigns including provision and use of PPE, safety training for workers, provision of adequate hydration and rest breaks, and proper handling and disposal procedures for collected waste.

[6] Muñoz-Bautista, J.M.; Bernal-Mercado, A.T.; Martínez-Cruz, O.; Burgos-Hernández, A.; López-Zavala, A.A.; Ruiz-Cruz, S.; Ornelas-Paz, J.d.J.; Borboa-Flores, J.; Ramos-Enríquez, J.R.; Del-Toro-Sánchez, C.L. Environmental and Health Impacts of Pesticides and Nanotechnology as an Alternative in Agriculture. Agronomy 2025, 15, 1878. https://doi.org/10.3390/agronomy15081878

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
	S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	Depending on their location, the establishment of composting facilities can lead to economic displacement or restricted access to resources. Workers may also be exposed to biological hazards, risks associated with manual handling of organic waste, machinery operation, heat stress, and exposure to dust or bioaerosols. In addition, pollution risks may include soil and water contamination from leachate, odour emissions, and increased pest attraction if waste is not properly managed[7]. The selection and operation of a private company or service provider for the valorization of oasis waste products may OHS risks including informal or unsafe working conditions, inadequate wages, excessive working hours, or lack of social protection. In terms of OHS, workers may be exposed to physical hazards such as injuries from handling waste, sharp objects, or machinery, as well as biological risks from contact with decomposing organic materials and potential exposure to pathogens.		The establishment of composting facilities will be screened to assess potential risks including resettlement, OHS risks, and pollution risks. Based on the screening results, a targeted assessment or Environmental and Social Impact Assessment (ESIA) will be conducted. The resulting Environmental and Social Management Plan (ESMP) will include an OHS plan and a Pollution Prevention Plan. Any impacts on livelihoods or land restrictions will require a Resettlement Action Plan (RAP) to be prepared and implemented. The selected company for collection, sorting, valorization, and commercialization of oasis waste products will be assessed for compliance with worker rights, including fair labor conditions and adherence to national labor standards, as well as OHS performance.

[7] Brown, N. J. (2016). Composting safety and health. Cornell Waste Management Institute, Cornell University. https://cwmi.css.cornell.edu/CompostingSafety.pdf

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
Output 2.2.1 – Economic profitability of oasis production systems improved through reduced irrigation energy costs and enhanced energy efficiency	S1.1 Risks to habitats and/or ecosystems and their services S1.7 Risks of soil degradation S2.1 Hazard/disaster-related risks S2.2 Risks due to sensitivity to climate change or disasters S3.2 Emissions, noise, traffic, hazards and effluent risks S3.6 Health risks due to impacts on ecosystems/ecosystem services S5.2 Economic displacement risks S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.2 Risks of inadequate waste management	Depending on their location, the establishment of photovoltaic configurations may lead to economic displacement or restrictions on access to land and natural resources. In addition, workers may face OHS risks during installation, operation, and maintenance activities, including working at heights, electrical hazards, manual handling, and exposure to heat[8]. In addition, pollution risks may occur due to the generation of electronic waste (e-waste) from damaged or end-of-life solar panels, batteries, and related equipment, which, if improperly managed, could lead to soil and water contamination[9]. The identification of direct beneficiaries and eligible collective wells may present discriminatory risks if certain groups, households, or users excluded in the selection process. This could lead to social tensions or perceptions of inequity among affected communities.	M	The establishment of photovoltaic configurations will be screened to assess potential risks, which may include economic resettlement, OHS risks, and pollution risks associated with e-waste generation. Based on the screening results, a targeted assessment or ESIA will be conducted. The resulting ESMP will include an OHS plan and a Pollution Prevention Plan to ensure proper management and mitigation of identified risks. Any impacts on livelihoods or land restrictions will require a RAP to be prepared and implemented. In line with the SEP, the project will apply clear, transparent, and objective criteria in the selection of eligible GDAs and collective or community groups to ensure broad representation of stakeholders, with particular attention to marginalized and underrepresented groups. To complement this, a GRM will be established during implementation, providing affected populations with accessible and effective channels to raise concerns or complaints.
Output 2.2.2 – A regional market for oasis products established,	P.1.5 Risk of inequitable or discriminatory impacts on affected	Depending on their location, the construction and physical development	M	The establishment of a physical market and exhibition space will be screened to assess

[8] CCREEE. (2021). OHS considerations: Grid-integrated solar PV. Retrieved from https://www.ccreee.org/publications/ohs-considerations-grid-integrated-solar-pv-presentation/

[9] EPA. (n.d.). End-of-life solar panels: Regulations and management. Retrieved from https://www.epa.gov/hw/end-life-solar-panels-regulations-and-management

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
equipped and operational, improving the valorization and commercialization of date products	populations P2.10 Risk of discrimination against women S5.2 Economic displacement risks S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	of the regional market can lead to economic displacement of existing users, including vendors or informal activities operating on or near the site. During construction, OHS risks include injuries from heavy machinery, exposure to dust, noise, and unsafe working conditions.		potential risks, which may include resettlement, OHS risks. Based on the screening results, a targeted assessment or ESIA will be conducted. The resulting ESMP will include an OHS plan to ensure proper management and mitigation of identified risks. Any impacts on livelihoods or land restrictions will require a RAP to be prepared and implemented.
Output 2.2.3. New climate resilient income-generating activities developed and operational through improved valorization and commercialization of agricultural products and by-products	P1.5 Risk of inequitable or discriminatory impacts on affected populations P2.9 Risk of adverse impacts on gender equality S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	There is a risk that vulnerable and marginalized groups, particularly women and youth, may be excluded from support related to certification and labeling of agricultural products, improvement of direct sales systems and online commercialization, provision of equipment for packaging, labeling, grading, and conditioning, and participation in fairs and sales events. As a result, these groups may be unable to have access to markets, benefit from improved product standards, or participate in income-generating opportunities, potentially reinforcing existing inequalities. In addition, there are occupational health and safety concerns related to collecting primary products from the oasis, including exposure to heat stress and risk of	M	All supported IGAs will be selected through a transparent and non-discriminatory mechanism defined in the Operational Manual, including clear eligibility criteria, gender and youth inclusion targets, environmental and social safeguards screening. At least 80% of supported beneficiaries will be women and youth, with targeted outreach and support measures implemented to facilitate their participation. In line with the SEP, the project will apply clear, transparent, and objective selection criteria in the implementation of activities, including support to certification and labeling of agricultural products, improvement of direct sales systems and online commercialization, provision of equipment for packaging, labeling, grading, and conditioning, and support to women's and youth participation in fairs and sales events. Targeting approaches will prioritize vulnerable groups, including women-

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
		falling from palm trees when collecting date products.		and youth-headed households, to ensure equitable access and minimize discriminatory impacts. Training will be conducted on safety measures within the oasis and safety equipment, such as harnesses, will be provided where needed.
Output 2.3.1 – Beneficiaries, particularly women and youth, develop and sustain climate resilient handicraft-based income-generating activities based on oasis by-products valorization.	P2.9 Risk of adverse impacts on gender equality S4.5 Risks of inappropriate utilization of intangible and tangible cultural heritage S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks	The use of training equipment may involve can lead to OHS risks, including injuries from machinery, improper handling of tools, and lack of adequate training or supervision. There is also a risk of unequal access or discrimination in the use of equipment, which could exclude vulnerable groups, particularly women, youth, or other marginalized participants. In addition, local and marginalized communities may be at risk of exclusion from project benefits or unintended impacts on their traditional knowledge and cultural heritage linked to local crafts and artisanal practices. Although the output specifically targets women and youth, there is a risk that the intervention could unintentionally reinforce existing gender inequalities if activities are not designed and implemented through a gender-responsive approach. Women may face increased workloads by combining income-generating activities with	M	OHS risks will be addressed through the application of best practices, including safe equipment use protocols, training and supervision. In addition, a SEP will be implemented to ensure inclusive outreach and participation, including targeted engagement of women, youth, and other vulnerable groups and culturally appropriate consultation mechanisms. The SEP will also include measures to safeguard cultural heritage by ensuring that project activities respect traditional knowledge systems and do not adversely affect local crafts and artisanal practices.

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
		existing domestic and caregiving responsibilities, while their effective control over generated income and productive assets may remain limited. Social, cultural, mobility, or time constraints could also restrict equitable participation, particularly for the most vulnerable women. In addition, the intervention could inadvertently reinforce traditional gender roles by concentrating women in low-value activities or create intra-household tensions linked to shifts in economic roles and access to income.		
Output 2.3.2 – Touristic attractiveness of targeted oases enhanced through the development of climate-resilient cultural and eco-tourism infrastructures, services, and enterprises, especially by women and youth	P2.9 Adverse impacts on gender equality and/or the situation of women and girls S 2.4 Risk of increases of greenhouse gas emissions S3.2 Emissions, noise, traffic, hazards and effluent risks S4.1 Risks to cultural heritage sites S4.3 Risks to tangible and intangible forms of cultural heritage S5.2 Economic displacement risks S7.1 Risks of substandard labour &	Tourism development could unintentionally reinforce gender inequalities by limiting women's access to decision-making, quality employment, and control over economic benefits, while increasing their workload. Increased tourism activities may also contribute to higher greenhouse gas emissions, traffic, noise, wastewater, and pollution, as well as increased waste generation and pressure on fragile oasis ecosystems. Infrastructure development and tourism expansion could affect cultural heritage sites and alter both tangible and intangible cultural heritage through excessive commercialization or inadequate conservation practices. In	M	The valorization and rehabilitation of selected tourist attraction sites will be screened to assess OHS risks, impacts on cultural heritage, livelihoods and pollution risks. Based on the screening results, a targeted assessment or an ESIA will be conducted. The resulting ESMP will ensure the proper management and mitigation of identified risks throughout the implementation of the activities. Eligible sub-projects under this output will be limited to small-scale cultural, eco-tourism and agrotourism services and enterprises linked to targeted oasis sites and circuits. No activity will be financed where it would affect physical cultural heritage without prior heritage screening, community consultation, chance-find procedures

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
	working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	addition, economic benefits may not be equitably distributed, potentially creating economic displacement or exclusion of local communities. Labour-related risks may also arise, including precarious or discriminatory working conditions, limited labour protections, and occupational health and safety hazards during construction and tourism operations. Without adequate environmental and social safeguards, the intervention could therefore create unintended negative impacts on local communities, workers, cultural assets, and natural ecosystems.		and approval from the competent cultural authorities. The screening process will include community consultations and a proportionate assessment of tourism carrying capacity. Any supported works will be limited to low-impact, and where feasible reversible, interventions such as signage, interpretation facilities, access management measures, safety improvements, cleaning, minor rehabilitation, and basic visitor services. The project will not finance activities that alter the historical or cultural character of heritage sites, adversely affect spring or geothermal hydrology, damage sensitive habitats, restrict community access to natural or cultural resources, contribute to discrimination or exclusion of local users, or increase unsustainable pressure on water resources, biodiversity, or oasis ecosystems.
Output 2.3.3. Intangible heritage and traditional knowledge documented, preserved, and actively valorized through cultural events and local initiatives	P1.5 Risk of inequitable or discriminatory impacts on affected populations	A key risk is the potential for discriminatory impacts if access to or use of the equipment is not managed in a fair, transparent, and inclusive manner. This could result in unequal benefits, exclusion of certain groups or organizations, and reduced participation of vulnerable stakeholders.	M	In line with the SEP, the project will ensure that marginalized groups have access to shared-use equipment. To complement this, a GRM will be established during implementation, providing affected populations with accessible and effective channels to raise concerns or complaints
Output 3.1.1 – A GIS mapping and monitoring system for traditional oases in the governorate of Tozeur established and operational,	N/A	N/A	N/A	N/A

1: Outputs or activities proposed in the project (Risk Causes)	2: Specific S&E risks caused by these outputs/ activities (Risk Events) (see Checklist)	3: Comments *(optional: provide contextual information on risks and their potential impacts as needed)*	4: Risk Signifi-cance (L/M/S/H)	5: Assessments or management measures to address these risks during design and implementation of the relevant outputs or activities (Treatment Measures)
including key indicators of ecosystem status and use				
Output 3.1.2 – Technical and economic feasibility of an integrated organic waste management mechanism assessed and validated.	S7.1 Risks of substandard labour & working conditions S7.5 Risks of discriminatory working conditions S7.6 Occupational health and safety risks S8.1 Risks of pollutants release S8.2 Risks of inadequate waste management	While activities under this output will not be implemented by the project, the feasibility study will be undertaken for activities associated with OHS risks for example during collection, sorting, transport, and processing of waste. Associated environmental risks include air emissions from waste treatment processes, leachate generation, and improper handling or disposal of waste leading to pollution.		OHS risks and pollution risks will be analyzed, as part of feasibility assessment including potential worker exposure to hazardous waste, risks associated with waste collection and processing activities, and environmental impacts such as air emissions, leachate, and improper waste handling.
Output 3.1.3 – Public communication tools and knowledge products on project results and lessons learned developed and disseminated	N/A	N/A	N/A	N/A
Output 3.1.4 – Lessons learned and climate adaptation good practices systematically documented, shared and disseminated to support replication.	N/A	N/A	N/A	N/A
All project activities	P2.9 Adverse impacts on gender equality and/or the situation of women and girls P2.10 Risk of discrimination against women	Women in Tozeur play a significant role in local civil society and agriculture but remain largely excluded from decision-making and resource governance. Although they represent 70% of civil society members, only 30% hold leadership roles, and they are underrepresented in political positions	M	A Gender Analysis and Action Plan (GAAP) has been developed for the project to ensure that gender equality considerations are integrated into the implementation and monitoring and evaluation of all planned activities. The GAAP will support the strengthening of gender equality within the project framework. By adopting a gender-responsive approach, project

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		and GDA structures (3%). Gender considerations are weakly integrated into development projects, with very few initiatives specifically targeting women. Climate change has further intensified gender disparities by reducing agricultural productivity and driving male migration, leaving women to manage oases without formal land or resource rights. Despite their contributions to livestock and rangeland management, women are often not officially recognized as farmers, limiting their access to training and agricultural support[10].		interventions aim to ensure that both women and men benefit in culturally appropriate ways from economic and social opportunities. In addition, the gender-focused approach will enhance understanding of existing inequalities between men and women in the project target areas and promote the participation of local women and women's associations in decision-making processes. This will be achieved through multi-stakeholder dialogue, as well as activities supporting women's empowerment, leadership development, and livelihood improvement.
	P3.13 Risks of potential exclusion of affected stakeholders P3.14 Risks of stakeholder grievances	There is a risk that certain groups—particularly women, youth, persons with disabilities, remote communities, or marginalized socio-economic groups—may be unintentionally excluded from participating in or benefiting from project activities. The project might not allow stakeholders to communicate their concerns and have them reviewed through rights-compatible complaints redress processes and mechanisms.	M	A SEP has been developed to engage a broad range of actors, including government institutions, civil society organizations, women's organizations, local communities, and private sector actors such as farmers, cooperatives, and agri-businesses. Tailored engagement strategies will be used to ensure that marginalized groups can meaningfully participate in project activities and effectively express their concerns and priorities. To complement this, a GRM will be established during implementation, providing affected populations with accessible and effective channels to raise concerns or complaints.

[10] Wikigender. (2019). Climate Change and Tunisia's Tozeur Oases: An opportunity to boost women's leadership and economic activity. Article proposed and written by Euro – Mediterranean Women's Foundation's Secretary. Available at https://wikigender.oecdcode.org/index.html%3Fp%3D24009.html?utm

Annex 5: Template for targeted social and environmental screening and management measures for subprojects/actions

This template must be customized (revised/expanded) to reflect the potential social and environmental risks of the specific subprojects/actions proposed during the project implementation.

UNDP Project	
Subproject/Action	

Part 1: Risks/concerns raised by potentially affected stakeholders (right-holders) and competent authorities (duty bearers)
Social and environmental risks/concerns raised by potentially affected stakeholders (right-holders)
Social and environmental risks/concerns raised by competent authorities (duty bearers)

Part 2	Would the activity potentially involve or lead to:	x/-	Explain why and the measures that are taken or should be take to amanage these risks
P.5	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities?		
S1.1	adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services?		
S1.2	adverse impacts on biodiversity values/criteria of critical habitats, or ecological processes that support the biodiversity values of critical habitats?		
S1.7	adverse impacts on soils?		
S2.2	outputs and outcomes sensitive or vulnerable to potential impacts of climate change or disasters?		
S2.3	increases in vulnerability to climate change impacts or disaster risks now or in the future (also known as maladaptation)?		
S3.2	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?		
S3.5	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?		
S3.6	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g. food, surface water purification, natural buffers from flooding)?		
S6.1	areas where indigenous peoples are present (including project area of influence)?		
S6.2	activities located on lands and territories claimed by indigenous peoples?		
S7.1	working conditions that do not meet national labour laws and international commitments?		
S7.5	discriminatory working conditions and/or lack of equal opportunity?		
S7.6	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment)?		
S8.1	the release of pollutants to the environment due to routine or non-routine circumstances?		
S8.2	the generation of waste (both hazardous and non-hazardous)?		
S8.3	the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?		
Part 3:	Would the activity potentially involve or lead to:	x/-	Explain
	environmental or social impacts that require formal assessments (ESIA, SESA, targeted assessment, etc.) based on the national law?		

	any other social or environmental risks that were not captured in the questions above?		
	potential transboundary environmental risks or impacts?		

Prepared by / Date / Signature	
Cleared by / Date/ Signature	

H. Include a disbursement schedule with time-bound milestones.

	Upon Agreement signature	One year after project starts	Two years after project starts	Three years after project	Four years after project starts	Total
Scheduled Date	04/01/2027	04/01/2028	04/01/2029	04/01/2030	04/01/2032	
Project Funds	2,324,471	4,022,378	3,933,245	2,181,392	1,363,397	13,824,883
Implementing Entity Fees	197,580	341,902	334,326	185,418	115,889	1,175,115
Total	**2,522,051**	**4,364,280**	**4,267,571**	**2,366,810**	**1,479,286**	**14,999,998**