

INTERNATIONAL INVESTMENT CONFERENCE FOR THE IMPLEMENTATION OF TUNISIA'S NDC

NATIONAL
CLIMATE POLICY CONTEXT
CHALLENGES AND ACTIONS

MAY 2023

This document is drawn up by the Ministry of the Environment (UGPO-CC), with the support of the NDC Partnership, UNDP and GIZ.

In preparation for the International Investment Conference for The Implementation Of Tunisia's NDC
Tunis, May, 25th and 26th, 2023

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National climate
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challenges and
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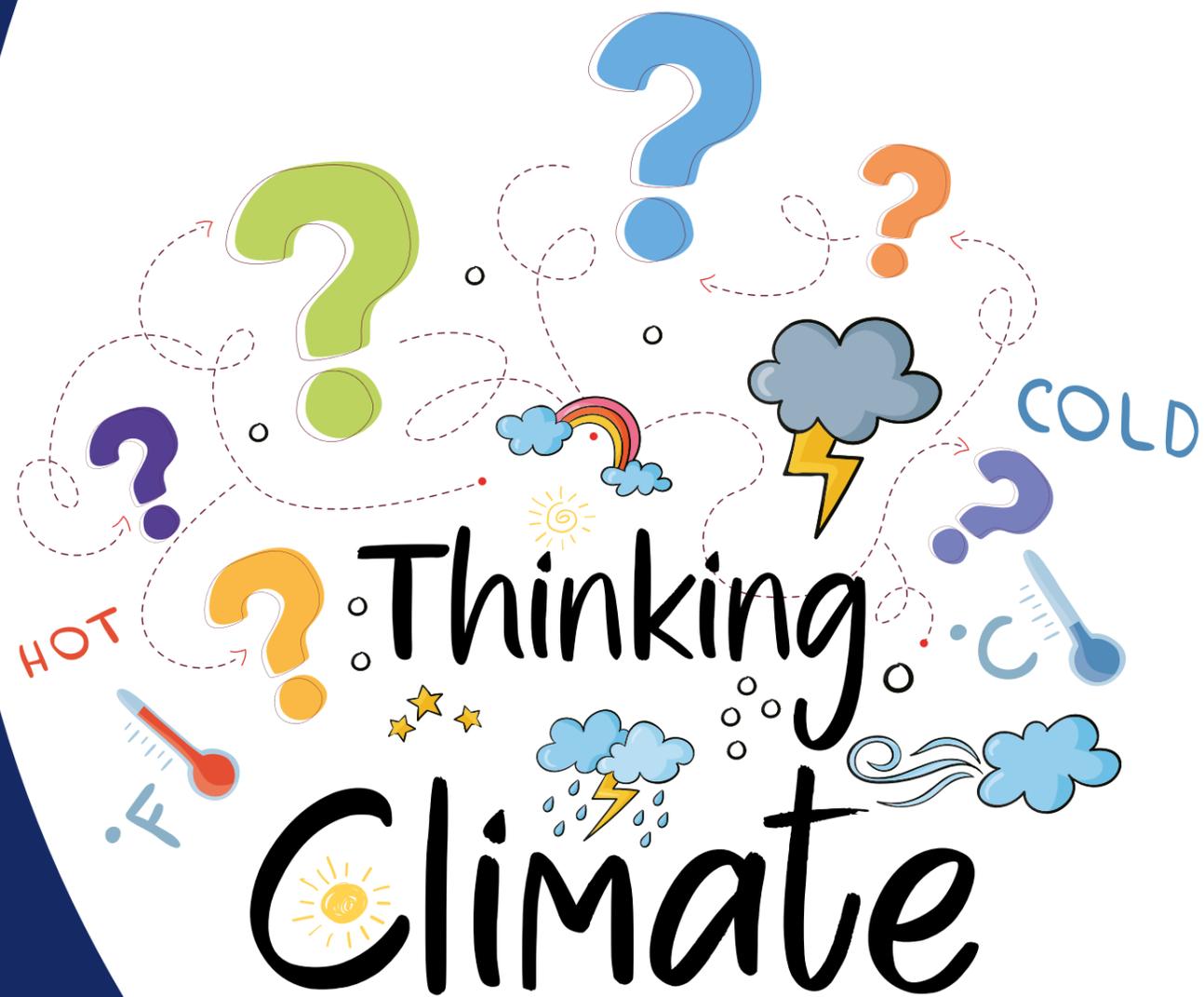
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CONTENTS

INTRODUCTION	7
I. Initiative NDC-Partnership, in brief...	9
1 Building a global coalition	9
2 The partnership today	9
3 Country driven, member-led	10
4 Catalyzing climate action	10
II. The international investment conference for the implementation of Tunisia's NDC	13
III. Climate action in Tunisia: political commitment and the urgency for action	15
1 Current findings: national GHG emission trajectories fairly well under control	17
2 Known and planned sector-specific orientations (or challenges)	18
IV. Building a transformational vision of resilient and inclusive development	21
1 High exposure to and manifestations of climate change in Tunisia	21
2 The increasing vulnerability of natural resources, ecosystems and the economy to the already detectable impacts of climate change	22
3 Urgent implementation of effective and sustainable policies to reduce vulnerability and adapt to climate change, at national, sector-specific and territorial levels	22
4 Importance of a transformational vision strengthening Tunisia's resilience to climate change	24
V. Towards a new vision for climate finance	27

VI. Priority projects and programs for the implementation of the NDC, presented at the international investment conference	32
1 Support project for the implementation of the national policy on sustainable urban mobility	34
2 Construction of two treatment and recovery units for household and similar waste in gabes and Bizerte	40
3 Strengthening the resilience of coastal and marine ecosystems and the information and decision support system «SIAD»	48
4 Rehabilitation of degraded ecosystems : The case of aleppo pine in the Kasserine region and cork oak in the Jendouba region	52
5 Water, food and energy nexus to address climate change impacts in central Tunisia	58
6 Transfer of surplus water from the north to the centre of Tunisia in the context of climate change	68
7 Protection of the western and southern areas of greater Tunis and the city of Beja against floods	73
8 Support to local investment for the implementation of the NDC	78
9 Support program to ugpo-cc for the mobilization of climate change actors in Tunisia (National forum of actors - FNACC)	87



INTRODUCTION

This document is prepared by the Ministry of the Environment (National Climate Change Coordination Unit), on the occasion of the «International Investment Conference for the implementation of the Nationally Determined Contribution (NDC) of Tunisia».

This Conference aims to bring together all national stakeholders and international partners, in order to accelerate the implementation of the NDC and to ensure a better climate ambition.

The effective implementation of the NDC makes it possible for Tunisia to lay the foundations for a more environmentally friendly development and to contribute to the global effort to respond to climate change.

This document will enable the national stakeholders and international partners to better understand and identify Tunisia's priorities with respect to greenhouse gas mitigation and adaptation to the growing challenges of climate change at the national, sector-specific and territorial levels.

The document overviews the key elements of Tunisia's climate policy, and proposes the implementation of urgent, priority and high-impact projects, stemming from a consultation process across all sectors and national stakeholders.

The Global Alliance «NDC Partnership», a key partner of the Conference, represents a framework conducive to pooling the efforts of all countries and partners to support countries in the implementation of their NDCs, thanks to its very rich and diversified network of partners and members of the NDC Partnership.

Also, this Conference will benefit from the much-appreciated contribution of UNDP and GIZ, both of which currently represent strategic partners whose technical and financial support has enabled Tunisia to comply with its commitments to the UNFCCC, to significantly step up its climate ambition and to consolidate the commitment of all Tunisian stakeholders to continue the efforts towards an effective fight against climate change.

NDC PARTNERSHIP



I. INITIATIVE NDC-PARTNERSHIP, IN BRIEF...

1I BUILDING A GLOBAL COALITION

In 2015, the world endorsed the Paris Agreement and the 2030 Agenda for Sustainable Development. These historic agreements presented countries with an unprecedented opportunity to realize the Sustainable Development Goals (SDGs) through strong climate action to improve the livelihoods of all people, while achieving a low emission, climate-resilient world. To signal their commitments to the Paris Agreement, nations increase the ambition of their Nationally Determined Contributions (NDCs) — each country's strategy to cut its own greenhouse gas emissions and build resilience against the negative effects of a changing climate — on a cycle every five years.

Launched in 2016 at COP22 in Marrakesh, the NDC Partnership was founded on the idea that technical assistance, expertise, and financing for climate action were not being deployed in an effective or coordinated way to maximize efforts towards achieving the goals of the Paris Agreement and the SDGs, and that greater support was urgently needed. In response, the NDC Partnership was established to facilitate collaboration between developed and developing country governments, international institutions and non-state actors to provide timely support for accelerated climate action.

2I THE PARTNERSHIP TODAY

The NDC Partnership brings together more than 200 members, including more than 115 countries, developed and developing, and more than 80 institutions to create and deliver on ambitious climate action that help achieve the Paris Agreement and the Sustainable Development Goals. Governments identify their NDC implementation priorities and the type of support that is needed to translate them into actionable policies and programs. Based on these requests, the membership offers a tailored package of expertise, technical assistance, and funding. This collaborative response provides developing countries with efficient access to a wide range of resources to adapt to and mitigate climate change and foster more equitable and sustainable development.

The effects of climate change are far-reaching and interconnected. So too must be our response. Transformational change is needed to cut emissions and adapt to a changing climate, all while meeting development needs. Such change requires ground-breaking coordination to mobilize resources globally, with speed and scale. Through the NDC Partnership, countries draw upon members' expertise and funding, turning their NDCs into actionable policies, programs, and projects.

The Partnership's approach powers a collective response in which the whole is greater than the sum of its parts.

3I COUNTRY DRIVEN, MEMBER-LED

Through our unique model of collaboration, the Partnership brings together developed and developing countries, major international institutions, and non-state actors to bridge country needs with member resources and to fast track results. To guide their engagement with the Partnership, members appoint Focal Points: senior representatives of a country or institution who assume responsibility for internal coordination and represent ministries responsible for addressing climate change and development, typically the Ministry of Environment and the Ministry of Finance or Planning, or heads of agencies and organizations.

Representative of its diverse membership, the NDC Partnership is led by two Co-Chairs at the ministerial level and actively guided by a Steering Committee, which provides strategic guidance to ensure that the Partnership achieves the objectives of its Work Program.

The work of the Partnership is facilitated by the Support Unit, a neutral broker that enables member and partner coordination, planning, and convening, by engaging stakeholders across the whole-of-government and whole-of-society. The Support Unit is hosted by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat, the World Resources Institute (WRI), and the United Nations Office for Project Services (UNOPS).

4I CATALYZING CLIMATE ACTION

The NDC Partnership supports the efforts of developing countries to integrate climate into their national development plans, sectoral policies, and financial systems. As countries foster enabling environments for strong climate action, the Partnership supports their effective mobilization of finance to implement their priorities. Responding flexibly to country-identified needs, support is delivered and coordinated on a continual basis.

We work to mobilize resources from countries and institutions, and to ensure they complement one another, are used efficiently, and are leveraged to deliver specific, tailored, and robust support packages. We harness and streamline technical and financial assistance, deliver capacity building, and accelerate knowledge exchange. Governments benefit from the resources and expertise of a wide range of partners, each bringing unique strengths.

The Partnership ensures both in-country and global coordination across stakeholders under a single framework.

Our ten guiding principles

The NDC Partnership is founded on ten guiding principles to which all members commit. Our guiding principles provide the foundation for member collaboration as we work to accelerate and scale up NDC implementation and sustainable development.

1	Support country-driven processes	6	Enhance integration into national planning
2	Promote long-term climate action	7	Advance adaptation and mitigation
3	Enhance efficiency and responsiveness	8	Align development and climate change
4	Build in-country capacity	9	Support multi-stakeholder engagement
5	Improve coordination	10	Promote gender equality

Snapshot of our impact



NDC PARTNERSHIP SUPPORT UNIT

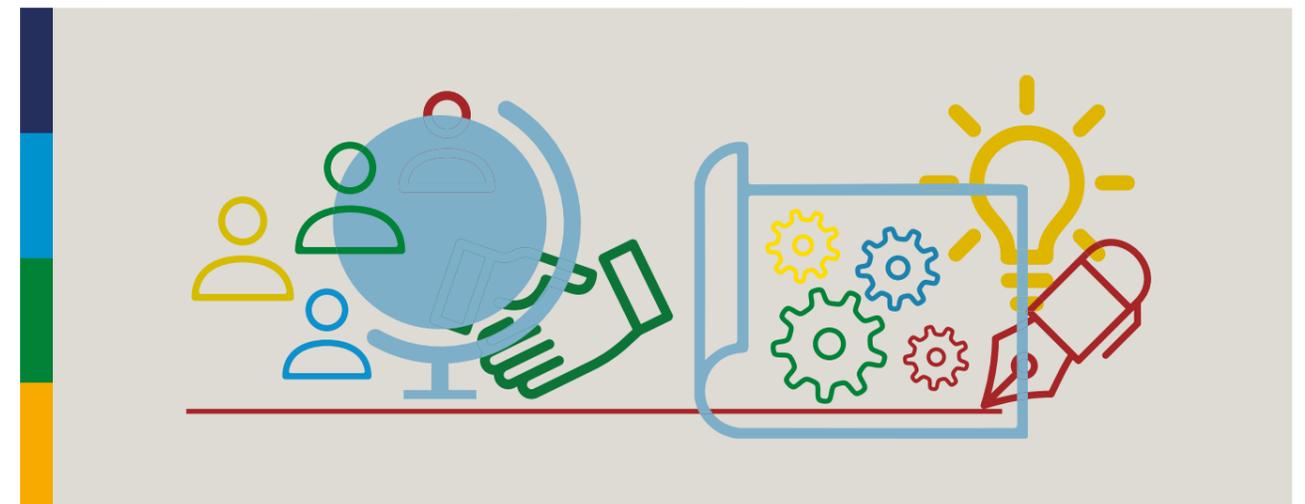
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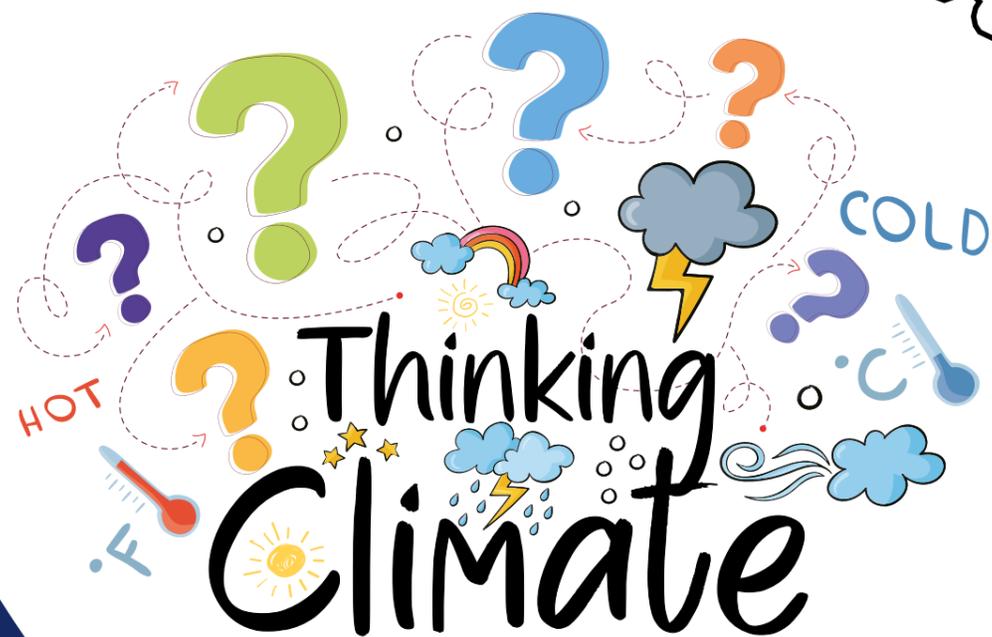
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« THE INTERNATIONAL INVESTMENT CONFERENCE FOR THE IMPLEMENTATION OF TUNISIA'S NDC »



May 25 and 26, 2023

II. THE INTERNATIONAL INVESTMENT CONFERENCE FOR THE IMPLEMENTATION OF TUNISIA'S NDC

GENERAL CONTEXT

As part of its memberships to the NDC Partnership, Tunisia has taken a series of actions to mobilize additional financial and technical resources for the effective implementation of its Nationally Determined Contribution (NDC). Thus, the development of a partnership plan has allowed to prioritize the national needs at the sector level but also to identify a portfolio of mature and bankable projects contributing to the goal of achieving carbon neutrality by 2050.

In order to continue its effort to concretize the NDC of Tunisia, the Ministry of the Environment organizes on May 25 and 26, 2023 in Tunis, in collaboration with the NDC Partnership and the support of the UNDP and the GIZ, an international conference of the investment for the implementation of NDC in Tunisia, including the presentation of some sectoral priority projects, selected in consultation with the main public actors.

This conference, which will be held with the participation of many representatives of cooperation organizations, members of the NDC Partnership, at the international, regional and national levels, will be an opportunity to establish a climate conducive to investment promoting the mobilization of financial flows necessary for the implementation of the NDC and the operationalization of the Partnership Plan.

CONFERENCE OBJECTIVES

The conference aims to:

- ▶ Expose and discuss the main orientations in Tunisia's NDC, enabling a paradigm shift for the paradigm shift towards a sustainable, inclusive and decarbonized development model,
- ▶ Present the NDC's priority projects in the field of greenhouse gas mitigation and climate risk reduction, taking into account Tunisia's specific vulnerability,
- ▶ Facilitate discussions with partners of the NDC Partnership alliance, with the aim of better mobilizing support for the implementation of the NDC and fostering ongoing cooperation between national stakeholders and technical and financial partners regarding the proposed priority projects.



III. CLIMATE ACTION IN TUNISIA: POLITICAL COMMITMENT AND THE URGENCY FOR ACTION

Since the adoption of the UNFCCC in 1992, Tunisia has been strongly committed to collective action and to synergizing the efforts of all countries to effectively combat the impacts of climate change.

This commitment has been culminated in the ratification of all international treaties in this field, including the Convention, the Kyoto Protocol and, recently, the Paris Climate Agreement.

At the same time, Tunisia has committed to a forward-looking policy, placing the preservation of natural resources, ecosystems and the environment high on its agenda of socio-economic, national, sector-specific and territorial development.

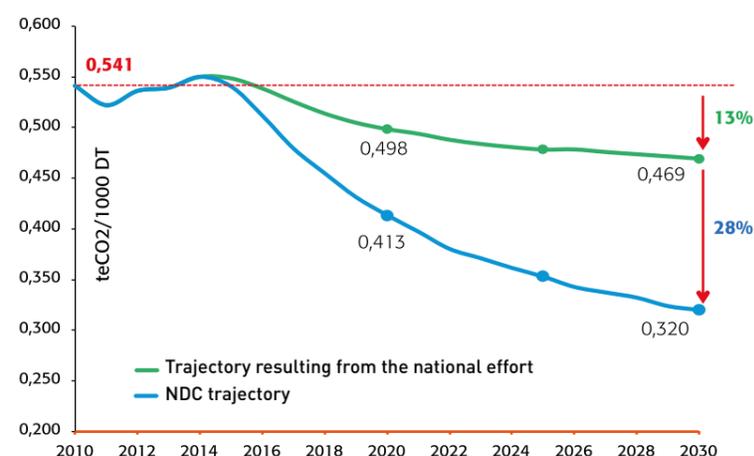
Against this backdrop and taking into account the country's high vulnerability to the impacts of climate change, Tunisia has worked, since the 2000s, to better understand and assess the scope and consequences of climate change on the sustainability of its natural resources, its ecosystems and its economy, and to put in place the necessary measures to lay the foundations for a more resilient and inclusive development that upholds the rights of current and future generations.

Since its ratification of the Paris Climate Agreement, this commitment has been reinforced in the framework of Tunisia's INDC (June 2015).

Tunisia's INDC aims to ensure a real transition towards a decarbonized and more resilient economy, notably through reducing carbon intensity by 41% by 2030 compared to 2010 levels, with an ambition that cuts across all sectors of emission and absorption of greenhouse gases (energy, industrial processes, agriculture and forests, waste management).



National Emissions Mitigation Objective in Tunisia's INDC (2015)

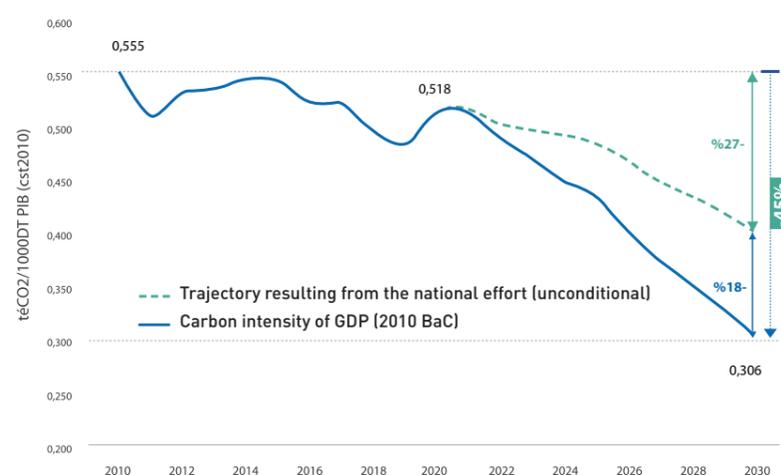
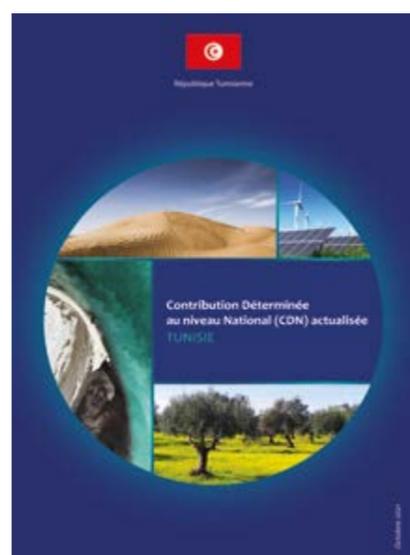


Trajectory of Tunisia's conditional and unconditional contribution on the period 2015-2030

Tunisia's updated NDC (October 2021) has consolidated the INDC implementation milestones and further strengthened the foundations of a low-carbon economy, ensuring better adaptation of its natural resources, ecosystems and economic sectors to the growing impacts of climate change.

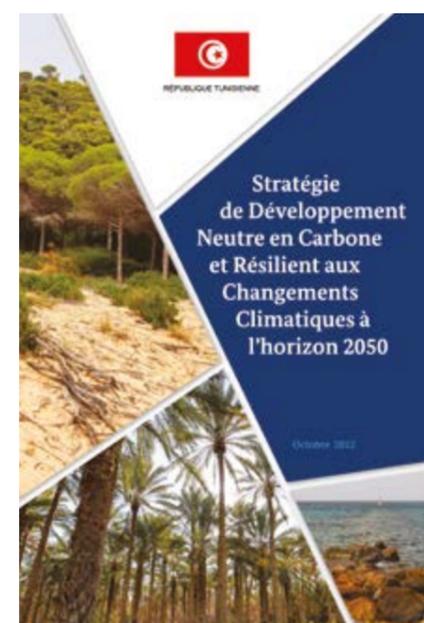
Currently, Tunisia is addressing the challenge of completing its ecological transition by reducing its carbon intensity by 45% by 2030 compared to 2010 levels, and to engage on a real carbon neutrality trajectory by 2050.

National mitigation target in Tunisia's updated NDC (2021)



Carbon intensity trajectory according to the conditional and unconditional contribution of Tunisia over the period 2010-2030

This challenge will have to be addressed through a broad range of ambitious and transformational targets, adopted and officially expressed by Tunisia, when transmitting its updated NDC and its 2050 carbon neutral and resilient development strategy (November 2022).



Official document of the 2050 Carbon Neutral and Resilient Development Strategy (October 2022)

However, the implementation of the updated NDC will require the mobilization of significant financial resources, estimated at around USD 19.4 billion over the period 2021-2030, including USD 14.4 billion for mitigation, USD 4.3 billion for adaptation and USD 0.7 billion for capacity building actions.

These financial resources to be invested require a strong mobilization of all actors, at the state, private sector and international levels.

In this regard, Tunisia joined the NDC Partnership global coalition in 2017.

This initiative, launched at COP22 in 2016, aims to help countries meet their commitments and achieve ambitious climate and sustainable development goals more quickly.

Through its extensive network of partners, the NDC Partnership is in a position to support countries in their efforts to implement the NDC through technical assistance, capacity building and increased financial support leveraging a wide network of technical and financial partners to this end.

In the framework of the NDC-Partnership Global Alliance, Tunisia has been able to complete the first three steps of preparation and finalization of its Partnership Plan (PP).

Since its official accession to the NDC Partnership Initiative (2017), Tunisia has carried out an initial diagnosis which has highlighted the urgent need for the country's NDC to be operationalized (2015) and has developed its Partnership Plan for the implementation of its NDC in consultation with all the key sectors and stakeholders.

Currently, the challenge is to actualize the priority orientations identified through the implementation of urgent, priority and high-impact projects in the field of climate change mitigation and adaptation.

11 CURRENT FINDINGS: NATIONAL GHG EMISSION TRAJECTORIES FAIRLY WELL UNDER CONTROL

Net GHG emissions remained almost stable at 35 MtCO₂ between 2010 and 2020.

Emissions largely come from the energy sector (59%), followed by the agriculture, forestry and other land use sector (AFOLU, 22%), then industrial processes (11%), and waste (8%).

The analysis of the history of GHG emissions in Tunisia shows that, under the combined effect of voluntary sector-specific GHG mitigation policies and the transformation of the Tunisian economy towards less carbon-intensive sectors, which began in the 1990s, net GHG emissions have progressed at a fairly moderate pace compared to economic growth.

Tunisia's carbon intensity would, in fact, have gone from 0.555 to 0.518 between 2010 and 2020, i.e., a total decrease of 7%.

2I KNOWN AND PLANNED SECTOR-SPECIFIC ORIENTATIONS (OR CHALLENGES)

Tunisia's updated contribution to mitigation is materialized by a 45% decrease in its carbon intensity in 2030 compared to 2010 levels.

This goal, both ambitious and realistic, implies that substantial work should be made to decarbonize the Tunisian economy and requires a structural modification of sector-specific development towards a clean and sustainable development that involves all emission sectors in Tunisia.

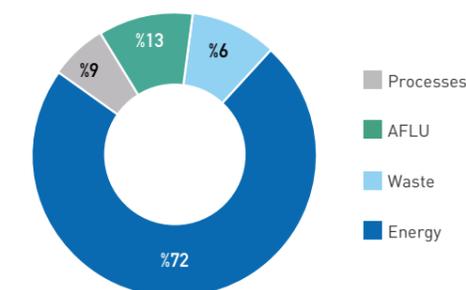
- ▶ **Energy sector** : Implementation of ambitious programs to develop energy efficiency (38% in industry, 37% in transport mainly through the organization of urban mobility in large cities and the introduction of electric vehicles, and 25% in the buildings sector), and renewable energies (a 35% share of renewable energies in the electricity mix by 2030).
- ▶ **Industrial processes** : Targeting the cement, bricks and ceramics, nitric acid and other process sources sectors, through three main actions: (a) Launch of the cement NAMA (Energy efficiency, renewable energies, use of alternative Refuse-derived fuels (RDF), better segmentation of the cement market in order to lower the clinker/cement ratio), (b) launch, from 2023 onwards, of the N₂O catalytic destruction project in the nitric acid production plant in Gabes. (c) and launch of the program to reduce the use of HFCs, in order to comply with the objectives of the Kigali Amendment.
- ▶ **Agriculture, Forestry and Land Use Sector (AFOLU)** : Development of an integrated approach based on the rationalization of cultivated land use through the restoration of degraded agro-systems, the sustainable management of forests and rangelands, the restoration of degraded forest and pastoral landscapes, and the enhancement of synergies between the three climate-biodiversity and desertification conventions.
- ▶ **Waste sector (solid and liquid)** which, in cumulative terms over the period 2021-2030, would reduce emissions by 5.5 MteCO₂, 92% of which would result from actions targeting solid waste in the following way :
 - Reducing the average daily volume of household waste produced by urban residents,
 - Increasing the rate of material recycling from household waste produced in urban areas.
 - Increasing the rate of organic (composting) and/or energy recovery (RDF and electricity),
 - Implementing the RDF production option for use in combustion by the cement sector,
 - Reducing the rate of controlled landfilling of final waste,
 - Systematization of degassing on controlled landfills already fitted with the necessary systems,
 - Generalization of electricity production from biogas in the landfills currently fitted with degassing systems,
 - Energy recovery from olive mill sludge.

Actions with liquid waste include :

- ▶ Improving the rate of wastewater treatment.
- ▶ Improved management of WWTPs (urban and rural).
- ▶ Improvement of industrial connection and reduction of COD through treatment that is adapted to the quality of the effluent discharged while advocating recycling/ recovery.
- ▶ Recovery of sludge (in agriculture and possibly in cement plants).
- ▶ Improvement of energy efficiency and development of cogeneration.
- ▶ Installation of PV systems

In cumulative terms over the period 2021-2030, emission reductions compared to the BaU trajectory would total 87.5 MtCO₂.

These emission reductions would come predominantly from the energy sector (72%), followed by AFOLU (13%), and processes (9%). The remaining 6% of the mitigation results are due to the low-carbon policy of the waste sector.



Sectoral distribution of the cumulative reductions (2021-2030) of GHG emissions resulting from the implementation of the updated low-carbon scenario

IV. BUILDING A TRANSFORMATIONAL VISION OF RESILIENT AND INCLUSIVE DEVELOPMENT

All the studies undertaken to assess Tunisia's vulnerability to climate change have come to confirm the following findings:

- ▶ Tunisia's high exposure to global warming,
- ▶ The increasing vulnerability of natural resources, ecosystems and the economy to the already detectable impacts of climate change,
- ▶ The urgency of implementing effective and sustainable policies for the reduction of vulnerability and adaptation to climate change, at national, sector-specific and territorial levels,
- ▶ The importance of a transformational vision strengthening Tunisia's resilience to climate change

1I HIGH EXPOSURE TO AND MANIFESTATIONS OF CLIMATE CHANGE IN TUNISIA

With a climate marked by aridity and great variability, Tunisia is among the Mediterranean countries most exposed to climate change.

Indeed, the global warming already observed since the 1970s is expected to continue, with a rise in temperature that would vary according to the regions, between 1°C and 1.8°C by 2050 and between 2°C and 3°C at the end of the century in the best-case scenario.

In the worst-case scenario, the increase could reach 4.1°C to 5.2°C by the end of the century.

Projections also show a decrease in precipitations (-10% to 30% in 2050) and a rise in sea level (30 cm to 50 cm in 2050).

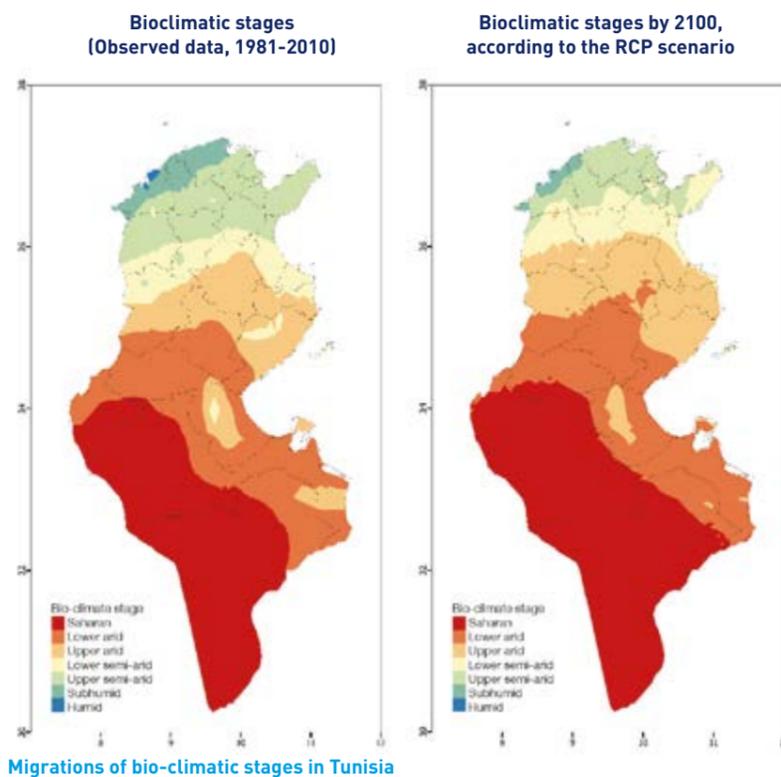
Undoubtedly, the most worrying aspect is the heightening of climate variability, which translates into a greater frequency of extreme climatic phenomena (floods and droughts) and which would exacerbate an already marked vulnerability.

More generally, climate change will result in a dramatic change of the spatial distribution of bioclimatic stages in Tunisia, with:

- ▶ A trend towards the migration of bioclimatic stages towards the north,
- ▶ A marked extension of the Saharan stage,
- ▶ An almost complete disappearance of the humid stage.

The evolution of the bio-climatic stages in the future therefore suggests a modification of the natural areas of the various cultivated and pastoral species in Tunisia.





2I THE INCREASING VULNERABILITY OF NATURAL RESOURCES, ECOSYSTEMS AND THE ECONOMY TO THE ALREADY DETECTABLE IMPACTS OF CLIMATE CHANGE

The work to develop Tunisia's INDC made room for a participatory assessment of vulnerability to climate change.

In terms of priority, the areas/sectors deemed most vulnerable are:

Water resources
Coastline
Agriculture
Ecosystems
Tourism
Health

sectors/areas deemed most vulnerable in Tunisia (initial CDN, 2015)

3I URGENT IMPLEMENTATION OF EFFECTIVE AND SUSTAINABLE POLICIES TO REDUCE VULNERABILITY AND ADAPT TO CLIMATE CHANGE, AT NATIONAL, SECTOR-SPECIFIC AND TERRITORIAL LEVELS

Acknowledging these challenges, Tunisia has been endeavoring for years on end to integrate adaptation to climate change into the development planning process at the global and sector-specific levels.

The urgent measures for adaptation to climate change identified in Tunisia's INDC include the following actions

Water Resources

The proposed measures for adapting water resources consist essentially of setting up projects for the transfer and reuse of treated wastewater and reinforcing and securing the water supply of the major urban centers, notably Greater Tunis, Cap-Bon, Sahel and Sfax.

Coastline

Rehabilitation of the coastline and fight against coastal erosion, redevelopment and relocation of coastal industrial parks, rehabilitation and protection of existing infrastructures against the risks of climatic impacts and the establishment of aquaculture farms and infrastructures.

Agriculture

- ▶ Adaptation of irrigated crops in the Central regions,
- ▶ Adaptation of mixed crop-livestock production systems to climate change in vulnerable regions,
- ▶ Updating the agricultural map taking into account the impacts of climate change,
- ▶ Establishment of a climate watch and early warning system and an insurance mechanism against climate hazards due to climate change,
- ▶ Conservation and development of local genetic heritage for the adaptation of crops to climate change and the development of innovative field crop systems.

Ecosystems

- ▶ Rehabilitation of forest nurseries and development of indigenous and multipurpose species,
- ▶ Integrated management of cork oak forests in high fire risk areas in the North West,
- ▶ Management of degraded rangelands and esparto grass fields in the central and southern regions,
- ▶ Conservation of the ecological functions of low-lying coastal areas,
- ▶ Integrated rural development of vulnerable watersheds and sub-watersheds, and flood regulation,
- ▶ Biological consolidation of works to combat silting in southern Tunisia and support for the implementation of regional action plans to combat desertification.

Tourism

- ▶ Rehabilitation of the Tunisian tourist coastline and protection of tourist areas against sea level rise,
- ▶ Definition of climate-tourism regions and adaptation of the distribution of ecotourism circuits,
- ▶ Development of an alternative and complementary offering to seaside tourism, with a particular focus on the themes of health, culture, sport and ecology.
- ▶ Launch and promotion of the Eco-Hotel concept,

- ▶ Optimization of water resource management by the tourism sector and the setting up of mini-seawater desalination plants using renewable energy.

Health

- ▶ Assessment of the risks and prevention of the increase in respiratory pathologies linked to climate change,
- ▶ Establishment of an epidemiological surveillance network for the main vector-borne diseases,
- ▶ Implementation and strengthening of the entomological surveillance and control network for mosquitoes and sandflies,
- ▶ Implementation of a program to adapt the health system to climate change, and in particular to protect against water-borne diseases.
- ▶ Establishment of a communication strategy on CC-related health risks.

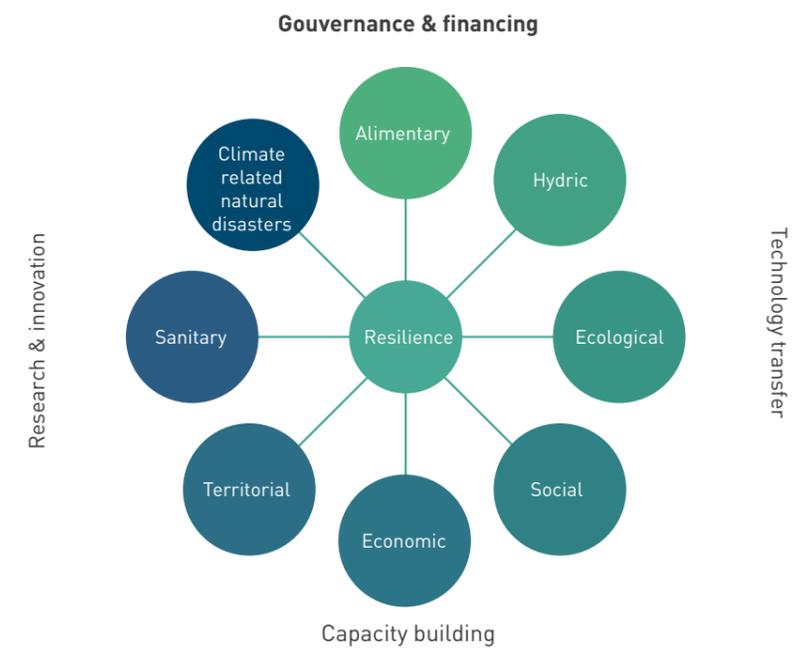
4I IMPORTANCE OF A TRANSFORMATIONAL VISION STRENGTHENING TUNISIA'S RESILIENCE TO CLIMATE CHANGE

Tunisia's updated NDC (2021) has laid the groundwork for a transformational vision, moving beyond adaptation and minimizing the impacts of change to a vision of resilience of the Tunisian economy.

The general objective of the updated NDC by 2030 is to «promote a Tunisia that is resilient to climate change, that has significantly reduced the vulnerabilities and strengthened the adaptive capacities of its ecosystems, its population, its economy and its territories, and that has made the necessary transformations to ensure an inclusive and sustainable socio-economic development model, and in so doing, to contribute to a more resilient world.»

The updated NDC therefore proposes a paradigm shift and the adoption of a systemic and cross-sector approach, making it possible to define resilience in its different dimensions: food; water; ecological; social; economic; territorial; health as well as resilience to CC-related natural disasters.

This approach forms the 'resilience star' (Figure 6) which is designed as a structuring framework to support Tunisian actors and their technical and financial partners in their efforts to build adaptive capacity, reduce risk and anticipate future events. This star, which, in the past, helped explorers navigate the globe, should today help the country stay the course in its quest for future resilience by 2050, with 2030 as the transformative deadline for putting Tunisia on this trajectory.



The star of Tunisian resilience



V. TOWARDS A NEW VISION FOR CLIMATE FINANCE



Tunisia's NDC, as well as the Carbon Neutral and Climate Change Resilient Development Strategy, represent planning and commitment instruments for Tunisia.

They are also strategic tools for a radical change in Tunisia's socio-economic development model, laying the foundations for sustainable development, contributing to the preservation of the environment, promoting equity and social inclusiveness, creating economic wealth and preserving the rights of current and future generations.

The concrete and effective implementation of this vision of transformation in Tunisia requires an unfailing commitment and the provision of significant human, technical, technological and financial means and resources.

These resources largely exceed Tunisia's capacities and require a real combination of efforts from all national actors and international partners.

The implementation of the updated NDC will require the mobilization of significant financial resources, estimated at around USD 19.4 billion over the period 2021-2030, including USD 14.4 billion for mitigation, USD 4.3 billion for adaptation and USD 0.7 billion for capacity building actions.

The implementation of Tunisia's mitigation contribution requires the mobilization of significant financial resources estimated at around USD 14.4 billion over the period 2021-2030.

Sector/Domain	Total (Millions USD)	(%)
Energy	11 785	
Energy efficiency	5 755	40,0%
Renewable energy	4 377	30,4%
Infrastructure (electric system reinforcement)	1 653	11,5%
Processes	675	4,7%
AFAT (Agriculture, Forestry, and Other Land Use)	753	5,2%
Waste	1 182	
Solid waste	313	2,2%
Sanitation	869	6,0%
Total	14 395	100%

Investment financing needs to support the NDC low-carbon scenario over the period 2021-2030 (USD millions 2020)

The aforementioned financing needs to achieve the NDC objective fall into two «categories»:

- ▶ **The national effort** : that pertains to the own resources to be mobilized by Tunisia to support its unconditional contribution. This effort has been estimated at USD 3.3 billion for the entire 2021-2030 period (Table 2), i.e., 23% of the total financing needs accompanying the 2021-2030 low-carbon transition envisaged by the updated NDC. The national effort covers all sectors, not just the energy sector, as was the case in the first NDC.
- ▶ **International support** to be mobilized to support the achievement of the conditional contribution would amount to USD 11.1 billion over the 2021-2030 period.

This support could be mobilized in various forms (concessional lines of credit, grants, foreign direct investment, integration into carbon markets, etc.).

MOBILIZING THE NECESSARY FINANCE FOR THE IMPLEMENTATION OF THE NDC: A TOP PRIORITY FOR TUNISIA

Following the resolute pledge made by all stakeholders and partners to work towards low-carbon and climate-resilient development, mobilizing the means of implementation is currently the most urgent challenge.

The options for mobilizing financial resources for the realization of the NDC require in particular:

An unprecedented mobilization of domestic funding:

Several instruments and options will be available for this purpose, including:

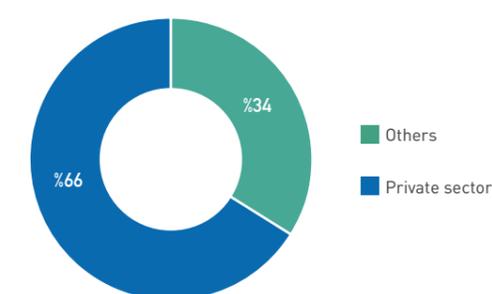
- ▶ **The prioritization of projects and actions for the implementation of the NDC**, in the national system of allocation of funds from the state budget (Tartib). This orientation confirms that the domestic needs for the implementation of the NDC do not induce, overall, additional costs, nor will they burden the state budget. Instead, the NDC is deemed a real opportunity for alternative, more sustainable and inclusive development.
- ▶ **Effective integration of climate issues into development planning** at national, sector-specific and territorial levels, This orientation could be implemented through the integration of climate performance indicators into the Management of Budget by Objectives (MBOs) system, at national and sector-specific levels.
- ▶ **Opt for a new national taxation system based on the carbon footprint**, The modification of the national taxation system from consumption-based taxation to carbon-based taxation (carbon footprint) is an important step in Tunisia's commitment to support clean production, in line with Tunisia's climate challenges. This new form of taxation will also secure additional funding to support the transition of Tunisian companies to clean production, preserving the environment and health.

Improving the investment climate and ensuring better engagement of the private sector in the implementation of the climate policy:

The national mitigation targets, according to the updated NDC, require a stronger commitment and engagement of the private sector in Tunisia.

The engagement of the private sector will also help to enhance the quality of Tunisian products and their competitiveness in international markets.

Depending on the type of the actions to be carried out for the implementation of the NDC and their economic profitability, the private sector is expected to contribute up to 66% of the investment needed to achieve the mitigation objectives of the updated NDC in Tunisia.



Contribution of the private sector in investment to reach the mitigation objectives of the updated NDC in Tunisia.

Depending on the sector concerned, the potential contribution of the private sector is reported below:

Approximations	Energy	Processes industriels	Agriculture, forests, and other land use	Waste
Public entities	10 - 15%	5%	10 - 15%	50%
Private sector	50 - 55%	80%	30%	40%
Households	30 - 40%	15%	55 - 60%	10%

Put forth greater effort to mobilize international climate finance:

Achieving the unconditional objectives of Tunisia's updated NDC calls for an unprecedented mobilization of international finance.

From this vantage point, several mechanisms and instruments could be considered:

- ▶ **Mobilization of climate finance** for the implementation of Tunisia's priority projects (technical assistance, concessionary loans, credit lines, bank guarantees, ...),
- ▶ **Use of innovative green finance instruments** (green bonds, debt for climate finance, ...),

- ▶ **Use of new international carbon markets**, under Article 6 of the Paris Climate Agreement.

The use of all these climate finance mechanisms and instruments at the international level requires intensive stakeholder capacity building and improved performance of all sectors to make full utilization of international financing opportunities.



PRIORITY PROJECTS AND PROGRAMS FOR THE IMPLEMENTATION OF THE NDC, PRESENTED AT THE INTERNATIONAL INVESTMENT CONFERENCE

1



وزارة النقل



Support for the Implementation of the National Policy on Sustainable Urban Mobility

2



Construction of two treatment and recovery units for household and similar waste in Gabes and Bizerte

3



Strengthening the resilience of coastal and marine ecosystems and the Information and Decision Support System «SIAD»

4



Rehabilitation of degraded ecosystems: the case of Aleppo pine in the Kasserine region and cork oak in the Jendouba region

5



Implementation of the **Water, Energy and Food** Nexus approach to address climate change impacts in Central Tunisia

6



Transfer of water surplus from the North to the Centre of Tunisia, in the context of climate change

7



Protection of the western and southern areas of Greater Tunis and the city of Beja against flooding

8



Support to local investment for the implementation of the NDC

9



Support to UGPO-CC for the mobilization of climate change actors in Tunisia (FNACC Actors)

1 TRANSFORMING URBAN TRANSPORT :

TOWARDS
SUSTAINABLE
TRANSPORT,
IN LINE WITH
THE CLIMATE
OBJECTIVES OF
TUNISIA'S NDC

SUPPORT PROJECT FOR THE IMPLEMENTATION OF THE NATIONAL POLICY ON SUSTAINABLE URBAN MOBILITY



This project contributes, on the horizon of 2030, to reduce emissions by 12% of GHG due to urban mobility passengers, either, **a reduction of 340,000 tCO2 over 10 years.**

Ministry Of Transport

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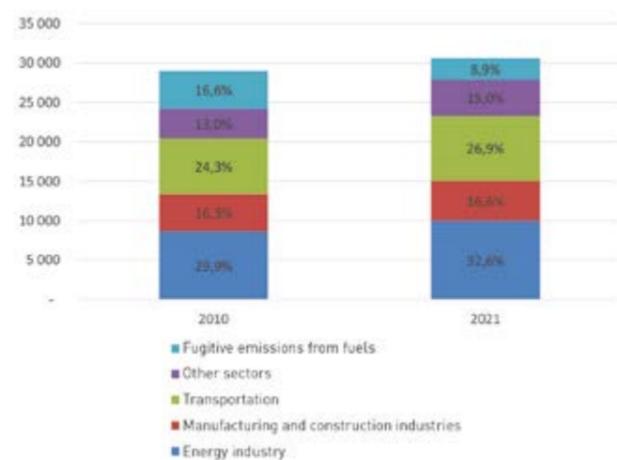
Sector	Transport/mobility
Status	Studies completed
Cost	TD 440 M (USD 142,38 M)
Duration	07 years (2023-2030)
Focus	Energy efficiency
Necessary support	TD 328 M

GENERAL CONTEXT

The Tunisian population is experiencing a marked trend towards urbanization.

Urban transport (within and between cities) is an important issue for the development of economic activities and the improvement of the quality of life.

In Tunisia, annual emissions from the transport sector stand at 8 million t_{eq}CO₂, thus representing the second largest source of GHG emissions in the energy sector, second only to the energy industries.



In order to improve the quality of land transport, with the aim of better organizing road traffic in Tunisia's major conurbations, promoting the fluidity of transport and traffic, ensuring a better living environment and better protection of the environment, the Ministry of Transport has developed a National Urban Mobility Policy (PNMU) in 2020.

This Policy, elaborated with a view to sustainable development, aims to establish an integrated urban mobility system that meets the requirements of urban, demographic, social, economic and institutional development.

It takes into account the challenges of climate change, promotes sustainable and ecological modes of transport and helps Tunisia to meet its international commitments to reduce greenhouse gas emissions.

The PNMU was validated by a sub-cabinet meeting on 7 May 2020.

During 2021-2022, in-depth studies have been carried out to implement key aspects of this PNMU.

PROJECT DESCRIPTION

The project is based on the following seven strategic thrusts:

1. Creation of a new governance of urban mobility at central and local levels
2. Establishment of sustainable financing mechanisms for the urban mobility sector
3. Increasing the modal share of public transport in urban travel
4. Development of electric mobility and the use of active modes (biking and walking)
5. Establish a low-carbon multimodal strategy in each urban area with more than 100,000 inhabitants to improve the efficiency of urban mobility
6. Integration of appropriate digital solutions in urban mobility systems

These thrusts are developed in the project through the following actions:

1. **About the new governance :**
 - ▶ Creation and launch of work of the National Commission for Urban Mobility (CNMU)
 - ▶ Creation and launch of work of the central technical support unit (UTAC)
 - ▶ Creation of the National Observatory of Urban Mobility
 - ▶ Creation of the Metropolitan Urban Mobility Authorities (MUMA) in the major conurbations
 - ▶ Creation of Urban Mobility Departments (UMD) in medium-sized cities
2. **About the funding mechanisms :**
 - ▶ Creation of the National Urban Mobility Fund (NUMF).
3. **About the promotion of public transport:**
 - ▶ Reorganization of public transport companies and contracting out the delivery of the public service
 - ▶ Upgrading the quality of public transport services by rehabilitating or extending priority public

transport infrastructure

- ▶ Acquisition of more efficient transport equipment in keeping with the most stringent environmental standards
4. **About the development of electric mobility and the active modes (cycling and walking):**
 - ▶ Setting up incentives for the purchase of electric cars
 - ▶ Setting up the prerequisites for the development of electric mobility (charging stations, improving the capacity of the electricity network where necessary, etc.)
 - ▶ Study of possible scenarios for the transition of the fleets of transport companies to the electric mode
 - ▶ Launch of a pilot phase to promote the use of electric cars in three pilot towns (Sfax, Djerba and Bizerte)
 - ▶ Upgrading of the urban infrastructure necessary for these modes (pavements, biking lanes, green spaces, etc.)
 - ▶ Development of commercial circuits dedicated to bicycles
 - ▶ Development of the regulatory framework
 - ▶ Launch of awareness campaigns to promote these modes of transport.
 5. **About the implementation of multimodal strategies:**
 - ▶ Implementation of urban travel plans (UTP) compatible with available funding and aimed at optimizing the efficiency of urban mobility and reducing CO₂ emissions.
 6. **About integrating appropriate digital solutions :**
 - ▶ Promoting modern ticketing and passenger information systems for public transport in the most important conurbations
 - ▶ Establishment of an appropriate regulatory framework for the development of carpooling.

STRATEGIC ALIGNMENT

This project will be integrated into the mitigation component of Tunisia's updated Nationally Determined Contribution (NDC).

While aiming at sector-specific objectives towards improving the quality of life and the economic competitiveness of Tunisian cities as well as reducing inequalities, the specific objective of this project is to promote the energy efficiency of the transport sector, specifically with regard to urban mobility. It is thus part of objective 4 («Promote energy efficiency in all energy consuming economic sectors») of the mitigation component of the Partnership Plan (PP) for the implementation of the Tunisian NDC and aims

GENERAL OBJECTIVE

Implementation of the actions foreseen in the action plan of the National Policy for Sustainable Urban Mobility (UNMP).

SPECIFIC OBJECTIVES

Specific objective 1

Reduce the modal share of automobile transport in Tunisian urban areas, Increase to 80% the share of the urban population that has easy access to public transport

Specific objective 2

Reduce CO₂ emissions from urban transport by 12%.

Specific objective 3

Reduce road deaths in cities by 50%.

Specific objective 4

Significantly improve air quality.

EXPECTED OUTCOMES

- ▶ Governance structures for urban mobility are established and operational
- ▶ FNMU is established
- ▶ 70 km of bus lanes are created in 5-10 conurbations
- ▶ 25 km of the light metro infrastructure in the Tunis conurbation are rehabilitated
- ▶ 20 light metro trains in the Tunis conurbation are modernized or refurbished
- ▶ Incentives for the purchase of electric cars are put in place
- ▶ A pilot operation to develop the use of electric cars is launched
- ▶ 25 projects to repair pavements and create bike lanes are carried out in 15 municipalities
- ▶ Complementary measures to promote active modes of transport are put in place
- ▶ Urban travel plans are elaborated and adopted in 10 municipalities or conurbations with more than 100,000 inhabitants
- ▶ Modern ticketing and traveler information systems are in place
- ▶ An appropriate national regulatory framework for carpooling in urban areas is established.



to strongly contribute to the expected result 4.4 in the framework of the PP («energy efficiency in the transport sector is promoted»).

The project stems from the Tunisian UNMP preparation studies conducted in 2018-20 with financial assistance from the AFD. As mentioned earlier, the UMNP was approved by the government in May 2020. The implementation of the priority actions (governance/financing and capacity building) started in December 2020 with the in-depth definition of the necessary measures, the elaboration of legal and operational texts, and the identification of the needs for the upskilling of the technical staff and experts. The launch of the UMNP to stakeholders, notably the municipalities, took place during the Urban Mobility Forum held on 1 April 2022.

PROJECT IMPLEMENTATION PLAN

The implementation of the project is planned in two phases as described below:

Phase I: Creating an enabling environment for investment in sustainable urban mobility (2023-2025)

This phase will allow for institutional, financial, regulatory and technical actions to be carried out.

These actions are essential for the efficient and sustainable management of urban mobility at central and local levels and for the accurate definition of the planned investments.

These actions aim, in particular, at:

- ▶ The establishment of governance structures at central and local levels as well as financial mechanisms to incentivize investment,
- ▶ The implementation of urban transport plans in conurbations and municipalities,
- ▶ The carrying out detailed identification studies of (a) infrastructure improvements for public transport, biking and walking, (b) new equipment and rolling stock, and (c) complementary measures to these investments, in particular concerning the regulatory framework, incentives, and the organization/contracting out of operational entities in the sector

Phase II: Financing and implementation of investments (2026-2030)

This phase aims to implement investments that support sustainable urban mobility: improvements to public transport infrastructure, infrastructure for active modes, infrastructure supporting the electrification of transport, and all new equipment and rolling stock.

PROJECT MATURITY

Actions undertaken :

2018-2020: NUMP design studies financed by AFD
2021-2022: in-depth studies of the priority areas of the NUMP (governance, financing and capacity building) financed by AFD

Availability of the following documents :

- ▶ Technical feasibility/prefeasibility study: concept level
- ▶ Financial feasibility study: concept level
- ▶ Cost-benefit analysis: NY
- ▶ Environmental and social impact assessment: concept level
- ▶ Climate vulnerability assessment: NY
- ▶ Gender analysis/gender impact assessment: concept level
- ▶ Other

AFD has financed some of the available studies in the sector.

PROJECT COST

	Funding sources	Montant en TDK
Phase 1	Grant	7 045
	Loans	
	Self-financing/	
	State budget	
	Other financing	5 000
Total financing required for Phase 1		12 045
Phase 2	Grant	7 100
	Loans	340 000
	Self-financing/	
	State budget	
	Other financing	77 500
Total financing required for Phase 2		424 600
Total financing required for the project		436 645

INITIAL FINANCING OPTIONS

Potential financial institutions are not yet identified at the international or bilateral level. Many donors are already involved in the urban mobility sector and several are ready to take a leading role in the sector.

POTENTIAL RISKS & MITIGATION

One potential challenge is the lack of buy-in of some local authorities for the benefit of which many actions would be carried out.



However, the efforts made with the different local structures in the different regions of the country have highlighted their clear willingness to collaborate closely with the Ministry of Transport in order to develop the proposed actions and to upgrade the urban mobility system within a coherent national vision.

The main difficulties identified are related to the availability of the necessary funding and the need for capacity building of the managers acting in this environment.

PRIVATE SECTOR INVESTMENT INCENTIVES

Some key actions of the project could be carried out in partnership with the private sector.

These include the renewal of the public transport fleet, the development of electric mobility, the development of commercial biking lanes, and the integration of appropriate digital solutions into urban mobility systems. The feasibility of such public-private partnerships and the regulatory and contractual measures needed to make them possible will be explored in phase 1 of the project.

More specifically, the project already foresees the introduction of incentives for the purchase of electric cars and for the transition of the transport companies' fleet to the electric mode.

PROJECT INDICATORS

Reducing GHG emissions : in the urban transport sector.

Access to public transport : Share of the population living within 500 m of an urban public transport stop with a frequency of 20 min.

Modal distribution : Modal shares of public transport and active modes in travel.

Affordability of mobility : Share of household expenditure on urban transport.

Security : Number of victims of road traffic accidents in urban areas.

Air pollution : Urban average air pollution at roadside monitoring stations.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

It is estimated that over a 10-year period, the project manages to reduce CO2 emissions by 350,000 tons from the urban mobility sector.

It is also estimated that the project will directly benefit at least 250,000 people per day, 50% of whom are women, by significantly reducing transport time.

PROJECT IMPLEMENTATION AGENCIES

The project would be implemented by the Ministry of Transport assisted by ANME, the Ministry of Equipment (for road-related matters), TRANSTU (for matters related to public transport in the Tunis conurbation), and the concerned municipalities.

A project management unit within the Ministry of Transport to coordinate the project.

STAKEHOLDERS

- ▶ Ministry of Transport
- ▶ Other relevant ministries: Finance, Equipment, Energy, Interior, and the Environment
- ▶ ANME
- ▶ Local authorities
- ▶ Civil society

2 INTEGRATED WASTE MANAGEMENT, LAYING THE FOUNDATIONS FOR A CIRCULAR ECONOMY

CONSTRUCTION OF TWO TREATMENT AND RECOVERY UNITS FOR HOUSEHOLD AND SIMILAR WASTE IN GABES AND BIZERTE



The project will contribute to the reduction of 11.6 K TCO₂ over the period 2025-2035 the project has a socio-economic impact, and this by creating green jobs in a backup context environmental.

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Sector	Solid Waste
Status	Not initiated
Cost	TD 184 M (Euro 55 M)
Duration	12 years
Focus	Waste infrastructure
Necessary support	TD 184 M (Euro 55 M)

GENERAL CONTEXT

In order to achieve the NDC targets for the waste sector, the mitigation plan envisages the implementation of an ambitious program, aiming at reducing waste production upstream, boosting selective sorting channels, and promoting all waste treatment and recovery practices and actions, in particular mechano-biological treatment, and the production of RDF (Refuse Derived Fuel) mainly for the cement sector.

The program will also systematize the implementation of degassing systems in controlled landfills, and the recovery of electricity from the recovered gases.

Furthermore, current solid waste management has reached the limits of its capacity. The technical landfill sites are increasingly causing nuisance at several levels:

- ▶ **Social level** : protests from local residents and inhabitants of the areas where the facilities are located, due to the nuisances generated by the poor operation of the facilities (windblown waste, odors from leachate and biogas, etc.)
- ▶ **Environmental level** : the impact of the facilities on the natural environment and the degradation of soil and air quality by liquid and gaseous effluents etc.
- ▶ **Energy levels** : the loss of income for the energy sector due to the loss of the recoverable potential of the waste and of the biogas that can be recovered from the landfilled waste to the benefit of energy consuming industries.

As a result, a paradigm shifts towards added value in the sector is unavoidable in the face of social protests and the degradation of the quality of life.

SUMMARY DESCRIPTION OF THE PROJECT

The present project aims to build two units for the treatment and recovery of household and similar



waste in the governorates of Gabes and Bizerte. The construction of these two units will make it possible to reduce the mass of waste to be landfilled by limiting the production of leachates and biogas.

This project is a direct contribution to the national objectives relating to the fight against the effects of climate change by reducing greenhouse gas emissions.

The project has two components:

1. Investissement

- ▶ Launch of a tender procedure for the establishment of a Public-Private Partnership
- ▶ Execution of the works and operation of the two units.

2. Technical assistance

- ▶ Updating of executive and environmental studies
- ▶ Institutional support for the development of inter-municipal models in the Governorates of Gabes, Sfax and Bizerte in consultation with local, regional and national stakeholders
- ▶ Development of technical, financial and social studies to determine the overall cost of the project and its economic profitability.
- ▶ Development of a public-private partnership mechanism for the implementation of the project on the basis of the national regulations in force.

STRATEGIC ALIGNMENT

The present project aims to build two units for the treatment and recovery of household and similar waste in the governorates of Gabes and Bizerte. The construction of these two units will help reduce the amount of waste destined for landfills by minimizing the production of leachates and biogas.

This project directly contributes to the national objectives in combating the impacts of climate change by reducing greenhouse gas emissions.

The project has two components:

Indeed, the waste sector has set itself the following objectives :

- ▶ Protecting the environment and safeguarding natural resources
- ▶ Improving the quality of life of the citizens
- ▶ Reducing the effects of climate change.
- ▶ Establishing integrated household waste management systems (collection, treatment and recovery, etc.)
- ▶ The progressive closure and rehabilitation of landfills
- ▶ Developing waste recovery, recycling and reclamation channels
- ▶ Implementing infrastructure for the management and recovery of hazardous industrial waste
- ▶ Carrying out projects for the efficient management of recyclable and/or recoverable waste
- ▶ Encouraging the participation of the private sector in waste management projects in the form of PPP contracts (collection, transport, recycling, operation of infrastructure, etc.)

To help achieve these objectives, the strategy is based on the principles of the Circular Economy, encouraging waste minimization at the source, promoting material reuse, implementing waste recovery and recycling practices to reduce waste quantities, and ensuring proper treatment and disposal of waste in suitable infrastructures.

Thus, several decisions have been taken at the national level in the framework of cabinet meetings, to accelerate the transition of the sector towards a more optimal management and ensure social peace. A case in point are the decisions of the cabinet meeting dated 21/11/2016 setting the deadlines for the implementation of recovery projects.

PROJECT IMPLEMENTATION PLAN

The two units to be built are in the two governorates of Gabes (the locality of DISSA) and Bizerte (the locality of BENI NEFAA).

The quantities of waste generated and transported to the two sites are estimated at 75,000 and 150,000T/year, respectively.

GENERAL OBJECTIVE

The promotion of waste recovery and recycling with the participation of the private sector through the implementation of projects based on recent technologies allowing GHG mitigation and the transformation of waste into material and/or energy substitution products.

SPECIFIC OBJECTIVES

- ▶ Waste recovery considering the socio-economic dimension.
- ▶ Mitigation of GHG emissions by improving household waste treatment facilities using recent technologies.
- ▶ Improved institutional, regulatory, and financial governance of the sector.
- ▶ Creating contextualized and sustainable management systems and fully engaging the private sector possible.

EXPECTED OUTCOMES

At the level of technical support :

- ▶ Promoting waste recycling and recovery through the construction and operation of two treatment and recovery facilities within the framework of a public/private partnership
- ▶ Technical assistance in setting up the technical and financial scheme for the profitability of the project.
- ▶ Capacity-building.
- ▶ Mitigation co-benefits through the production of alternative fuels for use in the cement sector.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

- ▶ Contribution to mitigation of 11.6 K TCO₂ over the period 2025-2035.
- ▶ Waste recovery considering the socio-economic dimension.
- ▶ Improvement of the living environment of the population of the two Governorates (77 000 inhabitants).
- ▶ Improvement of the governance of the sector at the institutional, technical, and financial levels.



The project will be led by the National Waste Management Agency (AnGed) within the framework of a Public Private Partnership, for the design, implementation and operation of the treatment and recovery units.

The services required for the implementation are:

- ▶ The upgrading of studies (environmental and execution)
- ▶ Preparation of the tender documents and selection of the private operating company
- ▶ Execution of the works and operation of the unit.

PROJECT MATURITY

The two proposed sites are available as the project will be located on the existing sites of the two landfills.

Several documents are available, namely:

- ▶ Studies related to the management of the project within the framework of a concession (DBO) have been conducted,
- ▶ The Framework Impact Assessment has been completed and will further reviewed and updated by the future concessionaire
- ▶ The Pre-Qualification Document in DBO - Concession mode has been drawn up
- ▶ The concession-type DAO has been drawn up.

The project is considered mature as the implementation feasibility studies and even the concession DAOs are ready.

Support is required for the implementation of the treatment and recovery units, including assistance in the development of the project by upgrading the existing documents, integrating climate vulnerability, gender impact analysis; development of the financing scheme and bringing potential investors together.

PROJECT COST

The project estimated cost stands at TD 184 M (55M€) allocated as follows:

Component	Activity	Estimated cost
Building of the treatment and recovery unit in Bizerte	Building of the unit	30 €
	Acquisition of the equipment	
	Exploitation	
Building of the treatment and recovery unit in Gabes	Building of the unit	20 €
	Acquisition of the equipment	
	Exploitation	
Technical Assistance and Capacity Building	Updating DAOs	5 €
	Financing scheme	

The project may benefit from public co-financing, as mentioned in the Initial Financing Option section below. Other financing instruments, managed by national financial institutions (such as eco-taxes, green bonds, equity participation, guarantees, etc.) are also available and can be used to co-finance PPP projects.

Technical support is required to develop the project financing scheme with cost breakdown and fund specification.

INITIAL FINANCING OPTIONS

For the financing of the waste management sector, there are currently two complementary systems for financing and cost recovery:

- ▶ A system driven by the municipalities based on municipal revenues (TIB-TH, etc.), subsidies and fees to finance the collection (without source separation) and transport of household waste as well as part of the cost of landfilling (20% of the operating cost)
- ▶ A system managed by ANGED based on loans, donations and ecotaxes to finance:
 - Transfer and controlled landfill of waste (80% of the operating cost)
 - Industrial waste management (50%).
 - Management of recycling channels (100%).

POTENTIAL RISKS & MITIGATION

The potential impediments to the progress of the project are administrative, land-related, technical, and social acceptability. To overcome these obstacles, the following solutions are recommended:

- ▶ Coordination between the different governmental stakeholders, private sector, NGOs
- ▶ Mobilizing funding for the awareness and social acceptance component of the project.

PRIVATE SECTOR INVESTMENT INCENTIVES

The new legal framework for private sector investment incentives is governed by the following regulatory texts:

- ▶ Law n°2016-71 of 30 September 2016, on the Investment Law
- ▶ Law n°2017-8 of 14 February 2017, on the Revision of the Tax Benefits System
- ▶ Decree 2017-389 of 9 March 2017, relating to financial incentives for investments made under the Investment Law :
 - Bonus for the increase of added value and competitiveness
 - Regional Development Bonus
 - Sustainable Development Bonus
 - Capital participations

STAKEHOLDERS

- ▶ The Ministry of the Environment and its supervising bodies (ANGED-ANPE)
- ▶ The municipalities of the two governorates of Bizerte and Gabes
- ▶ Industries consuming energy and substitute fuels.

- Projects of national interest
- Encouragement of Export and Innovative Sectors
- Priority sectors and economic sectors in industry and services.

Other types of funding can be adopted, such as :

- ▶ Green Financing (GF) such as the Green Cities program of which Tunisia is a beneficiary
- ▶ Use of new financial products such as green bonds, equity investments etc.



3

PROJECT
**STRENGTHENING
THE RESILIENCE OF
COASTAL AND MARINE
ECOSYSTEMS AND THE
INFORMATION AND
DECISION SUPPORT
SYSTEM «SIAD»**

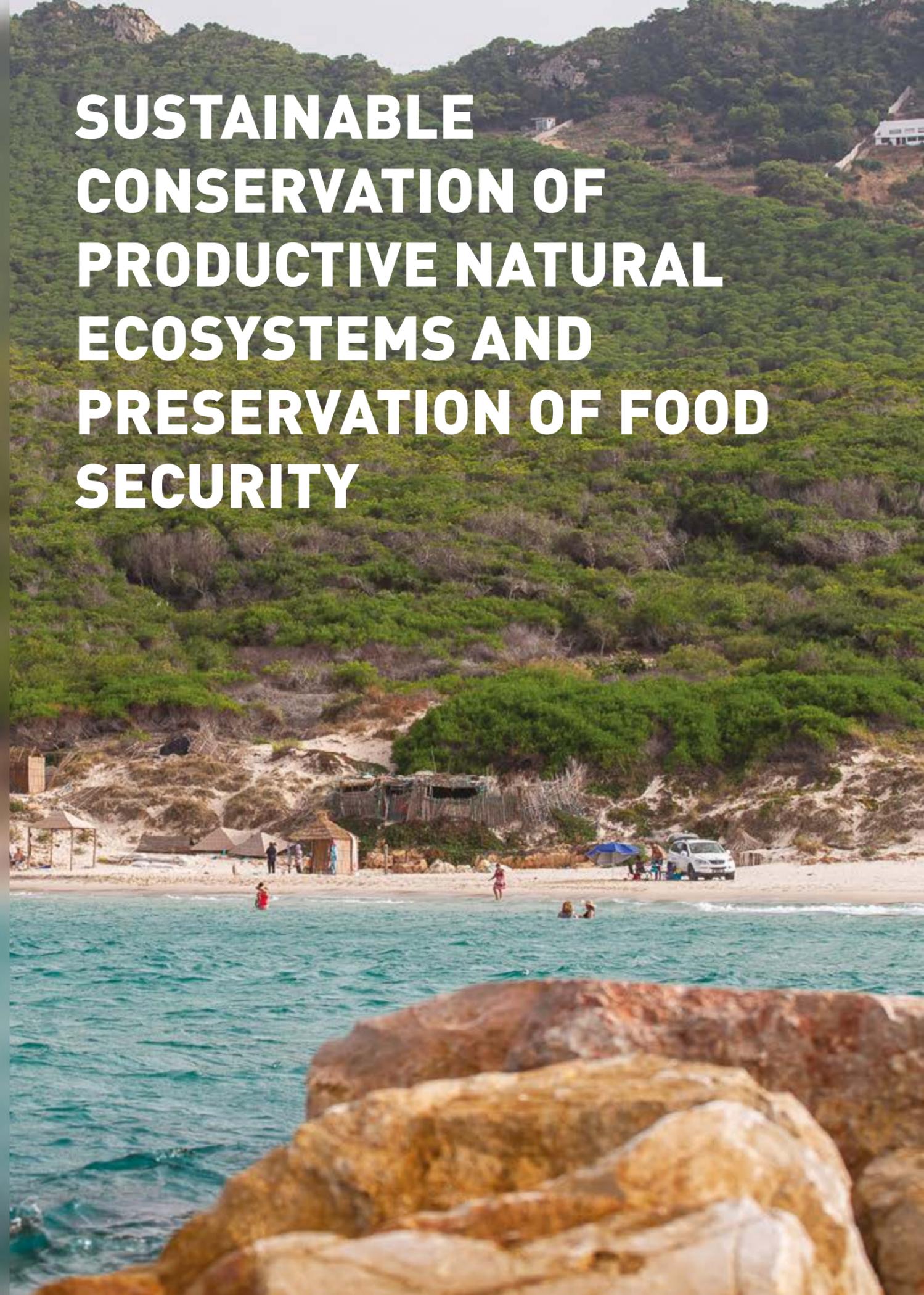
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PROJECT
**REHABILITATION
OF DEGRADED
ECOSYSTEMS : THE
CASE OF ALEPPO PINE
IN THE KASSERINE
REGION AND CORK
OAK IN THE JENDOUBA
REGION**

5

PROJECT
**IMPLEMENTATION
OF THE WATER,
ENERGY AND FOOD
NEXUS APPROACH TO
ADDRESS CLIMATE
CHANGE IMPACTS IN
CENTRAL TUNISIA**

**SUSTAINABLE
CONSERVATION OF
PRODUCTIVE NATURAL
ECOSYSTEMS AND
PRESERVATION OF FOOD
SECURITY**



3

STRENGTHENING THE RESILIENCE OF COASTAL AND MARINE ECOSYSTEMS AND THE INFORMATION AND DECISION SUPPORT SYSTEM «SIAD»



Sector	Coastline
Status	In the development stage
Cost	Euro 10 Million
Duration	05 years
Focus	Coastal Resilience to Climate Change
Necessary support	Developing the project document Support in finding partners and funding

GENERAL CONTEXT

The coastal region is the backbone of Tunisia's economy with important tourism, industrial, agricultural, fisheries and port activities. Climate change and the development of human activities increase the vulnerability of the coastal zone due to the associated impacts on agriculture, water quality and the services provided by coastal ecosystems. Beach erosion, salinization of agricultural land and flooding of low-lying coastal wetlands will be exacerbated by climate change.

To ensure better protection of coastal ecosystems from the increasing impacts of climate change, it is necessary to better master meteo-oceanographic and physio-chemical information regarding future climate change impacts such as sea-level rise and extreme events.

Therefore, the challenge is to achieve ongoing and long-term data sets of parameters related to marine dynamics (tide, swell, current, storm surge, etc.), marine hydrology (temperature, salinity, SM, visibility, etc.), ecology (plankton, plant cover, resource diversity, etc.) and sea level (tide gauge data).

PROJECT DESCRIPTION

The project aims to improve the long-term climate resilience of the Tunisian coastline through the following actions:

- ▶ Providing improved climate information to support coastal risk monitoring, early warning system and climate resilient development planning
- ▶ Implementing flexible and innovative measures to reduce climate change risks and manage coastal

GENERAL OBJECTIVE

The project aims to improve technologies and measures for monitoring and evaluation of coastal ecosystems and to initiate effective measures to ensure greater resilience of the Tunisian coastline to climate change.

SPECIFIC OBJECTIVES

- ▶ Strengthening the information and decision support system «SIAD» for coastal adaptation to climate change
- ▶ Integration of climate risks in coastal development planning
- ▶ Adaptation of the coastline to climate change using flexible solutions based on nature and the reinforcement of coastal and marine ecosystem services (site of the north-western coastline of the Gulf of Tunis and the eastern coast of the island of Djerba).

EXPECTED OUTCOMES

- ▶ The capacities of the Coastal Observatory in terms of data collection and processing are strengthened through the acquisition of high-precision cartographic funds, software and specific equipment
- ▶ Climate change resilience of priority coastal areas improved through the implementation and dissemination of innovative climate risk reduction measures
- ▶ Flexible techniques for the protection and mitigation of long-term climate change risks are introduced in the North-Western regions of the Gulf of Tunis and on the East coast of the island of Djerba.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

- ▶ Preservation of coastal and marine ecosystems
- ▶ Increased protection of the population and economic activities linked to climate hazards (the project's beneficiaries are: 70% of the national population, 95% of investments in tourism, 87% of the industrial activity)
- ▶ Creation of green jobs for fishermen, women and young people
- ▶ Development of the blue economy.

Applicant institution Coastal Protection and Development Agency (APAL)

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and marine ecosystems in alignment with Integrated Coastal Zone Management

- ▶ Carrying out adaptation measures and enhancing coastal resilience based on coastal and marine ecosystem services.

STRATEGIC ALIGNMENT

The project to enhance the resilience of coastal and marine ecosystems and the Information and Decision Support System «SIAD» is in keeping with the following national policies:

- ▶ Tunisia's revised NDC (November 2021) with a focus on strengthening the resilience of vulnerable ecosystems, particularly coastal ecosystem
- ▶ The NDC Implementation Partnership Plan
- ▶ The objectives of the National Strategy for Resilience to Climate Change by 2050 (NSRCC) developed in 2022
- ▶ Tunisia's Third National Communication (INC, SCN), which identified sea-level rise and coastal development as a top priority for adaptation measures.

KEY PROJECT COMPONENTS

The project has three (03) components:

Component 1: Strengthening of the information and decision support system «SIAD» for the adaptation of the coastline to climate change.

This component aims to strengthen the monitoring and evaluation of the state of the coastal ecosystem and its evolution, through the acquisition and implementation of instruments for monitoring the meteorological, oceanographic (currentological), and bathymetric characteristics of the coastline and the improvement of monitoring and modelling tools for the evolution of the coastal ecosystem in Tunisia.

Component 2: Coastal adaptation using soft solutions based on nature (Ganivelles-Palmivelles).

This component aims to enhance the protection of the Tunisian coastline through the widespread application of soft techniques to combat erosion.

Component 3: Coastal adaptation to climate change based on coastal and marine ecosystem services.

This component aims to restore degraded areas along the Tunisian coastline using sustainable interventions that prioritize the preservation of ecosystem services (beach nourishment, wooden piles and floors, palm trees, Geotubes). The actions carried out under this component will target the North - West coast of the

Gulf of Tunis (Ghar El Melh) and the East coast of the Djerba Island.

STAKEHOLDERS

The project will be implemented by the Coastal Protection and Management Agency, in coordination with all stakeholders, including:

- ▶ The National Institute of Marine Sciences and Technologies (INSTM)
- ▶ National Institute of Meteorology (INM)
- ▶ The Agency for Ports and Fishing Facilities (APIP)
- ▶ The General Directorate of Air and Maritime Services (DGSAM).

PROJECT STATUS

The project aligns with the priorities outlined in the resilience star of the updated NDC, specifically on territorial resilience priorities 1,2 and 3. It also corresponds to objective 14 of the adaptation strand of the partnership plan and the expected results 14.1 and 14.3.

Currently, the project is in the technical feasibility stage. Each component of the project is supported by the following documents:

- ▶ Technical pre-feasibility study
- ▶ Financial pre-feasibility study
- ▶ Climate vulnerability assessment

PROJECT COST

The cost of the project is 10 million Euros, broken down as follows:

Component 1 : Strengthening the information and decision support system «SIAD» for coastal adaptation to climate change.

Actions and equipment required	Estimate in Euros
Acquisition and installation of 02 fixed buoys and 02 tide gauges for meteo-oceanographic measurements	1 Million
LIDAR Topo-Bathymetric Surveys of the Tunisian Coastline and Development of a Geographic Database	4 Millions
Modelling software, database, buoy maintenance work, PCs, servers, training, international expertise, technical assistance...	250 Thousand

Component 2 : Coastal adaptation using nature-based soft solutions (low wooden fences-more vertical fences)

Actions and equipment required	Estimate in Euros
Restoration and protection of vulnerable and eroded coastal dunes through the wooden and more vertical fence works	1 Million

Component 3 : Coastal adaptation to climate change based on coastal and marine ecosystem services.

Actions and equipments required at the level of the North-West coast of the Gulf of Tunis (Ghar El Melh)	Estimate in Euros
Beach nourishment, dredging	500 Thousand
Construction of wooden groins + wooden fences + Fixing post	500 Thousand
Geo-tubes + Anti-scour mats + Signaling by floating buoys	1 Million
Signalisation par des bouées flottantes	
Construction of the Boughaz Dike	500 Thousand

Actions and facilities required on the east coast of the island of Djerba	Estimate in Euros
Geo-tubes + Anti-scour mats + Signaling by floating buoys	1 Million
Wooden fences and a fixing post	250 Thousand

STAKEHOLDERS

- ▶ National coastal development planning institutions that need SIAD data in relation to climate risks, early warning (INSTM, INM, Scientific Research...), NGOs
- ▶ General Directorate of Air and Maritime Services (DGSAM), municipalities and coastal communities.



4

REHABILITATION OF DEGRADED ECOSYSTEMS :

THE CASE OF ALEPPO PINE IN
THE KASSERINE REGION AND CORK OAK
IN THE JENDOUBA REGION



Sector	Forests
Status	Not started
Cost	TD 360 M
Duration	05 years
Focus	Restoration of degraded landscapes
Required support	TD 360 M Technical support for a feasibility study Financial support for the implementation of the project components

GENERAL CONTEXT

According to the results of the second national forest and pastoral inventory, Aleppo pine ecosystems cover an area of 133,000 ha, which sequester annually about 95,000 tons of CO₂.

The Aleppo pine forest of Kasserine covers 19% of the governorate's area, 20% of the total forest area of the country and 36% of the Aleppo pine forests in Tunisia.

In addition, the forest ecosystems of Kasserine provide various socio-economic goods or services to 70,000 people who live near or in the forest, which represents their main source of income.

According to the results of the second national forest and pastoral inventory, the cork oak ecosystems in Jendouba cover an area of 49,000 ha, and represent 16% of the governorate's area, 50% of the total forest area of the governorate and 70% of the cork oak forests in Tunisia.

In addition, Jendouba's forest ecosystems provide various socio-economic goods to 150,000 people who live nearby or in the forest, which constitutes their main source of income.

In Tunisia, emissions from the agriculture, forestry and land use sector (AFOLU) are largely offset by removals so that net emissions are always negative.

According to Tunisia's BUR3, the AFOLU sector has a net GHG absorption balance in 2021, with -5.1 million tCO₂e, thanks to the sector's large absorption capacities

GENERAL OBJECTIVE

The overall objective of the project is the restoration of Aleppo pine and cork oak ecosystems in order to restore and maintain the functions of these ecosystems, including carbon sequestration.

SPECIFIC OBJECTIVES

- ▶ Restore the soils and ensure land degradation neutrality;
- ▶ Restore, protect and conserve degraded forest ecosystems with an integrated approach that allows for forest management within a complex agro-forestry-pastoral landscape.

RATIONAL

- ▶ In Tunisia, emissions from the agriculture, forestry and other land use sector (AFOLU) are largely offset by removals so that net emissions are always negative. In recent years, this positive contribution in terms of carbon sequestration has been in danger of disappearing due to the degradation of forest ecosystems as a result of fires, diseases and overexploitation. Restoration of these ecosystems is urgently needed to maintain and improve ecosystem services, including carbon sequestration.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

- ▶ The project would help build the resilience of biodiversity and preserve it from threats in order to contribute sustainably to the socio-economic development of the country.

STAKEHOLDERS

- ▶ Regional Commissariats for Agricultural Development (CRDA) - Forestry districts
- ▶ Agricultural Development Groupings (GDAs) located in the governorates of Jendouba and Kasserine
- ▶ The National Institute for Research in Rural Engineering, Water and Forests (INRGREF).

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In recent years, this positive contribution in terms of carbon sequestration is likely to disappear because of the slowdown in the natural regeneration of forest ecosystems.

Indeed, the overexploitation of forest resources and the more regular large fires due to climate change have weakened forest ecosystems.

Attacks on trees by secondary insects are adding to the problem of forest cover degradation.

The cork oak forests in Jendouba, whose cover is less than 50%, are classified as degraded, loose, and overexploited forests requiring intervention for their reconstitution. This concerns 20,000 ha (according to the cartographic data of the second forest inventory published in 2010). Forest fires from 2015 to 2022 destroyed 8,000 ha.

In recent years, the Kasserine region has experienced prolonged drought accompanied by waves of fires that have ravaged 25,226 ha between 2015 and 2021, with a maximum reached in 2021, of 13,417 ha ravaged.

The effect of climate change, repeated fires and the lack of an appropriate management approach and silviculture, have affected the adaptation capacity of these natural formations considered resilient, which has triggered a progressive dieback phenomenon that, in the most aggressive cases, has led to the proliferation of pests and in particular Aleppo pine bark beetles. Up to March 2022, it is estimated that 25,000 ha of Aleppo pine forests in Kasserine have been affected by this phenomenon, with degrees of dieback ranging from 20 to 80%.

Faced with this critical situation, an effective intervention for the rehabilitation of the most vulnerable forest ecosystems is becoming urgent in order to safeguard and maintain the forest cover and to participate in the national and global effort for the preservation and restoration of natural ecosystems, their biodiversity and the goods and services they provide to the environment and rural societies.

SUMMARY DESCRIPTION OF THE PROJECT

The project aims to restore a natural ecosystem strongly threatened by the effects of climate change amplified by bark beetle attacks, to preserve the specific biodiversity of these arid spaces, to contribute to the national effort in terms of greenhouse gas mitigation through carbon sequestration, to contribute to the national objective

in terms of Land Degradation Neutrality (LDN), ... and continue to provide local populations with goods and services that help them support the budgets of vulnerable families, especially women, and thus justify their stabilization in their territories.

The project consists in carrying out activities along the following lines:

Component 1 : Creating an enabling environment for integrated and participatory forest restoration

Sub-component 1.1 : Improving knowledge on the impacts of prolonged drought/climate change/management practices/forest landscapes

- ▶ Updating the system of evaluation and recurrent monitoring of the state of forest and pastoral ecosystems to support the revision of management plans
- ▶ Elaboration of a participatory action plan for management and restoration with a proposed incentive system for the forest population to preserve resources.

Sub-component 1.2 : Review of the process of elaboration of management plans for the integration of climate change impacts, participatory approach and restoration

- ▶ Upgrading and consultation of public and private stakeholders for the integration of the landscape, restoration and climate change approach in management plans (capacity building)
- ▶ Production and revision of procedural guides that include/should include integrated and participatory restoration concepts
- ▶ Updating of management plans with integrated and participatory restoration and adaptive forestry activities.

Sub-component 1.3 : Organization of the forest population

- ▶ Establishment of Agricultural Development Groupings (ADGs) and cooperatives, specifically of women, to improve the organization of the forest population and facilitate their participation in the co-management of natural resources and capacity building of ADGs
- ▶ Capacity building on the creation/improvement of value chains.
- ▶ Capacity building of the population on monitoring the state of the forests and reporting pest attacks, crimes, fires...

Component 2 : Integrated and participatory restoration of degraded forest ecosystems

- ▶ Implementation of participatory action plans for the management and restoration of forest

landscapes following pest attacks (bark beetles), fires, and prolonged droughts:

- ▶ Reconstitution of the seed stock of autochthonous multipurpose species conducted in nurseries
- ▶ Treatment (cutting, delimiting, phytosanitary products, etc.) of areas impacted by extreme events (biotic and abiotic): soil, biodiversity, resilience to climate change
- ▶ Restoration of degraded ecosystems

Component 3 : Monitoring and evaluation, communication and dissemination of results

Sub-component 3.1 : Monitoring and evaluation

- ▶ Establishment of an early warning and crisis management system for extreme events (drought, pests, fires, etc.)
- ▶ Setting up a system for monitoring activities and evaluating results

Sub-component 3.2 : Communication and outreach

- ▶ Establishment of a management system and dissemination of the knowledge generated
- ▶ Raising awareness of the population on the impacts of climate change, on restoration, etc.
- ▶ Scaling up
- ▶ Dissemination of results at national and international levels.

Component 4 : Project coordination

STRATEGIC ALIGNMENT

The proposed project is anchored in various national strategies such as the updated National Determined Contribution (2021), the National Strategy for Carbon Neutral and Climate Change Resilient Development by 2050, the National Biodiversity Strategy and Action Plan 2018-2030, Tunisia's National Action Plan 2022-2030 for Family Farming and the Sustainable Development Goals, as well as in the National Strategy for the Development and Sustainable Management of Forests and Lands 2015 - 2024 (SNDGDFP).

The project also fits in the framework of objective 5 (mitigation component), and objective 5 (adaptation component) of the partnership plan, developed in the framework of the NDC Partnership alliance.

This project is also in line with the strategy and actions of the United Nations Decade for Ecosystem Restoration (2021-2030) and global restoration targets, such as the Bonn Challenge, and regional targets, such as the Agadir Commitment.

This project is a continuation of the emergency actions currently being carried out in the Kasserine Forest,

EXPECTED OUTCOMES

▶ Environmental

- Adaptation of forests to climate change ensured;
- Biodiversity enriched;
- Carbon sequestration maintained;
- Erosion reduced, runoff controlled;
- Ecosystem services maintained.

▶ Socio-economic

- Forest production, especially of non-timber forest products, maintained;
- Forest population sensitized and standard of living improved.

▶ Techniques

- Improved technical knowledge ;
- Sustainable participatory management developed and implemented;
- Integration of climate risks into forest planning and management processes ensured;
- Forest monitoring system established;
- Research areas adapted to the realities on the ground;
- The concept of climate change in adaptive forestry and forest ecosystem management is integrated.
- Restoration of 20 000 ha of cork oak in Jendouba and 50 000 ha of Aleppo pine in Kasserine.

▶ Institutional

- Improved forest management adapted to climate change;
- Trained forestry technicians;
- NGOs, population and private sector organized, trained and engaged.



with the support of FAO and an Emergency Technical Cooperation Program that should support immediate actions on the ground in 2023.

The forestry services ensure that annual national intervention programs are carried out, according to the available budget, to participate in the implementation of various development activities (reforestation, pastoral plantations, regeneration, production of seedlings in nurseries) and conservation activities (stand management, opening and maintenance of forest tracks and firebreaks, management of protected areas, etc.).

This project reinforces the State's effort in the development of the sector and the conservation and sustainability of natural resources as well as the global effort of carbon sequestration.

PROJECT IMPLEMENTATION PLAN

The project will be implemented by the General Directorate of Forestry and the regional forestry services of the Regional Commissariats for Agricultural Development (CRDA) of Kasserine and Jendouba.

Research and support activities for disease detection and control methods will be carried out by the National Institute of Research in Rural Engineering, Water and Forests (INRGREF).

The project will be implemented in two phases:

- ▶ A preparatory phase that requires technical support to prepare the detailed project note and the different studies (technical feasibility study, financial feasibility study, cost-benefit analysis, environmental and social impact assessment and relocation action plan (activities in line with IFC performance standards), climate vulnerability assessment, gender analysis/gender impact assessment, ...) and the integrated and participatory development program or plan in consultation with the local population and stakeholders.
- ▶ An execution and implementation phase including the different project activities (technical and financial procurement files, procurement of materials, technical and financial monitoring, evaluation, reporting,).

PROJECT COST

The estimated cost of the project is about TD 360 M

- ▶ Feasibility studies: TD 0.5 M
- ▶ Creation of an enabling environment for integrated and participatory forest restoration: TD 1 M
- ▶ Integrated and participatory restoration of degraded forest ecosystems: TD 350 M
- ▶ Monitoring and evaluation, communication and dissemination: TD 2 M
- ▶ Project coordination: TD 5 Mn
- ▶ State contribution: about 10% of the project amount in the form of (remuneration of technical executives, engineers and technicians, travel expenses, monitoring of project activities, fuel, etc.)



5

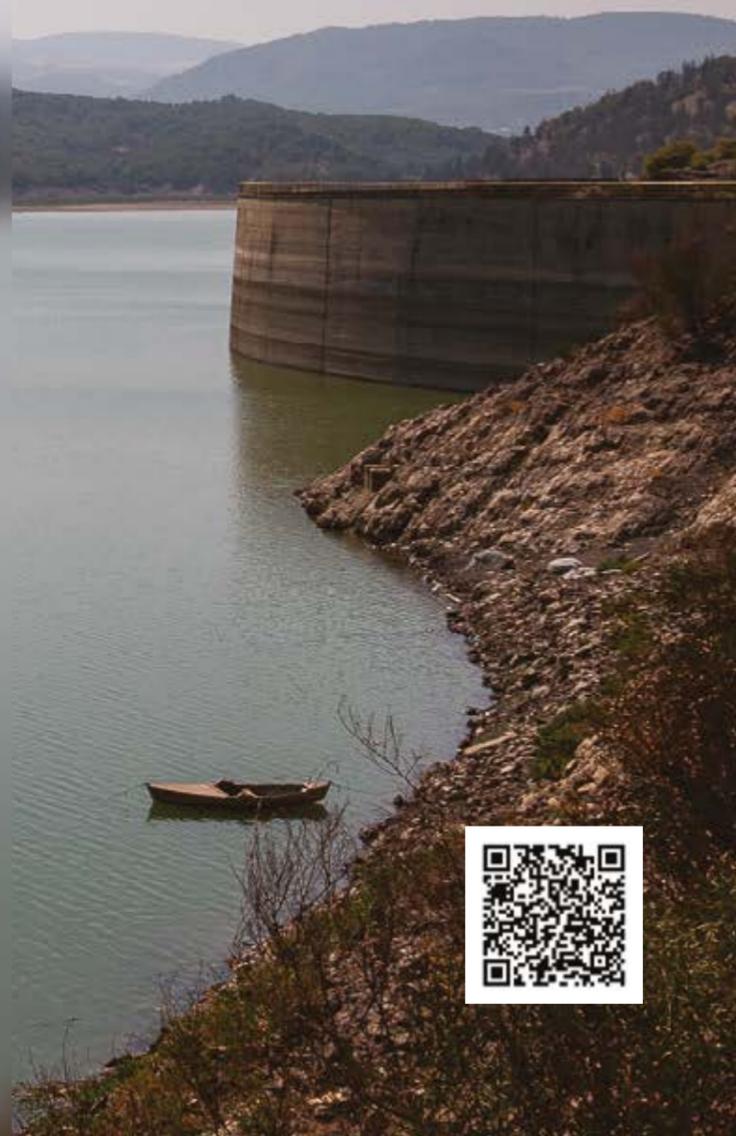
WATER, FOOD AND ENERGY

NEXUS TO ADDRESS CLIMATE CHANGE IMPACTS IN CENTRAL TUNISIA



This project contributes to improving the sequestration of 16.8k TCO₂/year.

The project aims to ensure a transition to more agricultural production systems resilient to the impacts of change climate while improving living conditions of local populations resource users.



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Sector	Agriculture/Food Water, Energy
Status	CN Submitted to GCF on the 21 August, 2019 CN reviewed by GCF on 30 August, 2019
Cost	USD 73.5 Million
Duration	05 years
Focus	Towards a low-carbon and climate-resilient agricultural and livelihoods
Necessary support	Identifying potential partner for the co-financing Preparing the FP and the related annexes

CLIMATE VULNERABILITIES AND IMPACTS, GHG EMISSIONS PROFILE, AND MITIGATION AND ADAPTATION NEEDS THAT THE PROJECT IS ENVISAGED TO ADDRESS

Tunisia, a Southern-Mediterranean country, is experiencing climate-related changes at an alarming pace and intensity. The country is in a region where climate impacts are among the highest in the world and therefore classified as a global hotspot (Giorgi and all 2008). Tunisia is a semi-arid to arid country, which makes it extremely sensitive to climate change impacts.

Recent trends show that Tunisia is becoming hotter and drier with more frequent and intense extreme events (droughts and heavy rainfall). As highlighted by The National Institute of Meteorology (INM), over the period of 1951-2010 mean temperature increased by 2.1°C as well as we recorded a decrease in precipitation in the central region and increase in the inter-decadal variability. Trends show that "very hot days" increased by an average of 7 days and 10 events per decade, respectively.

The intensity of droughts and its geographic spread northward have worsened. Consequently, some regions in central Tunisia are shifting from an arid climate (in 1971-1980) to a hyper-arid one (2001-2010).

PROJECT OBJECTIVE

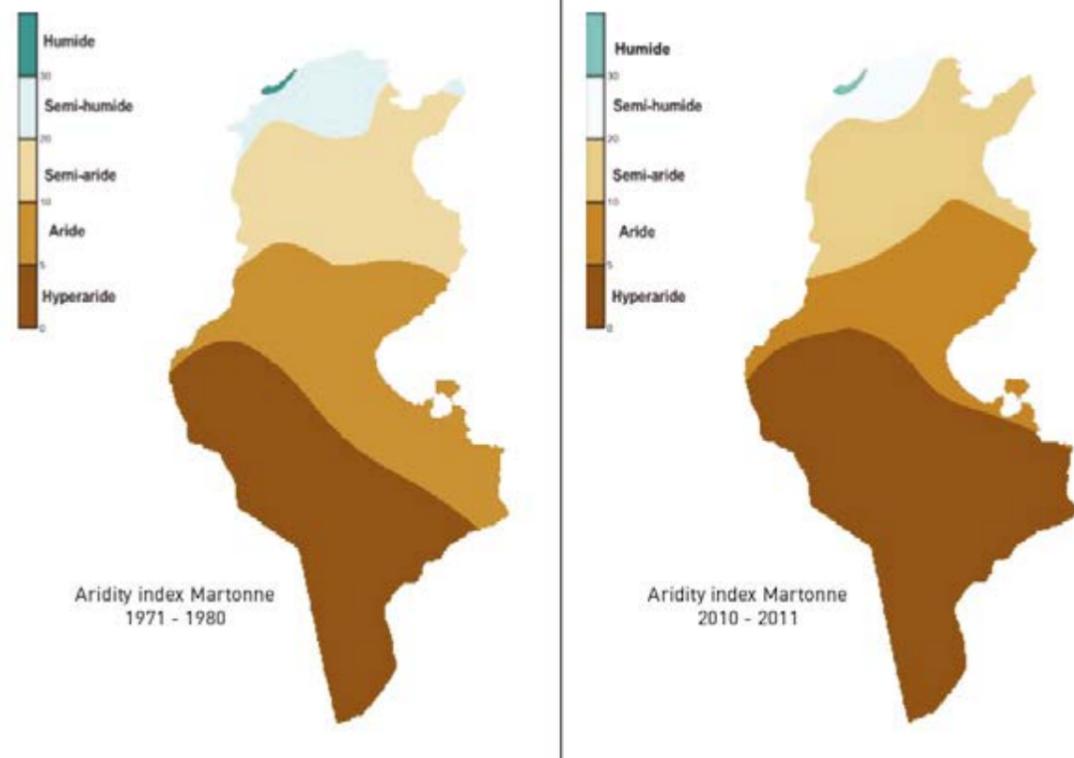
Climate change is a complex and cross-cutting problem affecting significantly central Tunisia. A projected reduction of annual precipitations by 20 to 30% by 2100 and the increase of occurrence of dry years by 25-30% will only increase the socio-economic challenges and resources scarcity in Central Tunisia.

The project aims healthy ecosystems and rural communities with sustainable and diversified livelihoods practices that are resilient to climate changes for the next 30 years. This is through instrumentation of integrated and transformative systems and Water-Energy-Food nexus approach to improve sustainability adaptation capability to CC for more than 124,000 farmers, hence contribute to attain the SDGs 1, 2, 3, 6, 7, and 13. The project will be implemented through the Ministry of Agriculture as Executing Entity, supported by the AE and other national partners.

ENVIRONMENTAL BENEFITS

By investing in participatory and long-term planning, institutional capacity building and behavioral and technical change for the maintenance of dryland agro-ecosystem functions and services, the project will contribute in reducing the vulnerability and enhancing the sustainability of natural resources, local livelihoods and management systems in the face of climate and other drivers of change.

Major environmental benefits include, among others: (i) improved rangeland vegetative coverage, functional capacity and biodiversity values; (ii) improved soil quality, fertility and productivity by reducing erosion processes, increasing organic matter, nutrient supply and soil moisture, improving irrigation methods and supporting climate-resilient farming techniques such as adequate tillage management, cropping rotation, integrated crop/livestock management and conservation agriculture in rainfed systems; (iii) reduced pressures on groundwater resources through increased rain water infiltration rate, restored aquifer replenishment functions, increased water use efficiency and shift towards alternative source of water for irrigation, (iv) overall improvement of food and water provisioning service of forests, steppes and agro-systems.



Change in aridity index 1971-1980 versus 2010-2011 (INM, 2018)

Furthermore, the RICCAR study (2017) for the common period 1970–2002 indicated strong trends towards a decrease in precipitation and in the duration of precipitation episodes (length of wet spells), coupled to increases in the ratio of dry days and the duration of dry spells. The study highlighted also that climate variability and change will continue to have adverse impacts on Tunisia.

The INM, using the mean of 16 EURO-CORDEX models and 12.5 km resolution under the IPCC's RCP 4.5 and 8.5 climate scenarios, shows continuous increase in mean temperature and decrease in mean precipitation beyond this century. In fact, the projections indicated an increase of mean temperature between 1.3 to 2.3°C by 2050 and 2.4 to 5°C by 2100, (RCP 4.5 and 8.5 scenarios). In addition, the annual precipitations are projected to decrease on average by 5 to 15% by 2050 and between 20 and 30% in 2100 and under the same scenarios. Seasonal patterns of precipitation will also undergo severe downward changes of 20-25% of winter and spring total precipitation in the Central and Eastern parts of the country by 2050. Furthermore, evaporation rates could increase within a range of 6.7% and 10.6% by 2030 (GIZ, 2007) associated with higher inter- and intra-annual variability. Consequent to these changes, Tunisia is likely to undergo a decrease in its average annual rainfall and an increase in aridity with further widening of its arid zones by the end of the century (Gao and Giorgi, 2008).

The inland areas of Central and Southern Tunisia are the most vulnerable to climate change-induced acidification compared to the coastal areas.

Currently, about 94% of the country is at risk of desertification mainly caused by CC. This is among the highest rates in the Middle East and North Africa (ITES, 2017). Adding to this is the fact that Tunisia is one of the most water stressed nations in the world, with less than 500 m³/person (ITES, 2017). Under the Business-As-Usual Scenario, the whole country will become at "water extremely high risk" by 2040; from the current ranking of "water high risk" (WRI Aqueduct 2014). Hence, water reserves, food production and livelihood systems are under considerable strain and pose imminent threats to sustainable development.

Agriculture contributed to 10% of national Gross Domestic Product GDP (2016) and employed 13.6 % of the work force in 2017 (12% are women). The impact of climate change in the agriculture sector will be significant since 33 % of the country's population live in rural areas (e.g., central Tunisia) where socio-economic development is predominantly supported by agricultural activities (World Bank, 2016). Even though the agricultural sector's contribution to the Tunisian GDP has declined, the sector continues to play an essential role in cushioning major economic and social crises in the country. Indeed, after the Arab Spring revolution of 2011, the agriculture sector has contributed the most

to the GDP growth and allowed the Tunisian economy to compensate lower contributions from other sectors (ITES, 2017). The performance of the agriculture subsectors led the recorded growth of the economy in the 1st semester of 2018.

According to the latest available national inventory of GHG emissions, of 2012, gross GHG emissions (Emissions are considered as gross when they are expressed without taking into account the carbon uptake by forest and agro-ecosystems) had reached 46.6 million tCO₂e. Tunisia's contribution to the global GHG was estimated to be 0.08%, with net estimated at 32.6 million tCO₂e in 2012; about 3 tCO₂e net per capita. Over the 1994-2012 period, national gross emissions increased from 29 million tCO₂e to 46.6 MtCO₂e, which represented an average annual growth rate of 2.7%. By source of emission, the share of energy increased from 55% to 58%, and that of waste from 4% to 6%. These increases have been at the expense of Agriculture, Forests and Other Land Uses (AFOLU) that have dropped from 28% to 24%. AFOLU is a net absorber of GHG in Tunisia with a net emission of -2.9 MtCO₂e, according to the last GHG inventory of 2012. The share of GHG emissions due to energy combustion in the agriculture sector is very low, around 1.0 MtCO₂ out of a total of 23.9 MtCO₂e.

Although Tunisia is amongst the countries that contributed the least to global carbon emissions, with 3 tons of CO₂e (tCO₂e) per capita in 2012, it has always been actively committed to a low-carbon development policy. Consequently, the carbon intensity (emissions per unit of GDP) decreased from 0.8 tCO₂e/1000 TD of GDP in 1994 to a mere 0.6 tCO₂e in 2012, an overall decrease of the carbon intensity of 25% in less than 20 years. Tunisia has been at the forefront of commitments to the international climate process (Kyoto Protocol, NDC, Paris Agreement ratification, BUR 1 and 2 submission, NAMAs, Third National Communication, etc.).

PROJECT DESCRIPTION

Through implementation of FAO approach to the Water-Energy-Food Nexus and integrated landscape management (Scherr et al. Agriculture & Food Security, 2012), the project will consider the interactions, synergies, harmonization, and trade-offs between water, energy, and food for management of resources. Interventions will promote climate smart agriculture, water management, and sustainable energy designed to achieve production of food and ensure food security while adapting to CC and achieving conservation of biodiversity and ecosystem services.

SOCIAL BENEFITS

Local communities (including farmers, Community Based Organizations (CBOs), such as GDAs, Youth and Women Associations, Cooperatives, etc.) will be better equipped and empowered to design and implement practices and technologies that are at the same time climate-compatible and protective of the range of land and water services. The capacity building will include adaptation training, tools and techniques, involvement in stakeholder led participatory adaptation planning, increased participation in local environmental governance processes. This will result in greater social resilience, higher livelihood and food security as well as reduced exposure to climate-related disaster risks. Combined with more sustainable and diversified job opportunities and revenues thanks notably to the enhanced access to financial resources and capital, the project will contribute to improve the population's socio-economic safety and indirectly their health and well-being.

The project will generate strong benefits for the most marginalized groups (i.e. youth, women and the rural poor) through better access to sustainable livelihoods and assets, enhanced role in local planning and management of natural resources, better recognition of their needs in community and natural resources development decisions and ultimately, greater resilience to climate shocks.

ECONOMIC BENEFITS

The project will contribute to employment and income for families, market traders, and agro-business through enhanced ecosystems goods and services. In addition to resilience to CC variation and crises, the indirect positive impacts are expected to include social-economic aspects. In fact, the project will result in an overall improvement of wellbeing, employment and access to market while enhancing resilience of local market through diversification induced through Rural Income Generating Activities.

It will reverse the steady trend of migration from the region. The Financial Internal Rate of Return (FIRR) will be calculated based on agricultural produce, milk and meat from Livestock, which will be estimated for the project area. The carbon sequestration economic value will be calculated in detail at the next stage of the process.

Project interventions will target highly vulnerable districts (Imada) of 4 governorates amongst the most climate-sensitive in Tunisia: Kairouan, Sidi Bouzid, Kasserine and Gafsa. Moreover, these governorates, especially Kasserine, Kairouan and Sidi Bouzid, are ranked at the bottom of the regional development indicators: the lowest wealth, employment, health, justice and equity indexes (Comparative study in terms of regional development of Tunisia, INS, 2012). 123,924 individuals will benefit directly from the project (51% are women) and 1,777,045 other individuals will benefit indirectly.

The nexus approach will be a know-how/solution to address CC challenges in Central Tunisia for the next 30 years, especially precipitation reduction, droughts, land degradation, desertification, lack of non-clean energy. Hence, the nexus project is aimed to address these resources in multi-sectoral and multi-stakeholder processes.

Combining GCF funding and government co-financing, the project will address key barriers to transitioning towards a low-carbon and climate-resilient agricultural regime by use of Water-Food-Energy nexus models and investments. The project will be based on an integrated approach to address those interrelated issues (increase food production versus water efficiency and productivity, energy use versus water depletion, fossil fuel versus renewable energies) and will clearly contribute to the reduction in vulnerability by enhancing adaptive capacity and resilience for populations affected by climate change impacts on water, land and food production, with a particular focus on the most vulnerable population groups and applying a gender-sensitive approach.

The project will equip local agencies and farming communities with the institutional and technical capacities needed to better plan and adapt to CC risks and hazards to rural livelihoods. This will be done, amongst other interventions, by efficient water management practices and mobilizing additional non-conventional water resources. The project will strengthen the resilience of vulnerable smallholders to lower rainfall and freshwater resources. While, micro-financing intervention will be designed to be affordable, sustainable, and support income diversification of households, especially for young people and women. The project will also have significant impact in terms of strengthening of institutional and policy environment. Therefore, create Climate Change – Regional Coordinating Units (CC-RCUs) within CRDAs and integration CC Adaptation/CC Mitigation requirements into local agricultural zoning maps, investment plans

and regulations, it will strengthen the local CC planning frameworks and bring CC issue into the agriculture governance systems. In addition, it will introduce new regulations and criteria for scaling up and directing micro-finance towards sustainable natural resources management, renewable energy and climate-smart agriculture and water management. It will demonstrate more cost-effective climate risks management approaches in both agricultural and pastoral systems and will create the legal and financial incentives to further promote and up-scale good adaptation practices.

The degradation of land and water scarcity are the major barriers to be addressed for a better adaptation to CC. Increasing water use efficiency (adaptation measure) is one of the trade-offs to transfer savings to other sectors, namely energy, agriculture, and industry, while reducing emissions per capita. Basically, the impacts of this project can be summarized as contributing to water security, energy security, and food security which are the key sectors for economic growth and poverty reduction.

PROJECT COMPONENTS

The main goal is “healthy ecosystems and rural communities with sustainable and diversified livelihoods practices that are resilient to climate changes for the next 30 years”. The project seeks to raise population resilience and adaptation capabilities to CC through water-energy-food nexus that uses interdependencies, tensions and trade-offs between food, water and energy security, in the wider context of ecosystem change with a focus on the impact on social systems.

Outcome 1 : Policy alignment, preparedness and technical capacity building (USD4 million)

- ▶ **Output 1.1.** Institutional capacities are strengthened through the establishment of ‘Climate Change Regional Coordination Units’
- ▶ **Output 1.2.** Technical and managerial Capacities of CRDAs, GDAs (Groupement de Développement Agricole), NGOs, and other relevant entities are enhanced
- ▶ **Output 1.3.** Climate change Risks and Vulnerability tools and adaptation plans are developed for the four CRDAs

Outcome 2 : Management of Water-Food-Energy to improve resilience and reduce carbon footprint (USD35.0 Million)

- ▶ **Output 2.1.** Water-Energy-Food nexus is assessed
- ▶ **Output 2.2.** Community-based adaptation and mitigation plans are developed
- ▶ **Output 2.3.** Climate Smart Agriculture (CSA) practices are implemented.

Outcome 3 : Climate mitigation co-benefits through carbon sequestration and renewable energy use for water pumping and desalination (USD 24.5 million)

- ▶ **Output 3.1.** Carbon sequestration is enhanced, soils are restored and agricultural productivity is increased
- ▶ **Output 3.2.** Renewable energy use for water pumping and desalination is promoted

Outcome 4 : Enhanced access to Inclusive Climate Adaptation and Mitigation Microfinance Services (USD 10 million)

- ▶ **Output 4.1.** Climate Micro-financing services are developed
- ▶ **Output 4.2.** Access to finance for farmers is enhanced and small-medium enterprises are created through MFS

ALIGNMENT WITH THE COUNTRY'S NATIONAL PRIORITIES AND ITS FULL OWNERSHIP OF THE CONCEPT

Adaptation component

Tunisia is among the few developing countries that has made clear quantified commitments in terms of climate change adaptation in its NDC. The investment required to reach its CC target is about \$ 2 billion. Particularly, the adaptation of the agriculture sector, ecosystems and water resources are among the priorities mentioned in the NDC. The national climate change strategy developed by the Ministry of the Environment with the support of the German Cooperation (GIZ) in 2012 had already placed the agriculture and water sectors at the top of the national priorities. In addition, the agricultural sector was among the first sectors to be subject of a strategy of adaptation to CC effects in 2005, developed by the Ministry of Agriculture with the support of GIZ.

Finally, the work on the development of a National Adaptation Plan is being launched by the Ministry of Environment and will integrate all key sectors, including agriculture, water and ecosystems. Furthermore, The MoA and MoE had launched recently, with the support of FAO as a delivery partner, the preparation of the National Adaptation Plan for food security and the agriculture adaptation priorities.

Mitigation component

The project is in line with the country's national priorities. The project will contribute to reduce emissions through alternative low-carbon (renewable energy) water mobilization and good cropping practices (Climate Smart Agriculture) as well as contribute to carbon sequestration through

GENDER-SENSITIVE DEVELOPMENT IMPACT

Tunisian women in rural areas have important workloads and responsibilities in assuring household maintenance but also agricultural activities in farming communities. The bulk of the labor force in the agricultural sector in Tunisia is increasingly made up of women. The number of female employees in agriculture rose from 24 % in 2003 to 33 % in 2013. This change is partly due to the availability of a cheap female workforce for whom agriculture remains the only activity possible in semi-arid and arid regions of Tunisia. Despite this figure, women generally do not participate in the decision-making process. Therefore, by addressing agriculture the project will bring a direct relief and benefit to 63 212 women (direct beneficiaries) and youth whose participation in decision-making, job opportunities, revenues, health and well-being will be directly improved because of the initiative. In addition, the gender aspect is well factored into the proposal approach. Indeed, the project will use adequate gender sensitive consultation methods that will support women inclusion and empowerment in all aspects of the project's development and implementation.

forestation and pasture management in addition to tree planting. In fact, Tunisia's commitment through its NDC aims to decrease carbon intensity from 0.541 tCO₂e / 1000 TD of GDP in 2010 to 0.320 tCO₂e / 1000 TD in 2030; a reduction of 41%. The Government of Tunisia's (GoT) current conservation strategy for natural resources relies on combating deforestation, enhancing reforestation, and managing of marginal lands and natural rangelands. The NAMA concept, supported by the GIZ showed mitigation potential of the agriculture sector through land use, enteric fermentation, manure management, reforestation, arboreal plantations and the use of renewable energy for irrigation.

Regarding carbon sequestration, Tunisia has initiated the Forest Investment Plan (FIP) with the World Bank and other partners such as FAO to enhance integrated landscape management. The initial target is to include 100,000 ha in the northern and central regions. The tree plantations, especially olive trees, will be used to restore degraded lands using the comparative advantage of Tunisia in the olive oil sector (target 25,000 ha).

The proposed project will contribute directly to the mitigation strategy in the agriculture and forest sector in Tunisia, by increasing the GHG absorption of the sector through the olive and tree plantations and avoiding emission by using solar PV for pumping and water desalination.

The GHG sequestration potential of the project will be assessed during the FP development Stage.

POTENTIAL COST

Outcomes	Indicative cost (USD)	GCF financing		Co-financing		Name of Institutions
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	
Outcome 1	4	4 M	Grant	TBD	TBD	GoT
Outcome 2	35 M	13 M	Grant	22 M	TBD	GoT
Outcome 3	24.5 M	20 M	Grant	4.5 M	TBD	GoT
Outcome 4	10 M			10 M	TBD	GoT
Indicative total cost(USD)	73.5 M	37.0 M		36.5 M		

POTENTIAL RISKS

- ▶ Insufficient institutional support and coordination between executing institutions
- ▶ Lack of interest and commitment among farmers and local communities to adopt new farming and landscape management measures for adaptation
- ▶ Suboptimal design or failure of the technologies and infrastructures developed by the project
- ▶ Farmers may be reluctant to use new technologies due to their lack of familiarity with them
- ▶ Population suffers from strong financial constraints with limited investment capacities



6 ENSURING BETTER WATER SECURITY, IN A CONTEXT OF SCARCITY AND INCREASING IMPACT OF CLIMATE CHANGE IN TUNISIA

TRANSFER OF SURPLUS WATER FROM THE NORTH TO THE CENTRE OF TUNISIA IN THE CONTEXT OF CLIMATE CHANGE



The project would result in a reduction of 65,000 tCO₂ per year, mainly through the installation of small hydro and floating PV.

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Sector	Water resources
Status	Funding granted for 2 program components
Cost	TD 2533 M (USD 826 M)
Duration	08 Years
Required support	TD 1597 M (USD 526 M)

CONTEXTE GENERAL

Climate projections indicate that water resources in Tunisia will be particularly exposed to: i) increased demand for water and conflicts of use; ii) overexploitation of groundwater; iii) declining water stocks, and iv) degradation of water quality including salinization of coastal aquifers.

The total loss of water resources from these aquifers in Tunisia by 2050 has been estimated at about 220 million m³ per year, which represents about 75% of the total coastal water resources.

The capacity of the water sector to adapt to these impacts is considered moderate to low.

The most vulnerable groups in rural areas are women farmers and children, and small-scale farmers.

The most vulnerable groups in urban and peri-urban areas are the poor, the unemployed, and the elderly.

The program for the Transfer of Surplus Water from the North to the Centre of Tunisia is in line with the challenges presented in CDN, namely the protection of groundwater against overexploitation and the respect of ecological (water) needs in an integrated and sustainable vision.

The program allows the implementation of structural and non-structural means for the development of the surplus water resources of the Northern hydraulic system and the improvement of the hydraulic situation of the storage works in the Centre of Tunisia by transferring the surplus water from the North to the Centre in order to minimize the spillages from the Northern dams, particularly in wet periods, and to increase the storage of the overall system.

The Ministry of Agriculture, Hydraulic Resources and Fisheries «MARHP» through the General Directorate

of Dams and Large Hydraulic Works «DGBGTH» has initiated a study to determine the quantities of surplus water that can be transferred to the center (Sidi-Saad Dam via the Nebhana Dam) and to elaborate the different transfer axes to meet the needs for drinking water and irrigation water:

Phase 1 : Analysis of the starting situation (2015) and preliminary study of the project focused on hydrological aspects, particularly, with analysis of the water needs and a water balance study for the current situation and for the horizon 2050.

Phase 2a - APS Study : Diagnosis of the existing transfer system, Establishment of four transfer variants from the North to the Centre, Simulation for the different scenarios (quantities of transferable water and necessary developments).

Study of the transfer variants and multi-criteria analysis for the comparison of the variants.

Phase 2b - DPA Study : Detailed study of the selected transfer variant and non-return measures.

PROGRAM DESCRIPTION

The program aims to exploit periods of abundance (extreme hydrological situations: floods) to transfer surplus water from the North of Tunisia to the Centre.

This new approach is based on the installation of transfer infrastructure with an optimised capacity in order to transfer surplus water, discharged into the sea, for the regions of Greater Tunis and the Sahel through the supply of the Saida basin and the Kelaa Kebira basin intended for drinking water and also the recharging of the Kairouan water table.

STRATEGIC ALIGNMENT

The transfer program is aligned with the following national policies:

- ▶ Tunisia's NDC aiming for more ambitious adaptation and resilience to climate change impacts through the implementation of adaptation projects in the water resources sector
- ▶ Partnership Plan for the Implementation of Tunisia's Nationally Determined Contribution (NDC).

The program is also in line with the objectives of the WATER 2050 strategy.

PROJECT IMPLEMENTATION PLAN

The transfer program is subdivided into five projects. The projects will be implemented in phases depending

on the maturity of the project and the availability of the corresponding funding.

The provisional schedule is as follows:

- ▶ Project 1 : 3 Years : 2024-2027
- ▶ Project 4 : 4 Years : 2024-2028
- ▶ Project 2 : 5 Years : 2024-2029
- ▶ Project 3 : 5 Years : 2025-2030
- ▶ Project 5 : 6 Years : 2026-2032

The two projects 1 and 4 will start in mid-2024, as funding is granted.

In order to ensure the timely implementation of the projects, a project management unit will be established by government decision and will remain attached to the Ministry and under the authority of the Director General of Dams and Large Hydraulic Works.

Project Management Unit (PMU): The DGBGTH will implement the project through the establishment of a project management unit which will work in close collaboration with the various stakeholders and in cooperation with the donors.

The mission of the PMU is to :

- ▶ Ensure compliance with the standards in force for the selection of contract holders.
- ▶ Ensure the implementation of the different operations within the project,
- ▶ Coordinate and supervise the preparation and implementation of the different phases of the project to ensure that they are in line with the objectives set,
- ▶ Coordination between the different parties involved in the project
- ▶ Supervise the technical control and field monitoring of the different stages of project implementation and take appropriate decisions in a timely manner in order to keep the project on schedule.
- ▶ In general, the execution of all tasks within the framework of the project and entrusted to it by the supervisory authority.

PROJECT STATUS

The program to transfer surplus water from the North to the center is divided into five (05) projects :

Project 1 : No-regert measures of the existing transfer system (SIDI EL BARRAK - BEJAOUA).

Project 2 : Construction of MELAH AMONT dam and gravity transfer to SEJNENE.

GENERAL OBJECTIVE

Improving the living conditions of the population by creating favorable conditions for a sustainable, interregional and integrated water resources management, through the provision of storage and transfer infrastructures for a more equitable distribution of the resource.

SPECIFIC OBJECTIVES

- ▶ **Specific objective 1** : Annual gravity transfer of 60 Mm³ of water from the MELAH AMONT dam to SEJNENE allowing to save a transfer energy of 23,4 GWh/year.
- ▶ **Specific objective 2** : Mobilization of 80 Mm³ of surface water by the creation of the MELAH AMONT dam allowing to reduce the losses by spillage of the SIDI EL BARRAK dam.
- ▶ **Specific objective 3** : Mobilization of 160 Mm³ of additional surface water for the Greater Tunis area by increasing the transfer capacity.
- ▶ **Specific objective 4** : Reduction of CO₂ emissions from the transfer system through the installation of floating photovoltaic panels on the SIDI EL BARRAK, SEJNENE and NEBHANA dams
- ▶ **Specific objective 5** : Mobilization of 80 Mm³ of additional water for central Tunisia (Sidi Saad dam).

RATIONAL

The project would result in a reduction of 65,000 tCO₂ per year, mainly through the installation of small hydro and floating PV.

STAKEHOLDERS

Central administrations dealing with the water sector, relevant governorates, regional directorates, municipalities and associations.



Sub-Comp : Construction of MELAH AMONT dam
 Sub-Comp : Gravity transfer from MELAH AMONT to SEJNENE

Project 3 : Increase of the transfer capacities of SIDI EL BARRAK dam in BEJAOUA

Project 4 : Transfer from BEJAOUA to NEBHANA dam with a capacity of 4 m³/s

Project 5 : Transfer from NEBHANA dam to SIDI SAAD with a capacity of 4 m³/s

Project 4 is financed by a KfW grant of EUR 74.4 M and a European Union grant of EUR 39.85 M.

The MARHP is currently seeking funding for :

- ▶ In first order of the project 3 and the intention to start both projects 3 and 4 simultaneously and will seek funding of TD 760 M (TD 352 M from the Green Climate Fund and TD 408 M from other Technical and Financial Partners).
- ▶ In the second order, project 2 will require financing of TD 383 M from technical and financial partners.
- ▶ And in third order the project 5 will require financing of TD 454 M from technical and financial partners.

Studies are currently underway in the preliminary design phase, as well as the environmental and social impact assessment and the relocation action plan (activities in line with IFC performance standards).

PROGRAM COST

The overall cost of the program is TD 2533 M (\$826 % M), broken down as follows :

Transfer program	Support status	Amount in TD M
Project 1	Financing granted	104
Project 2	Search for funding	465
Project 3	Search for funding	918
Project 4	Funding granted	493
Project 5	Search for funding	553
Total amount needed for the program:		2533
Self-funding		82
		(project2)
		158
		(project3)
		99
Financing needs (MDT)		1597

INITIAL FINANCING OPTIONS

Tunisia and through the support of KfW has started the feasibility study of the project since 2015 by mobilizing a grant of three (03) million Euro in the framework of the Tunisian-German technical cooperation.

The detailed studies underway include all environmental and social aspects including gender. In 2022, the KfW

granted a grant of EUR 74.4 million as well as financial support of EUR 39.85 million from the European Union for the implementation of project 4.

As a next step and in coordination with KfW, Tunisia will apply to the Green Fund for the financing of project 3, which is the most strategically urgent.

POTENTIAL RISKS & MITIGATION

The major potential risk for the implementation of the program lies in the opposition of local residents to the compensation, so the population affected by the resettlement must be adequately compensated and sensitized to avoid demonstrations against the construction measures of the program (laying of pipes and construction of pumping stations).

For this purpose, the DGBGTH will implement a whole procedure of sensitization of the target group, the affected communities (especially along the route).

Indeed, the respect of an Environmental and Social Commitment Plan (ESCP) based on international standards, including the implementation of adequate compensation measures, is part of the program evaluation document signed by MEP, KfW and MARPH represented by DGBGTH.

PRIVATE SECTOR INVESTMENT INCENTIVES

The financing of the program does not include Public Private Partnership (PPP) investment measures.

EXPECTED OUTCOMES

- ▶ **Outcome 1 :** Reduction of water losses due to discharge into the sea through the creation of the Malah Upstream Dam.
- ▶ **Outcome 2 :** Saving of energy consumption of the transfer system by favoring the gravity transfer of the MELAH AMONT dam.
- ▶ **Outcome 3 :** The Sidi El Barrak pumping station will provide an additional transfer capacity of 4 m³/s to the SEJNENE canal.
- ▶ **Outcome 4 :** Production of 40.29GWh/year of renewable energy through the installation of floating photovoltaic panels in the Sidi El Barrak dam reservoir.
- ▶ **Outcome 5 :** Reduction of energy costs for the transfer from SIDI EL BARRAK to SEJNENE.
- ▶ **Outcome 6 :** The SEJNENE dam will provide an additional transfer capacity of 10 m³/s to Bejaoua.
- ▶ **Outcome 7 :** Production of 20.43 GWh/year of renewable energy through the installation of floating photovoltaic panels in the Joumine and Sejnane dams.
- ▶ **Outcome 8 :** Reduction of energy costs for the transfer from SEJNENE to BEJAOUA.
- ▶ **Outcome 9 :** The system will ensure a transfer capacity of 4 m³/s to the Nebhana dam.
- ▶ **Outcome 10 :** The NEBHANA dam will ensure a transfer capacity of 4 m³/s to the Sidi Saad dam.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

The transfer ensures a strategic function, through the valorization of the water discharged from the dams, by means of a better distribution between the different regions of the country.

This will improve the quality of the water in order to reduce its salinity, which is harmful for irrigation and unbearable for drinking water. The program will also ensure better integrated management of groundwater and surface water through this substitution possibility.

An environmental and social study is being prepared.



7 BETTER PREPAREDNESS OF TUNISIA FOR CLIMATE EXTREMES THROUGH AN URBAN INFRASTRUCTURE BETTER ADAPTED TO CLIMATE CHANGE

PROTECTION OF THE WESTERN AND SOUTHERN AREAS OF GREATER TUNIS AND THE CITY OF BEJA AGAINST FLOODS

REPUBLIQUE TUNISIENNE



وزارة التجهيز والسكان
MINISTÈRE DE L'ÉQUIPEMENT ET DE L'HABITAT
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The project would : strengthen the adaptive capacities of urban environments to climate change impacts and the frequency and intensity of climatic phenomena and increase the resilience of infrastructure to flooding.

Sector	Protection against flooding
Status	Not started
Cost	TD 255 M (USD 83 M)
Duration	03 Years
Focus	Infrastructure Environment Resilience
Required support	Financial and technical support

GENERAL CONTEXT

Tunisia is highly exposed to a wide range of natural hazards, such as floods, drought, landslides, forest fires, silting and snowstorms. Although droughts were the most frequently recorded event (54% of disasters recorded between 1957 and 2018), floods were responsible for the greatest economic losses (around 60% of total losses recorded during the same period) and caused the highest number of victims, with almost 560,000 people killed and affected. The latest World Bank National Disaster Risk Profile estimates that floods alone cause an annual average loss of \$40 million (or 0.1% of Tunisia's GDP in 2018). The phenomena that cause these risks, including climate change, population growth, changes in land use and urbanization, increase the severity and frequency of these events.

The Greater Tunis area (Governorates of Tunis, Ariana, Ben Arous and Manouba), which currently has a population of about 2.9 million, is subject to frequent intense stormwater runoff events that have caused sometimes severe flooding.

As an example, the exceptional hydrological events of September 2003 generated serious floods in the whole of Greater Tunis known for its dense popular districts. Indeed, during this month, 460 mm of rainfall was recorded, with two peaks: 182 mm on the 17th/18th and 101 mm on the 24th (the average annual rainfall in Greater Tunis is 500 mm).

These rainy events generated floods causing the loss of human lives, the destruction of infrastructures, an asphyxiation of the Agglomeration during several days from which few arteries and districts escaped, an inconvenience, even a complete blockage of the traffic which lasted sometimes several consecutive

days, and the isolation of certain sensitive zones which were stricken during several weeks. The damage was evaluated at TND 600 million (2005 estimate).

The protection of cities against floods represents one of the greatest challenges facing Tunisia due to climate change and the expansion of urban areas, especially since infrastructure is an essential means of protecting cities against floods and channeling rainwater, the flood protection system is the guarantor of the continuity and sustainability of all components of the urban environment.

To this end, the Ministry of Equipment and Housing has initiated the elaboration of a strategic study with a global cost of 12 MDT which imposes a new approach in terms of prevention and management of flood risks on the whole Tunisian territory by 2050 in order to ensure the coherence of the actions carried out on the territory and to set up systems of vigilance and prevention against this recurring phenomenon.

Also, the Ministry continues to implement its prioritised project implementation plan. And in order to continue its efforts to protect the affected populations, the Western and Southern areas of Greater Tunis and Beja are selected as priorities for funding.

CHOICE OF INTERVENTION AREAS

The project will provide flood protection in the following areas:

- ▶ Greater Tunis West Zone: Douar Hicher, Oued Ellil, Manouba, El Agba, El Hrairia, Zahrouni, Sidi Hcine and Sejoumi.
- ▶ Greater Tunis South Zone: Hammam Chott, Borj Cedria, Bou M'hel – El Bassatine, Ben Arous and Megrine.
- ▶ The city of Béja

These areas are the most affected by flooding and are known for their dense and popular housing. During rainfall events, all property is damaged by the flow of water. Besides the industrial and commercial infrastructure, the transport infrastructure in these areas is also vulnerable and all economic activities are impacted.

The following figures illustrate the flood zones in the Ben Arous and Hammam Chott area in the southern part of Greater Tunis.



Flood zones in the Ben Arous area



Flood zones in the Hammam Chott area

PROJECT DESCRIPTION

The flood protection project is part of Tunisia's adaptation to CC and covers the western and southern areas of Greater Tunis and the city of Beja. These areas currently have a population of about 1.3 million inhabitants who are subject to frequent intense rainwater runoff which has caused sometimes severe flooding.

These areas previously dedicated to agricultural activities (wine growing, olive trees, etc.) have undergone significant urbanization over the last few decades. In addition to the sealing of soils and the increase in runoff coefficients, urbanization often leads to a clear increase in flow speeds and a reduction in response times. To meet these challenges, the Ministry of Equipment and Housing wishes to undertake the execution of the project for the protection of the western and southern areas of Greater Tunis and the city of Beja against flooding.

The composition of the project is divided into two components: i) studies and ii) development works. Concerning the first component of the project, detailed studies of this project have already been carried out. However, it is necessary to establish the following:

GENERAL OBJECTIVE

The project's objective is to improve the protection of urban areas against flooding.

SPECIFIC OBJECTIVES

1. Protecting the areas most affected by floods and which have a very intense urban density.
2. Strengthening the capacity to adapt to the risk of flooding.
3. Increasing the resilience of infrastructure in the western and southern part of Greater Tunis and the city of Beja.

RATIONAL

Public adaptation policies aim to anticipate the impacts of climate change and limit their possible damage by intervening in the factors that control their magnitude (e.g., urbanization of at-risk areas), hence the need for this type of project.

EXPECTED OUTCOMES

- ▶ Technical studies carried out
- ▶ Climate vulnerability and gender impact analysis study carried out
- ▶ Financial scheme identified
- ▶ DAO prepared
- ▶ Flood risk reduction by 1.3 million inhabitants.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

- ▶ The project would: strengthen the adaptive capacities of urban environments to climate change impacts and the frequency and intensity of climatic phenomena and increase the resilience of infrastructure to flooding.
- ▶ Fight against population displacement.
- ▶ Protect of approximately 1300,000 inhabitants against flooding's risk.

STAKEHOLDERS

Ministry of Equipment and Housing: Directorate of Urban Hydraulics.

- ▶ A technical study integrating climate vulnerability and gender impact analysis.
- ▶ Implementation studies and tender documents.
- ▶ A financing scheme with the matching of potential investors.

Concerning the 2nd component of the project, the development works consist mainly of the following:

For the western area of Greater Tunis :

- ▶ Development of the upstream part of Oued Gueriana,
- ▶ Execution of a collector that starts downstream of the M’Nihla East catchment area and follows the RR31 to Enougra,
- ▶ Execution of a collector at the level of the RR 38 which receives and conveys the flows coming from the catchment areas located upstream of the Medjerdha Cap Bon Canal
- ▶ Execution of a collector at the level of the “Rue des Palmiers” and joined the existing collector of the RR 21,
- ▶ Implementation of the collectors of various sections.
- ▶ For the southern zone of the great Tunis
- ▶ Development of a section of Oued ELKSAB in Borj Cedria
- ▶ Development of the upstream section of Oued El Mallassine in Hammam Lif
- ▶ Development of the downstream section of Oued Maizette in the Ezzahra and Boumhal El Bassatine area
- ▶ Development of the BirKassâa- Sidi Rzig canal
- ▶ Development of the Ben Arous canal from the Avenue Abou Kacem Chebbi to the discharge in the South lake of the Grand Tunis.
- ▶ Development of Oued Essala.
- ▶ For the area of Béja
- ▶ Development of the sections of Oued Bouzegdem and its tributaries.
- ▶ Diversion of Oued Ain Delouine towards Oued El Bassim and development of these two oueds.
- ▶ Implementation of collectors of various sections.
- ▶ Development of green areas and roads.

STRATEGIC ALIGNMENT

This project is in line with the Strategy of the Urban Hydraulics Department favoring the development of measures to adapt to climate change’s impacts.

This project also meets the international commitments made by Tunisia in the framework of the Paris Agreement and the implementation of the Nationally Determined Contribution (NDC) by 2030.

The project will contribute to the achievement of these objectives by strengthening the adaptation capacities of urban environments to the impacts of climate change and to the frequency and intensity of extreme climatic phenomena, and by increasing the resilience of infrastructures to flooding.

The project is part of measure 4 of the updated Tunisian NDC, on Territorial Resilience, which aims to put in place a national framework for adaptation to climate change, taking into account land use planning and integrating climate change risks and adaptation needs into local development plans and urban planning.

PROJECT IMPLEMENTATION PLAN

The project will be implemented by the Ministry of Public Works and Housing / Directorate of Urban Hydraulics.

The services required for implementation are:

- ▶ A financing scheme with the linking of potential investors.
- ▶ A technical study integrating climate vulnerability and gender impact analysis.
- ▶ Implementation studies and tender documents.
- ▶ Launching of tenders and awarding of contracts
- ▶ Execution of the works

PROJECT STATUS

The preliminary and detailed studies have already been drawn up.

Thus, the Ministry of Public Works and Housing, through the Urban Hydraulics Directorate, is seeking technical and financial support for :

- ▶ Carrying out a technical study integrating climate vulnerability and gender impact analysis.
- ▶ Development of the financing scheme and linking of potential investors.

PROJECT COST

The estimated cost of the project is 255 MDT (76M€). Support is needed to develop the project financing scheme with cost breakdown and fund specification.

PROJECT	Cost, taxes excluded in euro M	Cost, taxes excluded in TD M	Cost, all taxes Included in M
Studies	0.5	1.56	1.84
Greater Tunis Flood Protection Project - West Zone - 2 nd batch	40	125,2	149
Greater Tunis Flood Protection Project - Southern Area	18	56,34	67
Flood protection project for the city of Beja	10	31.3	37.2
Total	68,5	214,4	255,04



INITIAL FINANCING OPTIONS

In terms of financing, there is a contribution from the state (self-financing) which consists of:

- ▶ VAT (19%) = 48.458 MDT
- ▶ Displacement of concessionary networks = 20 MDT

The State’s contribution amounts to TD 68.458 M.

POTENTIAL RISKS & MITIGATION

The potential obstacles that could hinder the progress of the project are administrative and technical in nature (relocation of the concessionaires’ networks).



8

SUPPORT FOR SUSTAINABLE AND INCLUSIVE LOCAL DEVELOPMENT



MUNICIPALITY OF TUNIS



MUNICIPALITY OF KAIROUAN



MUNICIPALITY OF KEBILI



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SUPPORT TO LOCAL INVESTMENT FOR THE IMPLEMENTATION OF THE NDC



Ministère de l'Intérieur

Sector	Renewable energy, energy efficiency, energy from waste
Status	Five municipalities (Tunis, Nabeul, Kébili, Sousse, Kairouan)
Cost	TD 45,85 MT, USD 19,4 M
Duration	05 Years
Focus	Focus Scope
Required support	USD 11,9 M

GENERAL CONTEXT

In recent years, municipalities have experienced a continuous increase in the consumption of energy in their various establishments and have also suffered from the considerable increase in the price of hydrocarbons on the international market.

This increase has had a direct impact on the financial costs of the municipalities, which account for a growing share of their budgets (currently around 20%). In addition, GHG emissions have increased due to poor management and lack of waste recovery.

Indeed, in recent years, the municipalities have experienced disruptions in waste management activities: illegal dumps, saturation of the Technical Landfill Centres (TLCs) as well as the generation, in the long term, of greenhouse gas (GHG) emissions caused by methane from the degradation of organic waste.

This failure of the waste management system has also caused social tension in large cities.

For this reason, the municipalities have been committed for several years to the energy transition and sustainable development and have never ceased to seize every opportunity to promote local initiatives that enable energy management as a real economic and environmental issue.

This project led by five municipalities (Tunis, Nabeul, Kébili, Sousse, and Kairouan) will allow them to reduce the financial costs of energy and participate in the national effort to limit CO₂ emissions.

In the particular case of the municipality of Kébili, the project also addresses socio-economic challenges

by helping small farmers avoid bankruptcy and unemployment and preserving the agricultural sector in a region known for its high level of poverty.

The five municipalities seek to achieve :

- ▶ The production of electricity from photovoltaic systems connected to the Medium Voltage network under the self-production scheme in the municipalities of Tunis and Kebili
- ▶ Selective sorting and energy recovery of waste in the municipalities of Nabeul and Sousse
- ▶ The replacement of public lighting lamps with LED lights and installation of a remote management system in the municipalities of Nabeul and Kairouan,
- ▶ Installation of solar water heaters for sports facilities and municipal buildings in Nabeul.

PROJECT DESCRIPTION

The project has 3 main components:

Component 1: Technical assistance

Elaboration or finalization of the technical studies for municipal projects (Technical feasibility, economic study, elaboration of CAD, environmental and social impacts ...).

Component 2: Implementation of municipal investments in 5 targeted municipalities

1. Construction by the municipality of Tunis of a 1453kWp photovoltaic power plant (production of 2,430MWh/year), connected to the Medium Voltage network of the Tunisian Electricity and Gas Company (STEG) under the self-production regime to reduce the energy bill of their buildings, allowing the reduction of about 27441 tons of CO₂ during the life of the installation.
2. Construction, by the municipality of Kébili, of a 1MW photovoltaic power plant connected to the Medium Voltage network of the Tunisian Electricity and Gas Company (STEG) under the self-production scheme to reduce the energy bill of their buildings and to help small farmers to face the increase in electricity prices
3. Creation of an inter-communal sorting center (CdT), treatment and energy recovery of solid waste, replacement of public lighting with LED lights, installation of a remote management system for the municipality, and installation of solar water heaters for sports facilities and common buildings by the municipality of Nabeul.
4. Energy recovery of organic household and similar waste and the selective sorting of recyclable waste by the municipality of Sousse

5. Program for the rational management of electricity consumption for public lighting in the municipality of Kairouan.

Component 3: Monitoring & evaluation, communication

- ▶ Technical supervision of the program
- ▶ Capacity building of the municipality for the establishment of the greenhouse gas emissions balance
- ▶ Development of communication tools and communicating about the results of the investments made.

STRATEGIC ALIGNMENT

The project is part of the Tunisia Solar Plan (TSP) and the Low Carbon and CC Resilient Development Strategy by 2050.

The project is also in line with the local energy transition strategies of the municipalities and meets the following objectives of the NDC Implementation Partnership:

- ▶ Mitigation: Objectives 3 and 4 (energy) and Objective 9 (waste)
- ▶ Adaptation : Objectives 2-3 and 4.

PROJECT IMPLEMENTATION PLAN

The project will be coordinated by the Ministry of Interior (central directorates and structures in charge of the municipalities) and the Ministry of Environment (National Coordination Unit on Climate Change).

The planned investments will be implemented in five targeted municipalities (Tunis, Nabeul, Kébili, Sousse and Kairouan).

Concerning the construction of photovoltaic power plants, the municipalities of Tunis and Kébili will create, by official decision of the municipal council, steering committees and technical teams to monitor the implementation of the project.

The municipality of Tunis will supervise the project by calling upon a private engineering office approved by the National Agency for Energy Management (ANME) to ensure the follow-up and the accompaniment of the construction of the power plant and which will ensure the preparation of the specifications, the management of the calls for tender, the choice of the manufacturer and the preparation of the file of the request for subsidies to the ANME.

GENERAL OBJECTIVE

The strategic objective of the project is the integration of the five municipalities (Tunis, Nabeul, Kébili, Kairouan, Sousse) in the process of the country's energy transition and their contribution to the national plan to limit CO₂ emissions.

SPECIFIC OBJECTIVES

Specific objective 1 Tunis municipality : Reduction of energy consumption by 534.6 TOE and 8% and of its financial energy costs (Electricity).

Objectifs spécifique 2 commune de Nabeul : Access to Sustainable Energy, making available an Intercommunal Action Plan (IPA) and capacity building.

Specific objective 3 municipality of Kébili : Reduction of expenses related to the consumption of electrical energy by 20%, use of renewable and sustainable energies (1895 MW/year) and avoided CO₂ emissions of 1137014 kg/year.

Specific objective 4 municipality of Kairouan :

- ▶ Reduce the high public energy bill
- ▶ Ensuring safe travel in urban areas for pedestrians and motorists through lighting.

Specific objective 5, municipality of Sousse :

- ▶ Reduction of the amount of waste to be landfilled.
- ▶ Reduction of the pollution caused by the burial of waste (release of greenhouse gases). Establishment of an energy recovery plant for organic matter. And production of compost from recovered organic waste.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

- ▶ The photovoltaic plant has no negative impact on the environment.
- ▶ Contribution to the reduction of CO₂ emissions through the use of renewable energy and the development of energy efficiency
- ▶ Protection of the environment from poor waste management
- ▶ Improving the quality of life of the inhabitants and their safety
- ▶ PV power plants have a positive social impact, creating new employment opportunities.

The municipality of Kebili will manage the project in partnership with the civil society and through the creation of a company within the framework of public private partnership (PPP) between the municipality and 6 private investors with a budget of 630 thousand TND. The company ensures the execution of the project on the territory of Kebili and the recruitment of a project coordinator.

The municipality of Kairouan has created, within the framework of the ACTE project (Alliance of Municipalities for Energy Transition supported by a Swiss fund), a municipal energy team composed of elected officials, technical executives and a coordinator.

This team will manage and monitor the implementation of the project. This team will be assisted by 3 working groups; group 1 on energy efficiency which will be in charge of the replacement of existing sodium lights by LED lights, group 2 on local governance will be in charge of capacity building and working equipment, and group 3 will be in charge of communication and awareness-raising.

The municipality of Sousse has a dedicated team tasked with the management of the project in accordance with the following stages:

- ▶ Studies for the development of activities for the selective sorting of recyclable waste and the energy recovery of organic matter.
- ▶ Development of the available land.
- ▶ Equipping the areas with a semi-mechanical sorting line for packaging waste and an energy recovery station for organic waste.

The other components of the project (waste-to-energy, LED lamps and solar thermal) will be carried out by the municipality of Nabeul using an integrated multi-level approach that combines an environmentally friendly infrastructure component with complementary capacity building measures. The municipality of Nabeul benefits from the coordination of ICU (Italian NGO) and the partnership with ANME. ICU, an Italian NGO, which has been cooperating with the municipality of Nabeul since 2015, signed an agreement with the municipality within the framework of the «Nabeul, Green City» project, to share its significant experience in the management of public funds.

ISETN (High Institute of Technological Studies of Nabeul) will support the capacity building of the NDC and co-create a training program promoting eco-innovation and green technologies, and will also involve

its network of 23 Tunisian ISETs (research institutes). ANME will support the project and provide technical assistance to the municipality.

For each of the components, the municipality of Nabeul will proceed as follows:

Waste recovery Centre:

- ▶ Launch of the technical, environmental impact and legal framework analysis studies for the investment (by CIP)
- ▶ Approval of the studies by ANPE (National Agency for Environmental Protection), IGPPP (General PPP Authority), and ANGED (National Waste Management Agency)
- ▶ Mapping of shareholders, investors and other legal aspects (by a private company)
- ▶ Submission and approval of the architectural and engineering study (by a private company and CDN)
- ▶ Construction of the Waste Recovery Centre (by a private company)
- ▶ Purchase of equipment for the Centre (ICU and CDN support the company with a €1.5 million grant for the purchase of equipment)
- ▶ Completion of construction and start of energy recovery (by a private company)
- ▶ Training of 80 employees of the Centre and ISETN professors, to ensure proper maintenance of the structure and to learn new waste recovery techniques (by ICU and ISETN).

LED lighting:

- ▶ Launch of the technical studies for public lighting
- ▶ Choice of companies and monitoring of implementation
- ▶ Capacity building of the municipal staff, to ensure proper maintenance of the infrastructure, and of ISETN students, to promote academic research (by ICU and ISETN).

Solar water heaters:

- ▶ Confirmation of the capacity analysis of water heaters and buildings (by CIP and NDC)
- ▶ Launch of consultation for the selection of the installation company (by NDC)
- ▶ Appointment of companies and monitoring of implementation (by NDC and CIP)
- ▶ Capacity building of the municipal staff, to ensure proper maintenance of the infrastructure, and of ISETN students, to promote academic research (by CIP and ISETN).

PROJECT STATUS

Municipality of Tunis :

- ▶ Execution of the technical and economic Pre-feasibility Study led by the National Agency for Energy Management (ANME) with support from its partners (IDE-E and MedCities), and thanks to the financial support of the French (ADEME) and Swiss (REPIC) cooperation,
- ▶ Execution of the project's technical and economic feasibility study,
- ▶ Elaboration of the tender specifications for the execution of the station
- ▶ Environmental impact study.

Municipality of Kébili :

The project of the municipality of Kebili falls within the framework of the strategic vision of the municipality «Kebili by 2030: a municipality ensuring the oasis biodiversity, promoting renewable energy and environmental protection».

The municipality has carried out the preliminary technical and economic feasibility study in 2021, the preliminary environmental impact study in 2021, and the connection to the network study.

The project site is well established, and the municipality's staff is well engaged and prepared to ensure project implementation.

The municipality needs funding for the construction of the PV power plant, for the technical supervision of the municipality staff and the local partners (the agricultural development groupings (GDA) and the associations).

Municipality of Nabeul :

The proposed project is currently under implementation (started in April 2022 and will last until March 2026). It already has a working team and is currently taking advantage from the implementation of the first activities.

The preparation and feasibility part has already been completed and the project has launched a legal feasibility study for a public private partnership (PPP) and an environmental impact assessment to start the activities of the Recovery Centre.

The project benefits from EU funding in the form of a grant of around 3.5 M Euros.

EXPECTED OUTCOMES

- ▶ Reduction of greenhouse gas emissions by 27,441 tons of CO2 over the life of the project, by the PV power plant in the municipality of Tunis
- ▶ The realisation of the recovery centre in the municipality of Nabeul will allow a reduction of approximately 106,000 MWh/year and 65,000 tCO2
- ▶ The replacement of halogen lights with new LED street lighting in the municipality of Nabeul will guarantee a reduction of 6,800 MWh/year and 3,100 tCO2.
- ▶ The installation of solar water heaters in public buildings in the municipality of Nabeul will generate an energy gain of about 500 MWh/year and a reduction of 250 tCO2/year.
- ▶ Reduction of CO2 emissions to 1137014 kg/year in the municipality of Kébili
- ▶ Economic profitability of 20% of the municipality of Kebili
- ▶ Creation of job opportunities for young people, preservation of agricultural activities and support for vulnerable families and oasis women in Kebili.
- ▶ Daily recovery of 40 tons of organic waste, construction of an energy recovery and waste recycling station by the municipality of Sousse
- ▶ An energy gain of about 54% compared to the current electricity consumption of public lighting, a monetary gain of about 634,826.250 TND/year for the municipality and more tourist attractiveness and security for the inhabitants of the city of Kairouan.

STAKEHOLDERS

- ▶ The Ministry of Interior and the ministry of Environment.
- ▶ Tunisian Electricity and Gas Company (STEG)
- ▶ National Agency for Energy Management (ANME)
- ▶ National Agency for Waste Management (ANGED)
- ▶ Agricultural development groups (GDA), Kebili region
- ▶ Civil society partner associations,
- ▶ NGO: Istituto per la Cooperazione Universitaria Onlus (ICU)
- ▶ High Institute of Technological Studies of Nabeul (ISETN),
- ▶ Financial partners.

The financial support requested will be used to complete the necessary co-financing part (50% of the project budget).

The project currently has:

- ▶ Un plan d'affaires pour le Centre de Valorisation avec des analyses de faisabilité financière et technique ;
- ▶ A business plan for the waste recovery center with financial and technical feasibility analyses ;
- ▶ A primary impact study approved by ANPE ;
- ▶ Several signed letters of support for the project (ANPE, ANGED, MALE, MEHAT, CDC, CPSCCL) ;
- ▶ Minutes of the municipal council of Nabeul and a convention with the other municipalities of the Greater Nabeul area ensuring support to the Recovery Center with a plot of land, and with the transport of the waste of the 6 municipalities (Nabeul, Hammamet, Korba, Dar Chaabane, Beni Khiar and Maamoura).

Municipality of Sousse:

Several pilot projects in the field of integrated household waste management were carried out from 2020 onwards, with an estimated 2.000 households joining the project to sort recyclable packaging waste.

With the support of UN-Habitat and funding from the Japanese Embassy, a waste separation program has been implemented in two districts in the south of the city. This project will end in December 2023.

With the assistance of UN-Habitat and the El Walid Foundation, the municipality has just started another project (March 2023 - March 2025) for waste sorting in two districts in the north of the city.

Two studies on waste management have been carried out (PCGD: municipal waste management plan in 2016 and Wact: Waste Wise Cities in 2021).

The funding available is as follows: USD 80,000 from the Japanese Embassy and USD 130,000 from the El Walid Foundation.

The municipality will provide the project with two plots of land with an area of 5,000 and 8,000 m2.

Municipality of Kairouan :

The proposed project is mature with projects completed or underway, including:

- ▶ A sustainable energy action plan -PAED-, within the framework of the CES-Med program, was drawn up to achieve an objective of reducing greenhouse gas emissions which includes 35 actions, affecting all the economic sectors of the city, in particular transport, residential, and industrial.
- ▶ An energy audit of the municipal assets (public lighting, rolling stock and municipal buildings) was carried out as part of the ACTE project.
- ▶ A project to optimize public lighting is underway, with the use of remotely managed LED lamps.
- ▶ Local Development Strategy (LDS) in Kairouan, currently being finalized, with funding from UNDP and the Cities Alliance.

PROJECT COST

The estimated budget for the project is USD 11.9 million (excluding the budget already mobilized), broken down by project component as follows:

Component	Total budget (KUSD)	Available funding (KUSD)	Funding sought (KUSD)
Technical assistance	1500	700	800
Implementation of municipal investments	Municipality of Tunis	2000	500
	Municipality of Nabeul	8000	4000
	Municipality of Sousse	3500	1500
	Municipality of Kairouan	2500	500
	Municipality of Kébili	1500	300
Monitoring and evaluation, communication	400	0	400
Total (KUSD)	19400	7500	11900



PRIVATE SECTOR INVESTMENT INCENTIVES

- ▶ The municipality of Tunis will call on private companies for the construction of its PV power plant
- ▶ The municipality of Kebili has partnered in a PPP with 6 private investors for the construction of its PV power plant,
- ▶ In the municipality of Nabeul, the project aims to create a replicable and financeable model for private sector engagement in waste recovery initiatives.

Through capacity building of local commercial banks and national credit unions, the project will identify, develop and disseminate innovative climate finance instruments, and create a fertile environment for future financing of other innovative private initiatives for sustainability improvement and climate change adaptation.

9 STAKEHOLDER MOBILISATION AND CAPACITY BUILDING



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SUPPORT PROGRAM TO UGPO-CC FOR THE MOBILIZATION OF CLIMATE CHANGE ACTORS IN TUNISIA (NATIONAL FORUM OF ACTORS - FNACC)



Sector	Adaptation & Mitigation
Status	Underway
Cost	USD 6100 K
Duration	04 Years (2023-2027)
Focus	Outreach networking and projects support
Required support	USD 6100 K Technical and financial assistance

GENERAL CONTEXT

The implementation of the commitments and the national climate policy (NDC, NAP, SNBC-SNRCC) is part of a participatory and inclusive approach involving all economic, state and private actors, civil society, local actors,

The change in behavior that this implies requires real involvement and a collective commitment from all stakeholders. Aware of the challenge of mobilizing all stakeholders, and in particular non-state actors, the National Coordination Unit for Climate Change (UGPO-CC) created the National Forum of Climate Change Adaptation Stakeholders in Tunisia (FNACC) in 2021, with the support of the GIZ and more recently the UNDP.

The objective of the FNACC is to engage in a continuous dialogue and to support the initiatives of non-state actors for the implementation of the national climate policy. Its work will be extended to mitigation.

Currently, the FNACC has about 70 members divided into 4 forums: NGO Forum, Private Sector Forum, Local Stakeholders Forum, Media Forum and the Young Negotiators Group which has 18 delegates.

PROJECT DESCRIPTION

The project will enable the FNACC (National Forum of Climate Change Actors in Tunisia) to be a multi-sectoral presentational and virtual reference platform supporting non-state actors in their action against climate change.

To achieve this, the project focuses on six components:

1. Better targeting and mobilization of actors, functional organization, coordination and planning of activities
2. Training, capacity building on national climate policies

3. Support for local and private initiatives and projects
4. Communication, outreach and advocacy to strengthen the commitment of non-state actors,
5. Networking and knowledge sharing via a digital platform
6. Effective involvement of young people in decision making at national and international level.

The FNACC will play the role of facilitator by capitalizing, sharing and disseminating practices in the CCA and maintaining a watch on the digital platform. It will strengthen networking and partnerships with professional networks.

Young negotiators will be supported to sustain their support to the Tunisian delegation in international climate negotiations and feed the platform.

The Forum will set up a common base of knowledge in CC (presentation, pedagogical kit, video capsules) ensuring a homogenized discourse based on scientific data. These materials will be disseminated through training, thematic guides and media communication (digital, radio and press).

The Forum will support local action at the level of the municipalities through a diagnosis of the existing situation, an advocacy campaign on the integration of climate risks in territorial planning, participative regional workshops and the provision of thematic guides and fundraising guides.

The Forum will focus on improving private sector engagement, supporting 1) ClimateTech innovation through two hackathons; 2) engaging polluting companies in CSR policies and accessing the carbon market through training; 3) optimizing the environmental performance of high-carbon footprint companies through project support, fundraising guide.

The gender aspect will be taken into account in the choice of beneficiaries of the different activities, trainers/mentors, and in the video clips developed.

STRATEGIC ALIGNMENT

The FNACC project responds to the objectives of the cross-cutting axes of the NDC and the SNRCC (2050), namely 1) Governance and financing, 2) Research and innovation, 3) Regional disparity and spatial planning while respecting an inclusive gender and multi-sector approach.

In particular, the project meets the objectives of two

thrusts of the «Partnership Plan for the implementation of the NDC»:

1. The Awareness axis, information and capacity building of national actors through (R3.1.) An operational platform for sharing climate and technical information (R2.2.) National and international climate finance schemes and other sources of funding are known by potential applicants (R2.4) the technical capacities of civil society active in CCA are strengthened.
2. Governance framework, policies and strategies with (R1.2.) NDC projects/actions are integrated into the development planning process and the gender dimension is considered.

PROJECT IMPLEMENTATION PLAN

The project will be piloted and implemented by the UGPO-CC for the mobilization of climate change actors in Tunisia. The FNACC has about 70 members divided into 4 forums: NGO Forum, Private Sector Forum, Local Actors Forum, Media Forum and the Young Negotiators Group. It will be enlarged to 80 actors in the framework of the project.

The management committee of the Forum is composed of 12 elected representatives (3 per forum). It will meet once a month and will be responsible for:

- ▶ Coordination with UGPO-CC
- ▶ Structural organization and management of actors
- ▶ Strategic and operational planning of activities and support to resource mobilization at the FNACC.
- ▶ Setting up a strategy for building on experiences and managing change.
- ▶ The establishment of partnerships with state actors (FNCT, CFAD, AUGT) acting at the local level, professional networks (UTICA, UTAP, UN GCN Tunisia) and regional relays (municipalities, CRDA).
- ▶ Evaluation of FNACC activities and thematic facilitation groups.

The CSO forum will contribute to the development of a common base of knowledge on CC (extension materials, pedagogical kit,...) and their dissemination to other associations active in CC. It will organize networking meetings and thematic groups. It will participate in the monitoring at national level and in the leveraging of experiences to feed the digital platform of the FNACC. It will also contribute to advocacy actions at the local level to raise awareness among municipalities and engage the private sector. It will co-organize the ClimateTech hackathons. Its technical capacities will be strengthened for planning, project development, climate fresco,

GENERAL OBJECTIVE

The objective of the project is to further strengthen the functioning and activities of the National Forum of Climate Change Actors (non-state actors), to improve its visibility, outreach, and the contribution of all actors in changing behavior and implementing climate policy in Tunisia.

SPECIFIC OBJECTIVES

- ▶ Improve knowledge management in CCA and disseminate it at national and regional level
- ▶ Support the implementation of CC projects at regional level
- ▶ Include climate risks in the territorial planning policies of municipalities
- ▶ Engage the private sector in CCA.

RATIONAL

In the context of the challenges of adapting territories and communities to climate change, local action at a decentralized level becomes essential while maintaining a participatory and inclusive approach involving the various stakeholders. In order to integrate climate risks into territorial planning and to initiate an economic and social transformation to combat CC, the UGPO-CC needs to strengthen coordination on a local scale by mobilizing non-state actors in climate change in Tunisia. This project responds to the objectives of the cross-cutting axes of the NDC and the SNRCC (2050), namely 1) Governance and financing, 2) Research and innovation, 3) Regional disparity and land-use planning while respecting an inclusive gender and multi-sector approach.

It is also in line with the 2023 agenda of the SDGs and especially with SDG13 for the integration of climate risks in territorial planning.

access to climate finance, carbon footprinting, advocacy and digital communication and implementation of CCA projects.

The forum for municipalities will be re-targeted and expanded to represent all regions, targeting in the first instance certified eco-counselors. These actors will contribute to the development of thematic guides and the training of other municipalities, in partnership with the "Centre de Formation et d'Appui à la Décentralisation" (CFAD). It will participate in capitalizing on experiences at local level to feed the digital platform of the FNACC. It will participate in the advocacy campaign for the integration of climate risks in territorial planning and communal management in close collaboration with the FNCT and the AUGT. A diagnostic study in CFA will be carried out on 80 municipalities. Participatory workshops at the regional level will make it possible to 1) disseminate the thematic guides, 2) identify their needs in CCA, 3) identify inter-municipal schemes, the appropriate scale for the implementation of CCA projects, 4) define challenges for the FNACC ClimateTech hackathons. They will be trained in project development, access to climate finance, advocacy and carbon footprinting and supported in the drafting of their local climate plans.

The private sector forum will be re-targeted and expanded to prioritize companies in polluting and CC-vulnerable sectors to improve their CC action. High carbon footprint companies (cement, chemical and exporting companies) will also be targeted to reduce their GHG emissions, improve their environmental performance and access carbon markets. It will also support ClimateTech startups through the creation of an incubator (accelerator) and support programs to help them develop innovative solutions directly or indirectly related to CC, in priority sectors of the NDC. It will co-organize two hackathons in the North and South to stimulate innovation and facilitate startups' access to funding. It will contribute to strengthening partnerships with professional networks (UTICA, UN GCN, UTAP, CONECT) to better target advocacy campaigns and facilitate PPPs in adapting to CC, help companies obtain certifications and labels (CSR,...) to improve their credibility and competitiveness on the market. It will be strengthened in climate finance, carbon footprint, water footprint, CSR policy and advocacy.

The media actors' forum will be re-targeted. It will coordinate the implementation of the FNACC's communication actions. It will contribute to the production of video capsules, the educational kit for

outreach, a radio section for disseminating good practices and the production of press articles. A storytelling video competition will be organized to highlight the perception of CC by vulnerable populations and ancestral or innovative adaptation solutions. Its capacities will be strengthened on specific adaptation techniques such as circular economy or SBN, climate finance and carbon footprint.

The group of young negotiators will strengthen its support to the Tunisian delegation by ensuring coherent participation in climate negotiation processes (SB, COP ...), restitution and dissemination. It will conduct an international watch and participate in feeding the FNACC platform with technical documents by theme. Its capacities will be reinforced by international experts on the themes of the climate negotiation processes. This will ensure that decision-making is informed, representative and includes young people.

The Technical and Financial Partners (TFPs) will be involved in participatory workshops with the municipalities and the development of the fundraising guide.

Two major recurring events will bring together all the actors: the bi-annual CCA conference and an annual meeting (field visit to a pilot site in the CCA to define the annual activity plan). Three annual face-to-face meetings are planned with the TFPs. Two face-to-face meetings per year should be planned for each forum and for each thematic group.

PROJECT STATUS

The FNACC was set up in 2021 with the support of GIZ, and more recently by the NAP project (funded by the Green Climate Fund and implemented by UNDP) for the sustainability of the FNACC (structural organization, governance, business plan). It has governance rules (membership, management committee, meetings, focus group, etc.) and fixed members selected according to a transparent system.

The FNACC has several assets (training, drafted projects, conference,...)

The annual meeting of the FNACC at the end of 2022, has allowed to finalize the activities of the Forum during the period 2023-2027. The project requires:

- ▶ A technical adviser integrated with the UGPO-CC for the operational planning of activities and coordination

EXPECTED OUTCOMES

- ▶ Increased buy-in from non-state actors,
- ▶ Enhanced capacity of actors, including a better understanding of climate issues and policies,
- ▶ Improved contribution to the fight against climate change, through the implementation of capacity building and behavior change projects
- ▶ Several communication and outreach tools are initiated and developed
- ▶ Experiences and good practices are shared
- ▶ Young people are mobilized for decision-making at local, national and international level.

KEY PERFORMANCE INDICATORS

- ▶ 80 FNAACC actors ensuring territorial representativeness, minimum 50% women, 50% young people.
- ▶ 5 partnerships are set up
- ▶ A reference platform for CCA and good CCA experience is implemented and used
- ▶ At least 20 good practices are collected on the platform
- ▶ At least 20 strategic documents are put on the platform
- ▶ At least 5 thematic and fundraising guides are put on the platform
- ▶ A CCA training kit is produced and disseminated to CSOs
- ▶ A fundraising guide on mitigation and adaptation is produced and disseminated to CSOs, municipalities and the private sector
- ▶ Four thematic guides and four video clips are produced on the following sectors: water resources, agriculture, coastline and land use planning
- ▶ At least 20 radio spots with a radio program produced (once a week for 6 months)
- ▶ Four storytelling capsules of vulnerable populations are produced
- ▶ Four press conferences for the bi-annual conference and the Hackathons
- ▶ 5 press articles
- ▶ 1 FNACC Facebook page with at least 4000 followers.
- ▶ 30 training sessions are organised
- ▶ At least 600 people are trained
- ▶ 2 FNACC conferences are held
- ▶ 18 dissemination events were held
- ▶ At least 1000 people are sensitized
- ▶ 2 advocacy campaigns are carried out (integrating

CCA in territorial planning and engaging polluting companies in a CSR policy)

- ▶ 2 policy papers are drafted as part of the advocacy activities
- ▶ Six regional participatory workshops are organised
- ▶ At least 120 municipalities are sensitised
- ▶ 4 workshops to raise awareness in the private sector
- ▶ At least 100 companies are sensitised and mobilised
- ▶ Two ClimateTech hackathons (North, South) are organised
- ▶ 100 participants in the hackathons
- ▶ 6 ClimateTech startups incubated
- ▶ 6 projects drafted and submitted for funding
- ▶ 2 local climate plans are drafted and submitted to donors.
- ▶ At least 6 international negotiation reports.

POTENTIAL IMPACT ON THE ENVIRONMENT AND SOCIETY

- ▶ Awareness of CCA is harmonised at national level and controlled to initiate a change in behaviour in society
- ▶ Climate financing opportunities are identified to facilitate the implementation of CFA projects
- ▶ The private sector is mobilised for CCA actions improving the quality of life of vulnerable populations
- ▶ Innovative technological solutions are implemented in CCA making the local population more resilient
- ▶ Municipalities are more resilient to climate risks improving the safety of populations
- ▶ Vulnerable populations adapt to CC and improve their standard of living and quality of life.
- ▶ Gender disparities among project beneficiaries are reduced.



- ▶ Technical expertise for the elaboration of the pedagogical kit, the thematic guides, the fundraising guide, the common knowledge base in CCA, the local climate plan and the programmed training
- ▶ Assistance for communication and dissemination activities
- ▶ Technical assistance for the implementation and updating of the digital platform for sharing experiences in CCA.

COST OF THE PROJECT

Components	Budget estimatif (milles USD)
Coordination and planning	300
Training and capacity building	500
Support to forum initiatives (projects)	2000
Communication, outreach and advocacy	1000
Networking and platform	1800
Youth involvement in decision making	500
Total budget (thousand USD)	6100

POTENTIAL RISKS & MITIGATION

1. Evolution of the legislative framework - Climate Law, CATU,...
 - ▶ Conducting international monitoring
 - ▶ Anticipate and raise awareness of the transition induced by the law
2. Lack of buy-in and contribution to the platform
 - ▶ Establishment of strategic partnerships to ensure feedback (FNCT, UTICA, UN-GCN TUNISIA)
 - ▶ Community management of actors to bring about change
3. Sustainability of the platform beyond the FNACC project
 - ▶ Plan a business model for the self-financing of the platform (by training, expertise, media section,...)
 - ▶ Duplicate the model in other countries
4. Lack of respect for gender and territorial representativeness for municipalities
 - ▶ Plan an awareness-raising workshop for municipalities for the implementation of the National Gender and Climate Change Action Plan (NAP-GCC)
 - ▶ Establish quotas to ensure equitable representation of women and other marginalized groups in decisions and actions taken.

INCENTIVES TO PRIVATE SECTOR INVESTMENT

- ▶ Advocate for a CSR policy that includes targets for greenhouse gas emission reduction and CC adaptation.
- ▶ Promotion of financial incentives for companies investing in CC-related projects (grants, tax credits, etc.)
- ▶ Capacity building for CC investments (training in climate finance, energy management, CCA project development, etc.)
- ▶ Incentives for innovation in ClimateTech R&D
- ▶ Engaging companies in carbon markets to encourage GHG emission reductions.

STAKEHOLDERS

- ▶ 80 FNACC actors
- ▶ 18 young delegates
- ▶ FNCT - National Federation of Tunisian Municipalities
- ▶ CFAD - Training and Support Centre for Decentralisation
- ▶ UTICA: Tunisian Union of Industry, Commerce and Handicrafts

BENEFICIARIES

- ▶ NACF members (local actors, NGOs, private sector, media, young negotiators)
- ▶ 100 municipalities outside the NACF
- ▶ 80 companies outside the NACF
- ▶ 20 CC associations outside the FNACC

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QRCode
National climate
policy context
challenges and
actions



QRCode
International
investment
conference
for the
implementation
of Tunisia's NDC



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