

NEXUS-NESS

NEXUS NATURE ECOSYSTEM SOCIETY SOLUTION

Fair and sustainable resource allocation demonstrator of the multiple WEF E Nexus economic, social and environmental benefits for Mediterranean regions

GRANT AGREEMENT NUMBER 2042

Deliverable D6.3 Science-Stakeholder-Policy dialogue material V1.1 30 November 2022

Cite as: Cristina El Khoury, Davide Bazzana, Nicola Comincioli. Science-Stakeholder-Policy dialogue material, PRIMA NEXUS-NESS Innovation Action (PRIMA H2020 GA 2042), Project Deliverable 6.3, 30 November 2022.

WP6 Leader: DDATA, Sebastian Marcu and Andrea Maier Bode and Task 6.3 Leader: FEEM, Filippo Tessari





**NEXUS-NESS - NEXUS NATURE ECOSYSTEM SOCIETY SOLUTION:
FAIR AND SUSTAINABLE RESOURCE ALLOCATION
DEMONSTRATOR OF THE MULTIPLE WEFE NEXUS ECONOMIC,
SOCIAL AND ENVIRONMENTAL BENEFITS FOR MEDITERRANEAN
REGIONS**

GRANT AGREEMENT NUMBER 2042

Deliverable D6.3

Science-Stakeholder-Policy dialogue material

30 November 2022

WP6 Leader: DDATA, Sebastian Marcu and Task 6.3: FEEM, Filippo Tessari

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Partnership for Research and Innovation in the Mediterranean Area Programme (PRIMA)
The NEXUS-NESS project has received funding from the PRIMA Programme, an Art.185 initiative supported and funded under Horizon 2020, the European Union's Framework Programme for Research and Innovation.



Horizon 2020
European Union Funding
for Research & Innovation



Deliverable Identification

Deliverable No and Title	D6.3 Science-Stakeholder-Policy dialogue material		
Grant Agreement No	2042	Acronym	NEXUS-NESS
Project Full title	Fair and Sustainable Resource Allocation Demonstrator of the Multiple WEFE Nexus Economic, Social and Environmental Benefits for Mediterranean Regions NEXUS Nature Ecosystem Society Solution (NESS)		
Funding Instrument	PRIMA: To achieve, support and promote integration, alignment and joint implementation of national R&I programmes under a common research and innovation strategy to address the diverse challenges in water scarcity, agriculture, food security.		
Call	PRIMA SECTION 1 (IA) Demonstrating benefits of the Water-Ecosystem-Food Nexus approach in delivering optimal economic development, achieving high level of environmental protection and ensuring fair access to natural resources		
Work-Package No and Title	WP6 Dissemination, Communication and Exploitation		
WP- Main Beneficiary	DDATA		
WP-Leader	DDATA, Sebastian Marcu (marcu@designdata.de)		
Task No and Title	Task 6.3 “Science-Stakeholder-Policy dialogue”		
Task Leader	FEEM, Filippo Tessari filippo.tessari@feem.it		
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Contributors	Davide Bazzana (FEEM), Nicola Comincioli (FEEM)		
Status	Draft <input checked="" type="checkbox"/> Final <input type="checkbox"/>		
Dissemination Level	Internal <input checked="" type="checkbox"/> Public <input type="checkbox"/>		
Reviewed by	<ul style="list-style-type: none"> - Leonor Rodriguez, UPM - Fethi Abdelli, IRA - Mohamed Bahnassy, AU - Rudy Rossetto, SSSA 		
Abstract	The deliverable aims to present the way in which the data related to task 5.2 has been distributed and disseminated among the stakeholders. After completing the results analysis (D5.2) and explanatory workshops (D5.3), the optimal way of disseminating information was identified in the tool of infographics, graphical and visual data visualisations rather than textual ones.		
Key words	WEFE Nexus, Living Labs, Country profile, WEFE security		
DOCUMENT HISTORY			
Planned Release Date	30 November 2022	Actual Release Date	30 November 2022
Version	V1.1	Released Version No	V1

1. Purpose of the Deliverable

This task includes the organisation of a series of regional outreach workshops where the consortium will present interim results to selected audiences of stakeholders'/policy makers/individual agents and allow the exchange of perspectives among the potential users of the project outcomes. Opportunities for synergies with other European and Mediterranean actors and institutions will be investigated and contributions from relative international initiatives will be encouraged.

Also, these workshops could be held in conjunction with other major events in the field. At the end of the project, the optimal dissemination of results will be facilitated through a concluding two-day event which will invite the scientific community, media and all involved stakeholders to share the project results, discuss about their impact, exploitation opportunities and wider implications to develop policy roadmaps for the uptake of Nexus approaches in the Mediterranean region. This task represents an important preliminary work needed for the establishment of the WEF Nexus Forum and related activities included in Task 6.4.

2. Introduction

After completing task 5.2., in December 2022 a series of workshops (M5.2) were conducted in order to explain and deepen the results of deliverable 5.2 among NELs. After their completion, thanks also to the hints and suggestions gathered during their conduct, a series of descriptive infographics were produced to complete task 6.3. The decision to resort to a “country-profile infographic” and not a written text has several reasons.

First of all, the objective was to facilitate the dissemination as well as the understanding of information among stakeholders by making greater use of the graphic and visual form.

Furthermore, deciding to create and rely on images made it possible to focus on important points that would probably have been less emphasised in a large text.

Finally, by referring to the audience that would benefit from the information, the choice of an infographic was thought to be more successful.

3. Execution

After choosing which tool would highlight the information the most, it was time to work out which of all the results were the most fundamental to share.

The infographic follows a structure that moves from the general (general information about the country and the challenges concerning water, energy, food and the ecosystem) to the specific (information about the actors



D6.3 Science-Stakeholder-Policy dialogue material

involved in each of the different areas, as well as the main policies and the most relevant data from the point of view of food, energy, water and ecosystem security...).

The first part of the infographic for each state presents, under a bulleted list, the main Nexus-related challenges. Subsequently, data and some considerations on population growth, one of the main elements to be taken into account regarding the availability of resources in the past, present and future, are shown. These parts also present a geographical map of the territory and one regarding the concentration of the population in certain areas.

The first page of the infographic then concludes with a quote from Scott (2017) highlighting the efficiency as well as the effectiveness of a Nexus approach.

The second and then the third page of each infographic presents, in detail, the results driving the analysis of water, energy, food and finally the ecosystem.

The pages are constructed as follows:

- For each country and each sector, information is first given on the major actors – political and technical or administrative bodies – involved in legislative plans and decisions;
- A dotted rectangle shows the key legislations and policies adopted throughout the country's history;
- In the upper right/left or lower left/right-hand corner, are reported data from the analysis of security indicators – recognised in the literature (FAO and UN) – for each area.

Spain

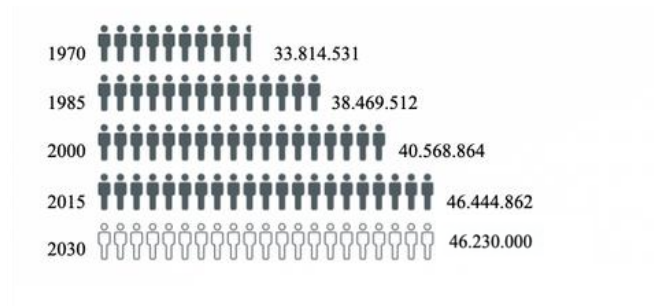
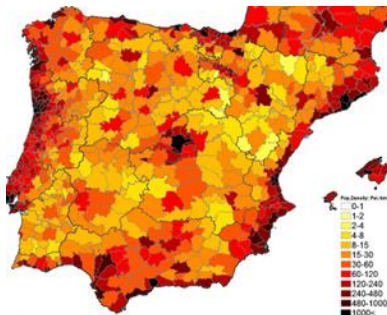
The Water-Energy-Food-Ecosystem Security Nexus Country Profile

Nexus-related challenges:



- 11 of the 15 river basin districts are under water stress due to the increasing demand of agriculture;
- Spain's total energy mix is still heavily dominated by fossil fuels;
- Extensive forests have been destroyed over the years due to unplanned cutting, forest fires, and poor farming practices;
- 36% of the country is threatened by desertification with the Canaries and the south-east being the worst hit.

Population growth

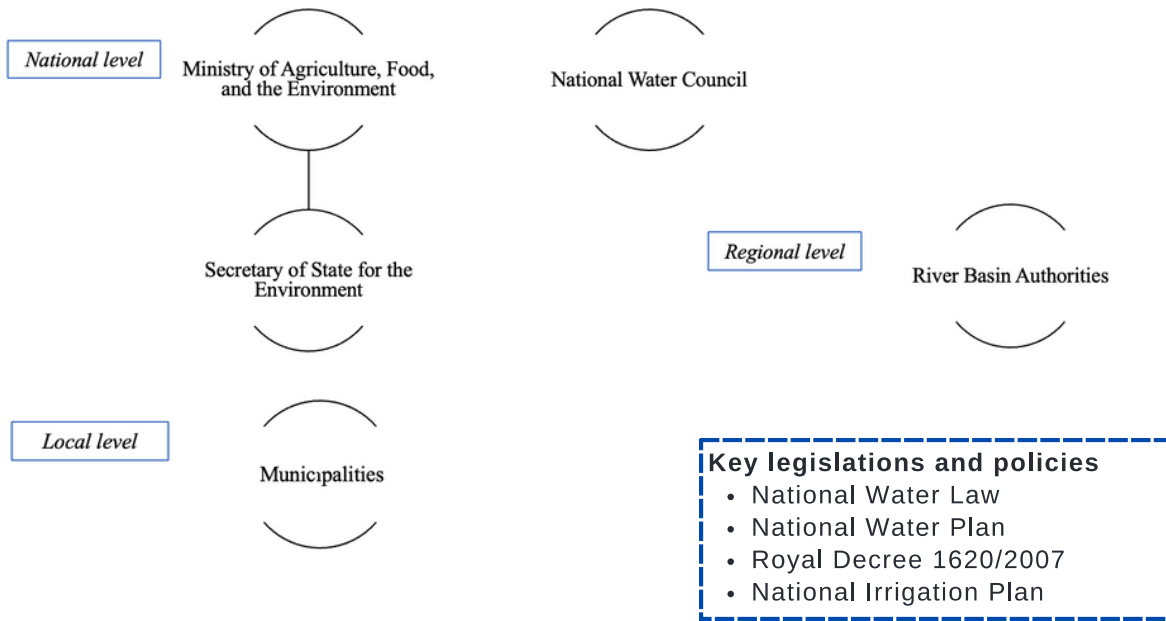


- With the exception of the region surrounding the capital the most populated areas lie around the coast;
- The population of Spain has risen 2 ½ times since 1900, when it stood at 18.6 million, principally due to the spectacular demographic boom in the 1960s and early 1970s.

“Effectiveness of the Nexus approach is determined by institutional relationships and the capacities of governing organisations to cooperate one with the others”

[Scott, 2017]

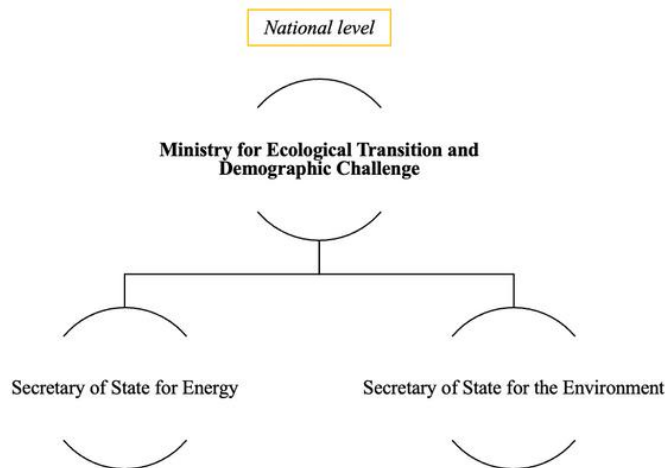
Water



40% of water level Water stress (2017)

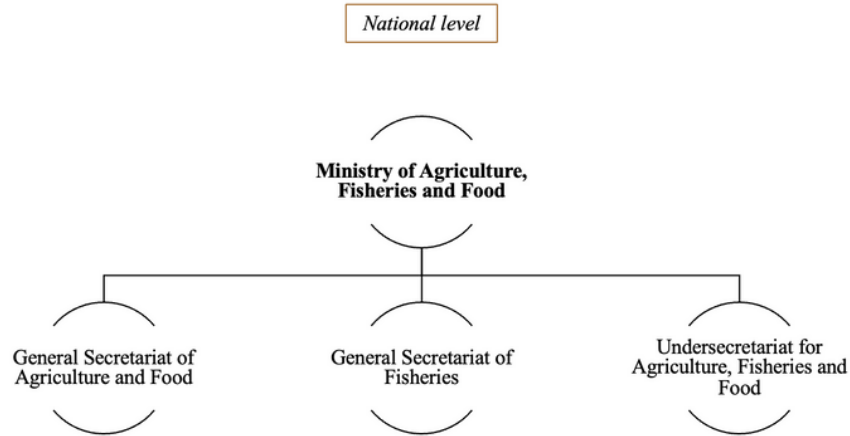
Energy

- Key legislations and policies**
- National Energy and Climate Plan
 - Climate Change and Energy Transition Law
 - Just Transition Strategy
 - Long-Term Strategy



71% of total energy Imported energy (2015)

Food



Key legislations and policies

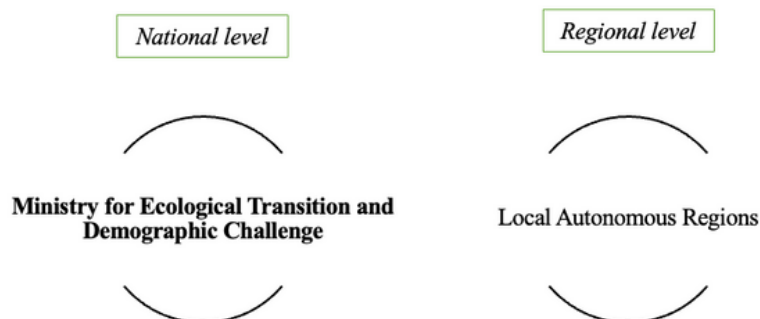
- Law 12/2013
- National Rural Development Programme

8.6% of population Food insecurity (2020)

Ecosystem

Key legislations and policies

- National Air Quality and Atmospheric Protection Plan 2013-2016
- Law 42/2007 of Natural Heritage and Biodiversity
- Law 7/2021, Climate Change and Energy Transition



37.2% of total land area Forest areas (2020)
28.1% of total land area Protected land areas (2021)

Egypt

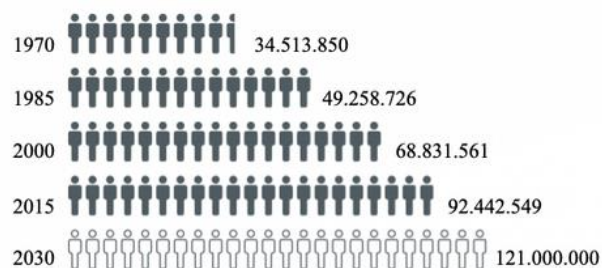
The Water-Energy-Food-Ecosystem Security Nexus Country Profile

Nexus-related challenges:

- Agricultural sector is the largest user of water resources: 80% of the total water needs;
- Limited food self-sufficiency levels by scarce water resources;
- In-efficient irrigation techniques and over-use of ground water;
- Most of the land reclamation projects are in desert areas, often irrigated with fossil groundwater only provides an unsustainable and a short-term solution.



Population growth



- Due to the extreme aridity of Egypt’s climate, population centres are concentrated along the narrow Nile Valley and Delta;
- About 99% of the population uses about 5.5% of the total land area. 98% of Egyptians live on 3% of the territory.

“Effectiveness of the Nexus approach is determined by institutional relationships and the capacities of governing organisations to cooperate one with the others”

[Scott, 2017]

Water

National level

- Key legislations and policies**
- Law 12/1984
 - Egyptian Code 501/2015
 - National Water Resources Plan

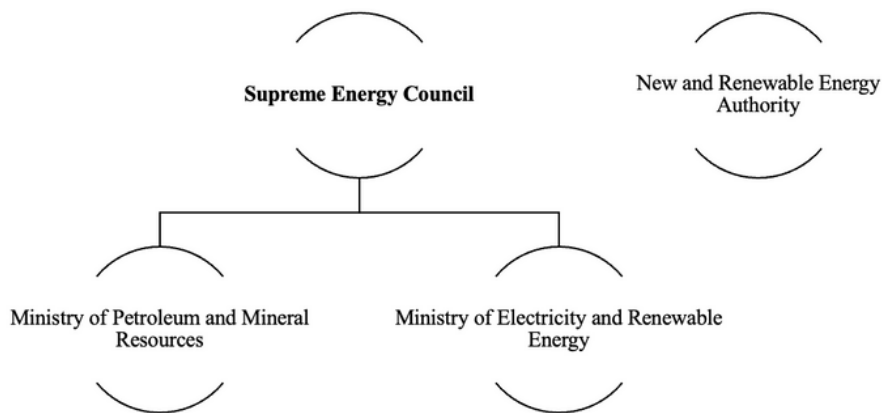


141% of water level Water stress (2017)
99% of population Basic drinking water services (2020)

Energy

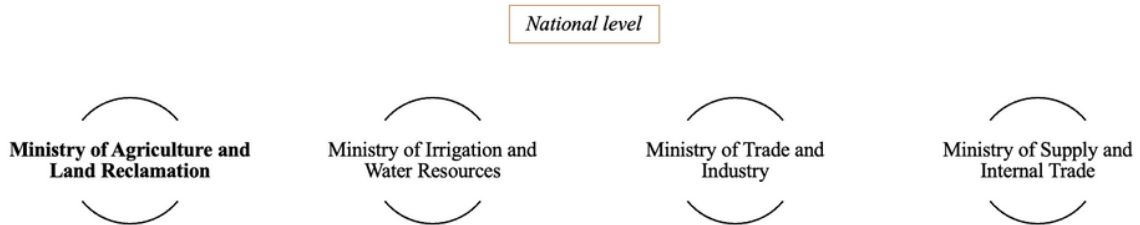
- Key legislations and policies**
- Law No. 102/1986
 - Renewable Energy Law
 - New Electricity Law
 - Integrated Sustainable Energy Strategy to 2035

National level



-7% of total energy Imported energy (2014)

Food

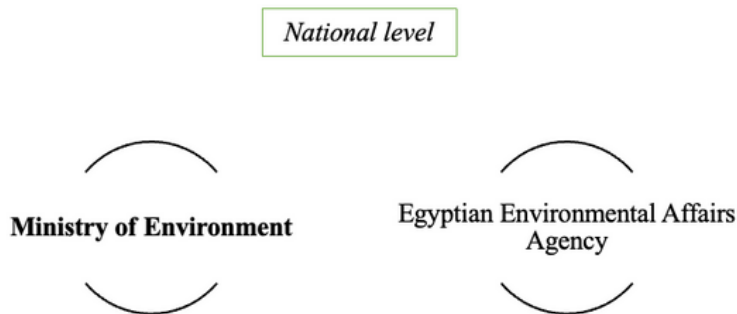


Key legislations and policies

- Agricultural Solidarity Fund
- Comprehensive Africa Agricultural
- Development Program

27.3% of population Food insecurity (2020)

Ecosystem



Key legislations and policies

- Law 4/1994
- Law 102/1983
- Sustainable Development
- Strategy: Egypt Vision 2030

13.1% of total land area Protected land areas (2021)

Italy

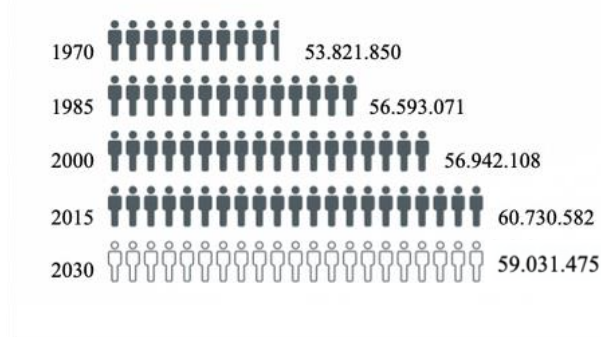
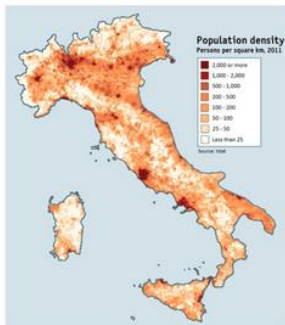
The Water-Energy-Food-Ecosystem Security Nexus Country Profile

Nexus-related challenges:

- The country is particularly susceptible to hydro-geological instability, due to its geological and geomorphological characteristics;
- Land use is an especially important policy area;
- It still has relatively high retail electricity and gas prices primarily driven by increases in taxes and levies.



Population growth

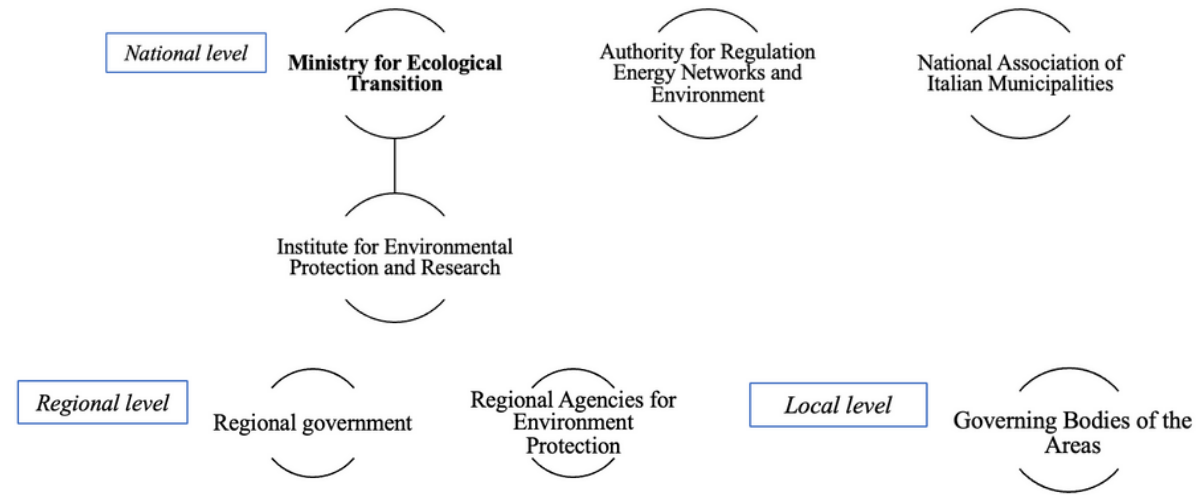


- The most densely populated areas are the Po Valley and the metropolitan areas of Rome and Naples;
- The population almost doubled during the twentieth century, but the pattern of growth was extremely uneven due to large-scale internal migration from the rural South to the industrial cities of the North.

“Effectiveness of the Nexus approach is determined by institutional relationships and the capacities of governing organisations to cooperate one with the others”

[Scott, 2017]

Water



Key legislations and policies

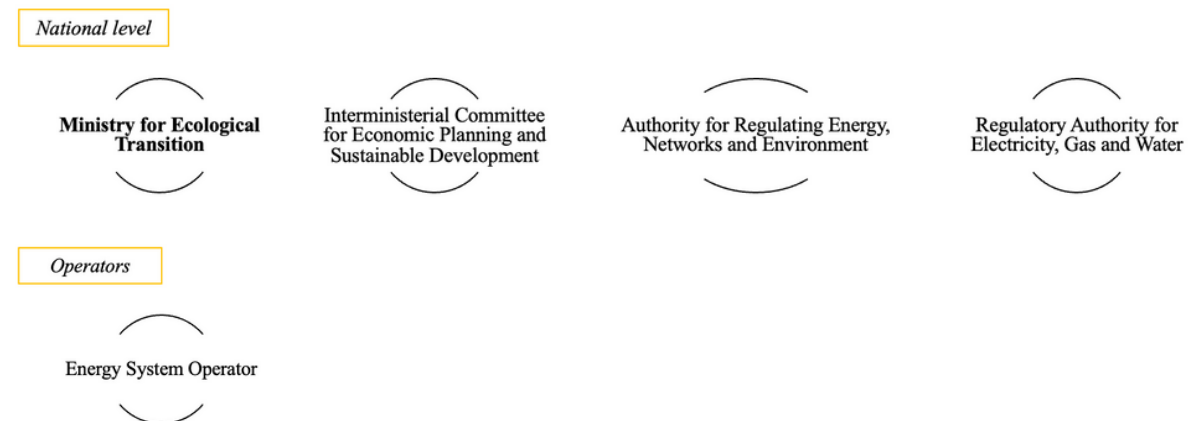
- Galli Law (No. 36/1994)
- Environmental Code
- Water protection plan

30% of water level Water stress (2019)

Energy

Key legislations and policies

- National Energy and Climate Plan
- Decree Law No. 34 of 19 May 2020 (*Decreto Rilancio*)



76% of total energy Imported energy (2015)

Food

National level



Regional level



Key legislations and policies

- National Rural Development Programme
- National Recovery and Resilience Plan
- Rural Development Programme

6.3% of population Food insecurity (2020)

Ecosystem

National level



Regional level



Key legislations and policies

- Environmental Code
- National Biodiversity Strategy

32.3% of total land area Forest areas (2020)
21.5% of total land area Protected land areas (2021)

Tunisia

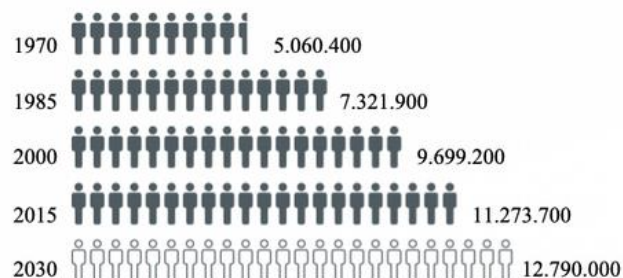
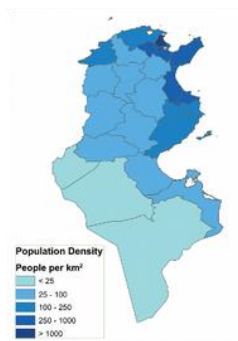
The Water-Energy-Food-Ecosystem Security Nexus Country Profile



Nexus-related challenges:

- The rate of groundwater extraction in many aquifers is unsustainable;
- There is a risk of increased groundwater overexploitation;
- High energy balance deficit and electricity production is highly dependent on imported natural gas;
- Agricultural production is very vulnerable to drought;
- Uncontrolled land use practices are contaminating aquifers.

Population growth

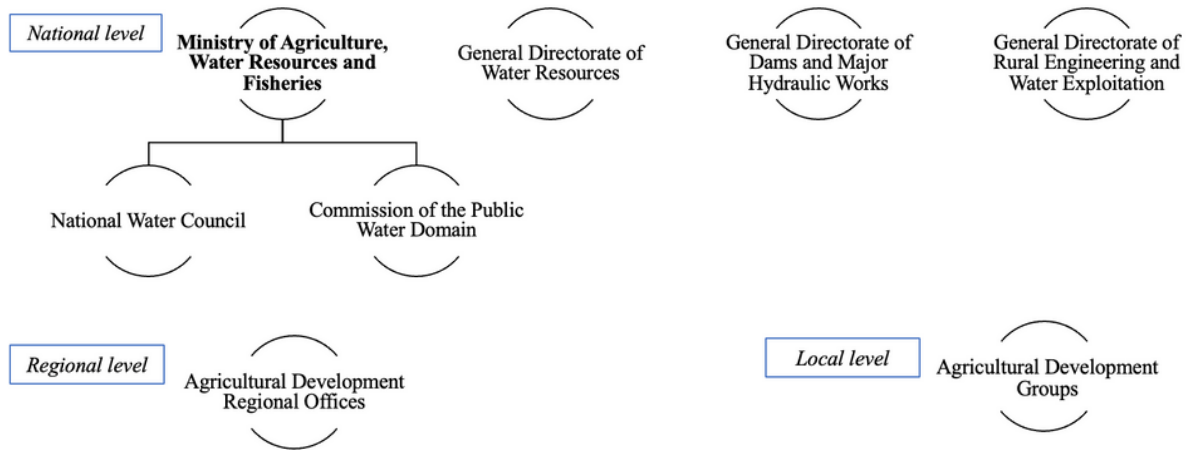


- The majority of the population live in the northern half of the country, predominantly along the coast;
- The percentage of people living in urban areas continues to rise: in 1970, only 44% of the population lived in urban areas; this number was 68.6% in 2017 and is projected to be 77% by 2050.

“Effectiveness of the Nexus approach is determined by institutional relationships and the capacities of governing organisations to cooperate one with the others”

[Scott, 2017]

Water



Key legislations and policies

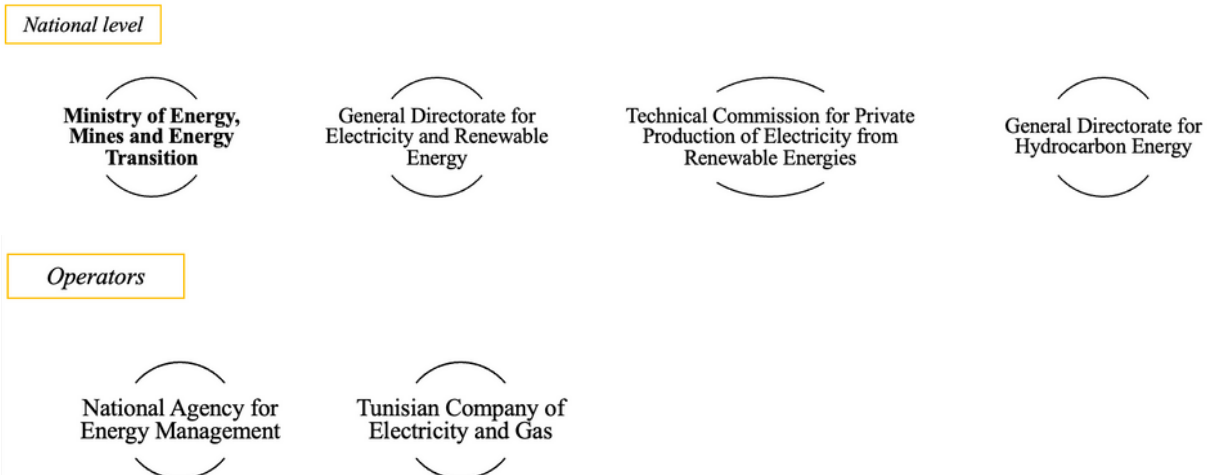
- 1975 Water Code
- Water Economy 2000
- Ten-year strategy for water resource mobilisation
- Water Sector Strategy to 2030
- Water 2050 strategy study

98% of population Basic drinking water services (2020)
96% of water level Water stress (2019)

Energy

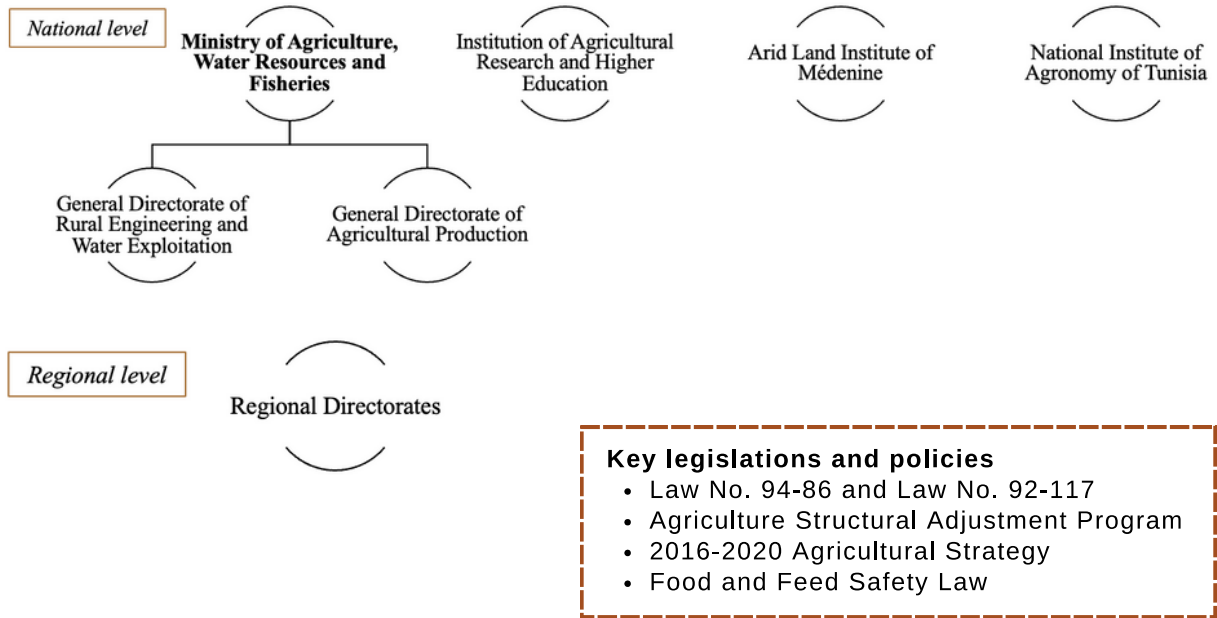
Key legislations and policies

- Tunisian Solar Plan
- Law No. 2015–12



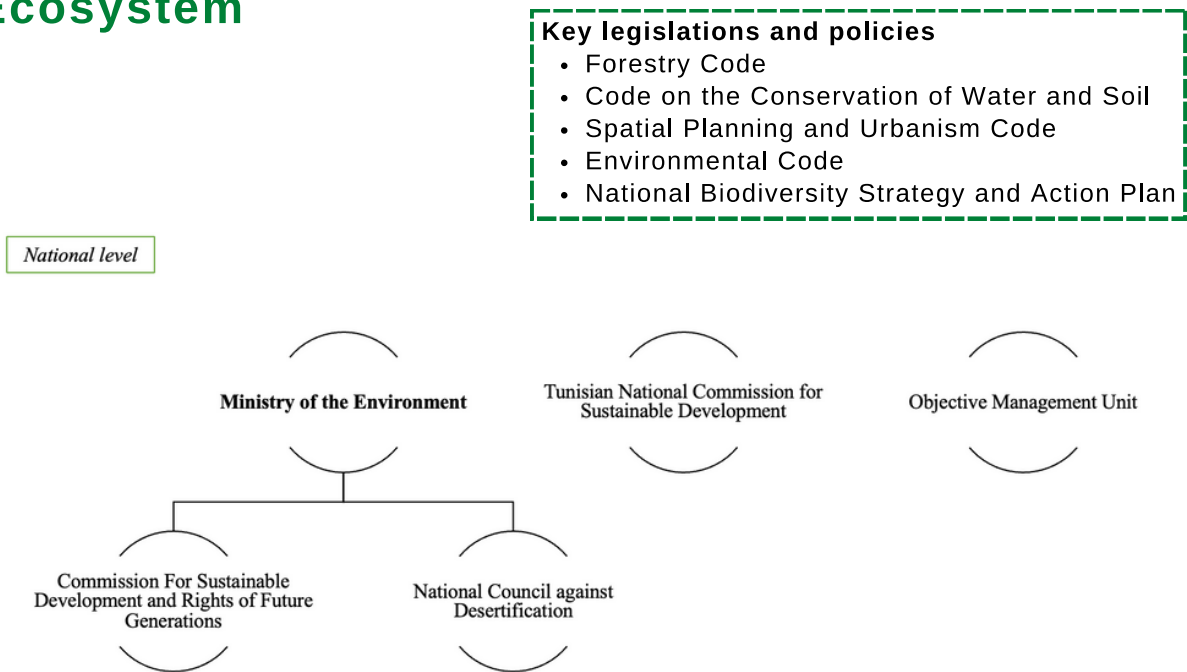
36% of total energy Imported energy (2014)

Food



28% of population Food insecurity (2020)

Ecosystem



4.5% of total land area Forest areas (2020)
7.9% of total land area Protected land areas (2021)