

STAKEHOLDER MAPPING

CASE OF ALGERIA, MOROCCO AND TUNISIA



Project: The Water Security Nexus in North Africa: Catalyzing Regional
Coordination Around Climate Change, Resilience and Migration



Center for Mediterranean Integration (CMI) (2020). Stakeholders Mapping: Case of Algeria, Morocco, and Tunisia. “The Water Security Nexus in North Africa – Catalyzing Regional Coordination Around Climate Change, Resilience and Migration” Project. Marseille: Center for Mediterranean Integration and UNOPS

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I. Executive summary

As part of the Water Security Nexus project in North Africa, the Center for Mediterranean Integration (CMI) has produced a comprehensive stakeholder mapping analysis for Algeria, Egypt, Morocco and Tunisia. This activity is the baseline to enable a thorough analysis of the interrelations between stakeholders at the organizational and/or management level. In addition to describing the hierarchical structures of the stakeholders, the report aims to increase understanding of mandates, operational modalities and the spectrum of activities, in order to explain the interactions among the different stakeholders in an attempt to define gaps and opportunities. A further analysis of how stakeholders presented themselves, their mandates and their declared activities in relation to water management, climate change and migration was also performed.

The Mediterranean Agronomic Institute of Bari (CIHEAM Bari) used the following methodology to develop this stakeholder mapping:

- Conceptual definition of the stakeholder within the framework of the project
- First identification of the stakeholders through the scientific literature
- Second identification of the stakeholders through an accurate web survey
- Classification of stakeholders in accordance with specific keywords
- Strict categorization of stakeholders in the following clusters: government/public research/academic; civil society (international non-governmental organization – INGO, non-governmental organization – NGO); private sector; development partners
- Definition of the level of involvement of each stakeholder
- Identification of the relationships that exist or are supposed to exist between the identified stakeholders

The mapping focused on the attribution of importance and value, which can be assessed in two ways: the first is cooperation between the actors (as a result of conducting research and refining it with information from contact points in the three countries) on the issues in question; the second is a possible and desirable relationship between the stakeholders that, given their power and importance in this matter, can clarify their structure.

It is important to highlight the role that the Mediterranean Youth for Water Network (MedYWat) played in reviewing and validating the stakeholder mapping of all countries, since their members are based in the target countries and have closer access and a better understanding of the role of stakeholders at a local level. Therefore, two young experts (MedYWat members) were selected per country to provide feedback and confirm the results of the mapping and its analysis.

II. Background and methodology

Of all natural resources, water is the most essential. It supports vital processes valued by humankind and by nature. Increasingly massive water demand, especially in the agricultural sector, puts major ecosystems at risk by approaching thresholds that could trigger collapse. The project “The Water Security Nexus in North Africa: Catalyzing Regional Coordination Around Climate Change, Resilience and Migration” combines understanding of the relationship between water management, climate change and migration in the Maghreb region: Algeria, Morocco and Tunisia.

Much of the North Africa region is dry as a result of its location being in alignment with the Tropic of Cancer, the northernmost latitude at which the sun is directly above the Earth during the year. Around three quarters of the region are arid with an average annual precipitation below 150 mm. This average drops below 50 mm in the deserts – unwelcoming environments to life and normal human activities. The rest share either a semi-arid or Mediterranean climate. Subhumid and humid climatic conditions exist only in patches of specific coastal areas and relatively high mountains on the sides exposed to prevailing winds.

More detailed definitions and classifications of the terms “drought” and “drought index” can be found in the *Assessment of the Regional Impact of Droughts in Europe (Technical Report No. 6)* (Hisdal and Tallaksen 2000). Nonetheless, the definition provided in Wilhite and Glantz (1985) is the most relevant for the objective of this study, where four categories were identified:

- Meteorological drought: Usually expressions of precipitation’s departure from normal over a defined period of time. Reflects one of the primary causes of a drought.
- Hydrological drought: Usually expressions of deficiencies in surface and subsurface water supplies. Reflects the effects and impacts of droughts.
- Agricultural drought: Usually expressed in terms of needed soil moisture of a particular crop at a particular time.
- Socioeconomic drought: Definitions associating droughts with supply of and demand for an economic or social good.

Within the North African context, Bazza, Kay and Knutson (2018) defined drought as the reduction of precipitation from the long-term average that extends over a given space and scale for a specific period of time and results in impacts on human activities.

Drought is known to have an impact on the region’s demography over long tracts of time with the rise and fall of specific civilizations and ruling dynasties linked to challenges including mass migration and famine (Bazza, Kay and Knutson 2018). In the last four decades anthropogenic climate change has exacerbated drought cycles leading to higher frequency

and length. In a region where rural agriculture is an important labour-intensive contributor to gross domestic product and national food security, socioeconomic impacts are expected to be substantial (Drine 2011).

Schilling *et al.* (2012) investigated those impacts using a scenario of 10–20 per cent precipitation reduction and a 2–3°C increment in the five countries of North Africa. They concluded that stronger effects are expected on the Moroccan economy due to its high dependability on rain-fed agriculture and vulnerable rural communities.

Although not new, increasing efforts have been dedicated to understanding the linkages between water scarcity and migration in recent years, yet the definition of water- and climate-induced migration is still highly unclear. El-Hinnawi first coined the term “environmental refugees” in a 1985 United Nations Environment Programme (UNEP) report as a way of grappling with increasing numbers of people forced to leave their homes because of environmental disruptions and disasters (Weinthal, Zawahri and Sowers 2015). The International Organization for Migration (IOM) (2017) defines environmental migrants as¹:

“persons or groups of persons who, for compelling reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad”.

Warner and Afifi (2014) distinguished between migration due to “intensive climate risks” that include highly severe events (e.g. hurricanes, cyclones, tornadoes, severe flooding), or “extensive climate risks” that include low-severity, high frequency or persistent weather and climatic events (e.g. persistent drought and recurrent local flooding).

The two types of migration causes could be distinguished by their features. While migration due to environmental disasters is introduced as a sudden onset wave, mobility due to slow climate change is the result of more complex socioeconomic factors such as financial resources, family or social capital (Chindarkar 2012). Environmental disasters such as floods and repeated droughts proved to be direct causes of migration and are clearly distinguished from armed conflicts in several regions. However, this is not a common situation. In the Mediterranean region, different migration drivers are at work at the same time – so, logically, it is important to avoid overly simplistic cause-and-effect analysis.

Miletto *et al.* (2017) reported that migration in the Mediterranean takes place from dry to wet countries. By overlaying the two phenomena the researchers argue that water stress

¹ Walter Kälin and Sanjula Weerasinghe. 2017. Environmental Migrants and Global Governance: Facts, Policies and Practices. INTERNATIONAL ORGANIZATION FOR MIGRATION. [HTTPS://PUBLICATIONS.IOM.INT/BOOKS/ENVIRONMENTAL-MIGRANTS-AND-GLOBAL-GOVERNANCE-FACTS-POLICIES-AND-PRACTICES](https://publications.iom.int/books/environmental-migrants-and-global-governance-facts-policies-and-practices)

influences migrants' choice to leave their homeland, as well as their choice of where to settle to find better economic opportunities and a better quality of life, with the assumption that water-rich countries are more willing to accept them. That said, of course the juxtaposition of "wet" with northern Mediterranean more highly industrialized economies that demand labour from the southern Mediterranean countries cannot be assumed to be a causal link, but rather a product of long-term political-economic relations.

Weinthal, Zawahri and Sowers (2015) investigated the water, climate and migration nexus in the Mediterranean. They reported that in some host countries, the combination of conflict-induced migrants and hydrological effects of climate change are used by States to appeal for international assistance to finance controversial hydrological infrastructure. The presence of external refugees may also lead States to securitize the water, climate and migration nexus as a mechanism to justify xenophobic policies.

Aside from the interlinkages with migration, water scarcity impacts agriculture in a region where agriculture is the main employer of the labour force. The United Nations World Water Assessment Programme (2016) highlighted the role of "water jobs", estimating that 95 per cent of jobs in the agricultural sector, 30 per cent of jobs in the industry sector and 10 per cent of jobs in the services sector are heavily dependent on water. The instability or reduction of water supply may therefore contribute to increased unemployment and migration.

Given this perspective, and as part of the attempts to understand the water security nexus in North Africa, this activity aims to produce a comprehensive mapping of stakeholders in the Maghreb region (Algeria, Morocco and Tunisia).

This activity is the baseline to enable a thorough analysis of the interrelations between stakeholders at the organizational and/or management level. In addition to describing the hierarchical structures of the stakeholders, the report aims to increase understanding of mandates, operational modalities and the spectrum of activities, in order to explain the interactions among the different stakeholders in an attempt to define gaps and opportunities.

Considering the three main dimensions of the project (water, climate change and migration, with a particular emphasis on rural areas), CIHEAM Bari worked in partnership with CMI and on stakeholder mapping and analysis, setting in motion a sequential. The project is based on subsequent steps where the liaisons between the various channels are defined by substantially heuristic (hands-on) research (a hypothesis that is primarily assumed as a leading idea in fact-finding). It is organized as follows:

- Conceptual definition of the stakeholder in the framework of the project
- First identification of the stakeholders through the scientific literature

- Second identification of the stakeholders through an accurate web survey
- Classification of stakeholders in accordance with specific keywords
- Strict categorization of stakeholders in the following clusters: government/public research/academic; civil society (INGO, NGO); private sector; development partners
- Definition of the level of involvement of each stakeholder
- Identification of the relationships that exist or are supposed to exist between the identified stakeholders

Once this procedure was completed, a list of stakeholders (one per country and one of regional interest) was conceived, dividing the stakeholders based on a logical category of competence, with the “policy profiling technique” (Coplin, McMaster and O’Leary 1998) then applied. This technique provides for the verification of the impact that the various actors have in terms of policy on the issues under consideration. The first step is estimating the importance of their role in the subject matter and the power the stakeholders possess, by assigning each a number ranging from +1 to +3 (+1; +2; +3). The “power” of a stakeholder defines its influence/role in the decision-making process and/or implementation of the various phases of the programmes, plans and measures in relation to the issues under consideration at different levels (national to local).

It should be noted that under COVID-19 pandemic conditions, stakeholder meetings have been impossible. Therefore, the attribution of importance and value can be determined in two ways; the first is cooperation between the actors (as a result of conducting research and refining it with information from contact points in the three countries) on the issues in question; the second is a possible and desirable relationship between the stakeholders that, given their power and importance in this matter, can clarify their structure.

Subsequently, the methodology and findings were shared with all project partners. Their constructive feedback enabled the preparation of the second draft, which in turn was shared and discussed with the MedYWat network focus group for refinement and enhancement through e-meetings facilitated by CMI.

Two active members of MedYWat from each focus country, mentored by a senior researcher from CIHEAM Bari, in a two-cycle process, were asked to:

- Review the stakeholders’ list and check the relevance of the listed stakeholders to the climate change, drought and migration nexus
- Verify the categorization of stakeholders in the clusters
- Enhance the list
- Target programmes/projects/stakeholders that account for – or implicitly consider in their strategies/policies/activities – the gender dimension and the migration phenomenon
- Review and/or enhance the Cartesian graph and the valuing diagram

III. Morocco mapping

Table 1. Morocco stakeholders' list

Stakeholder	About	Contact/note
Government/public		
Ministry of Equipment, Transport, Logistics and Water/General Directorate of Water	<p>Main tasks:</p> <ul style="list-style-type: none"> Researching and evaluating water resources. Assessing surface and groundwater resources. Carrying out water planning and management. Monitoring and protecting the quality of water resources. Studying waterworks. Constructing, maintaining and operating hydraulic works. Designing and constructing small hydraulic works, particularly to control the effects of drought and flood protection. Carrying out climate and water research and development. Monitoring weather and information on climate change. <p>Activities:</p> <ul style="list-style-type: none"> Safe and secure supply of drinking water for 100 per cent of the population in urban areas and 95 per cent of the population in rural areas. Development of irrigation – important infrastructure allowing the irrigation of more than 1.5 million hectares of agricultural land. Irrigation development – extensive infrastructure to irrigate more than 1.5 million hectares of agricultural land. A large network of climatological, hydrological and piezometric flood prediction and water quality control, covering all the Kingdom's catchment areas, enables quantitative and qualitative monitoring and evaluation of the climate and surface and groundwater resources. In particular, the success of the water policy has developed in these areas: <ul style="list-style-type: none"> Development of technical skills and applied scientific research. Preservation of water resources, the natural environment and adaptation to 	<p>Address: Rue Hassan Bencheikroun, Agdal Rabat, PO Box Rabat-Chellah Telephone: +212 537 77 87 27 Fax: +212 537 77 86 96 Email: info@water.gov.ma</p> <p>Notes: Gender equality and water projects:</p> <p>1. <i>Cycle de Formation sur l'Intégration du Genre dans les Politiques Publiques [Training Course on Gender Mainstreaming in Public Policy]</i>. As part of the Improving Community Response to Management of Malaria (ICRAM) project, a training programme was developed across four years (from 2012 to 2016) in cooperation with the <i>Agence de Bassin Hydraulique</i> [Water Basin Agency – ABH] and the National Office of Electricity and Drinking Water (ONEE) to contribute effectively to the Sustainable Development Goals (SDGs) in relation to the water sector and to ensure the integrated management of water resources based on well-defined results and targets for reducing inequalities between women and men, beneficiaries of the programmes and projects of these public and semi-public entities (see http://81.192.10.228/genre-eau/seminaire-et-formation/).</p> <p>2. <i>Institutionalisation de l'Integration du Genre dans les Programmes du Departement de l'Eau [Institutionalization of Gender Mainstreaming in the Water Department Programmes]</i> between 2012 and 2016 ("ICRAM 1") and 2017 and 2021 ("ICRAM 2") (see http://81.192.10.228/wp-content/uploads/2017/03/Integration_genre_2019.pdf).</p> <p>3. <i>Rapport sur le budget axe sur les resultats tenant compte de l'aspect genre: contribution du Departement de l'Eau [Report on gender-responsive budgeting contribution of the Water Department]</i> examines gender equality in relation to water agencies and water-related programmes (see http://81.192.10.228/wp-content/uploads/2018/11/RG_LF_2019.pdf).</p>

	<p>climate change through preserving water quality, combating pollution, protecting and sustainably managing groundwater, developing and protecting watersheds, safeguarding and preserving sensitive areas, including wetlands and oases. The water sector in Morocco has benefited from a particular interest of the public authorities and has been at the centre of economic policy concerns because of its determining role in the water security of the country and the monitoring of its development, including irrigated agriculture.</p> <ul style="list-style-type: none"> o The National Water Plan: To consolidate the achievements and meet the above challenges, the Ministry of Water Resources has developed the National Water Plan as an extension of the guidelines of the national water strategy presented to His Majesty King Mohammed VI on 14 April 2009 in Fez. Point 3 states "Preservation of water resources, the natural environment and adaptation to climate change by preserving the quality of water resources and combating pollution, protection and sustainable management of groundwater, the development and protection of watersheds and the safeguarding and preservation of sensitive areas, including wetlands and oases." <p>In this sense, the General Directorate of Water has developed and started implementing its own road map for climate change adaptation taking into account the gender approach. Seven priorities dominate actions in integrating this approach into policy: the annual budget reorganization into three programmes: i) the meteorological programme; ii) the steering and governance programme; and iii) the management programme, water preservation and development.</p> <p>Gender-sensitive budgeting (GSB) has been used by the General Directorate of Water since 2015 for studies and technical assistance in the</p> 	<p>4. Summary of the evaluation of the programme: Supply of drinking water and sanitation of schools in rural areas and identification of gender indicators (see http://81.192.10.228/genre-eau/etude-paepaser-et-ses-indicateurs-genre/).</p>
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	<p>field which has enabled the study of the strategy of institutionalizing gender integration in the water sector and the execution of case studies to identify and evaluate gender indicators for programmes carried out by the various entities of this department, such as the drinking water supply programme (EPA) and sanitation (SSA) schools in rural areas. It should also be noted that GSB is implicitly and visibly taken into account in the EPA and SSA projects. The year 2017 saw the inclusion of gender in studies and projects requiring gender-based population consideration (environmental impact studies; rural sanitation studies; water resource planning studies; the study of the employment and skills framework; rural EPA and sanitation projects; flood control studies and projects; surface water resource mobilization projects; pool contracts; communication of weather forecasts; short-term weather forecasts, etc.).</p> <ul style="list-style-type: none"> o Drought management plan: Morocco is characterized by a climate strongly contrasted with a rainfall and hydrological regime dominated by a very strong irregularity in time and space with the alternation of rainy periods and dry periods, which can last for several years. To meet water needs, which are continuously growing due to population growth, and to support the socioeconomic development of the country, Morocco has adopted a policy based on the control and mobilization of water resources through the development of water infrastructure, aimed at supplying drinking water to the population, the development of irrigation, the improvement of protection against flooding and the upgrading of these hydraulic structures through hydroelectric production. However, the water sector in Morocco still faces major constraints, mainly due to the scarcity of water resources due to climate change, and 	
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	<p>inadequate water resources with growing water needs. Thus, as part of the orientations of the national water strategy and the action plans of the project of the National Water Plan, the use of unconventional water resources, including the reuse of treated wastewater, was considered as an alternative to developing supply.</p>	
<p>Ministry of Energy, Mines and Environment</p>	<p>The Ministry of Energy, Mines and Environment, Department of Energy and Mines is responsible for the implementation of a strategic storage policy and for undertaking emergency measures to secure supplies in case of a crisis.</p> <p>Missions:</p> <ul style="list-style-type: none"> • Develop and implement government policy in the areas of energy, mining and geology. • Ensure the supervision of public undertakings and establishments under its jurisdiction as well as the control of other sectors under its authority, in accordance with the legislation and regulations in force. • Ensure the proper management and development of geological, energy and mining heritage. • Implement directions for geological research and exploration of the country's soil and subsoil resources. • Take the necessary actions and measures to ensure the security of energy supplies, to extend the access of rural and urban populations to commercial energy services and to ensure the safety of people, energy, and mining facilities. • Implement the strategic storage policy and undertake emergency measures to ensure security of supply in the event of a crisis. • Ensure that a strategic and forward-looking vision is always in place, enabling harmonious institutional development, continuous adaptation and development of the energy, mining and geological sectors. • Ensure the organization and functioning of the electricity, gas and oil markets, as part of the consolidation of a liberalized and integrated energy market in its regional environment, in particular by strengthening trade through interconnections, to enable the country to play an 	<p>Address: Rue Abou Marouane Essaadi PO Box Rabat Instituts 6208, Haut Agdal, Rabat Telephone: +212 537 68 84 00 Fax: + 212 537 68 87 44 Email: contact@mem.gov.ma</p> <p>Control, Environmental Assessment and Legal Affairs Department Address: 9 Avenue Al Araar, 420/1 Secteur 16, Hay Riad, Rabat Telephone: +212 537 57 66 35 Fax: +212 537 57 66 36 Email: dceeaj@environnement.gov.ma Email: drc@environnement.gov.ma</p> <p>Direction du Partenariat, de la Communication et de la Coopération [Partnership, Communication and Cooperation Directorate] Address: 9 Avenue Al Araar, 420/1 Secteur 16, Hay Riad, Rabat Telephone: +212 537 57 66 37 Fax: +212 537 57 66 38 Email: dpcc@environnement.gov.ma</p> <p>Laboratoire National des Etudes et de Surveillance de la Pollution [National Laboratory of Studies and Pollution Monitoring] Address: Avenue Mohamed Ben Abdellah Erregragui, Madinat Al Irfane, Rabat Telephone: +212 537 77 03 21 Fax: +212 537 77 01 18 Email: labo@environnement.gov.ma</p> <p>Direction des Changements Climatiques, de la Diversité Biologique et de l'Economie Verte [Directorate of Climate Change, Biological Diversity and Green Economy] Email: dccbev@environnement.gov.ma</p>

	<p>active role in the regional and international dynamics of the sector's development.</p> <ul style="list-style-type: none"> • Facilitate actions aimed at strengthening exchanges and consultation with all administrations, agencies and partners concerned with the development of the energy and mining sectors. • Establish the databases and information necessary for the development of economic and strategic analyses and impact studies, through the establishment of an energy and mining observation and planning system. • Promote national engineering in the fields of energy, mining and geology, as well as the training of the required human capacities and the preparation of the necessary management structures. 	
<p>Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests</p>	<p>Responsible for developing and implementing government policy in the field of agriculture and rural development:</p> <ul style="list-style-type: none"> • Takes the necessary steps to streamline the use of water resources in irrigation; takes all measures to encourage investment in the agricultural sector. • Collects, analyses and disseminates agricultural statistics and information. • Defines and implements strategies in the areas of agricultural higher education, agricultural research and agricultural, technical and vocational training. The agricultural higher education is provided by the Hassan II Institute of Agronomy and Veterinary Medicine (IAV) in Rabat and its horticulture campus in Agadir, the National School of Agriculture of Meknes (ENA) and the National School of Forestry Engineering in Salé (ENFI Salé). These institutions carry out their tasks within the framework of the national higher education policy set out in articles 25 and 26 of law no. 01.00 on the organization of higher education. <p>The Department of Water and Forests (DEF) has the following missions:</p> <ul style="list-style-type: none"> • Develop and implement government policy in the areas of conservation and sustainable 	<p>Address: Avenue Mohamed V, Quartier Administratif, Place Abdellah Chefchaoui, PO Box 607, Rabat Telephone: +212 537 66 53 00 / 54 50 / 56 00</p> <p>General Secretariat Address: Quartier Administrative, Rabat-Chellah Telephone: +212 537 76 30 15 Fax: +212 537 76 44 46</p> <p><i>Direction de la Lutte contre la Désertification et de la Protection de la Nature</i> [General Directorate to Combat Desertification and Protect Nature] Address: 3 Rue Harroun Errachid, Agdal, Rabat Telephone: +212 537 67 39 32 Fax: +212 537 67 26 28</p> <p>Note: As part of the National Drought Adaptation and Mitigation Strategy, the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests set up a National Drought Observatory (ONS) in 2001. Recognized as an institutional forum for exchange, ONS intends to centralize meteorological and hydrological data and agronomic and socioeconomic partners involved in the management of the risk of drought in addition to the expertise of the institutes of research and universities. The monitoring of seasonality as well as other parameters allows ONS to develop several indicators based on information and to contribute to improving the decision-making process at different levels of the drought management chain, as prevention or crisis management. Since the launch of the initiative within scientific structures, the Central Management Unit of ONS has been in place to ensure its neutrality and efficiency in the implementation of its action. These include research structures as well as national or regional ministerial departments.</p>

	<p>development of forests and pastoral lands subject to the forest regime, as well as the development of hunting, fisheries and continental parks and nature reserves.</p> <ul style="list-style-type: none"> • Coordinate the establishment of institutional mechanisms for the preparation, implementation, monitoring and evaluation of government policy to combat desertification. • Participate in the development and implementation of government policy on rural development. 	
Ministry of Economy, Finance and Administration Reform	<p>The Ministry's activities include a section called "State private domains", which consists of all State properties that are not in the public domain. The State domains are managed through the mobilization of State-owned private land, missions providing support to productive investments, major State programmes, monitored productive urbanization, development of public equipment and social services and implementation of social housing and resettlement slums. The subdirectory called "agrarian reforms" is responsible for the regularization of the land parcel beneficiaries as part of land reform in coordination with the concerned departments.</p>	<p>Telephone: +212 537 67 75 01 (extension: 08) Email: internet@finances.gov.ma</p>
Ministry of Industry, Investment, Trade and Digital Economy	<p>This Ministry is responsible for the design and implementation of government policy in the areas of industry, trade and new technologies subject to the powers of other ministerial departments under the laws and regulations in force. Its actions include:</p> <ul style="list-style-type: none"> • Developing strategies for the development of the sectors of industry, commerce and new technologies and integrating them into operational programmes. • Promoting and developing innovation in the fields of industry and new technologies. • Contributing to the development of training plans in the sectors of industry, commerce and new technologies and participating in the monitoring of their implementation. • Developing partnerships, coordinates and implementing cooperation programmes. 	<p>Telephone: +212 537 76 52 27</p>
Ministry of Solidarity, Social Development, Equality and Family	<p>The Ministry has several focuses.</p> <p>The first is "social development" in relation to the implementation of the 4+4 strategy of the social pole for the period 2012–2016. The Ministry allocates a significant annual budget to partnerships with associations.</p>	<p>Contact person: Saida El Ouazzani (Office of Minister Bassima Hakkaoui) Email: saidaelouazzani@gmail.com Telephone: +212 661 19 06 22 Landline phone: +212 537 68 40 87</p>

	<p>Since 2012, this support programme has published a call for proposals as agreed in the government programme approved by Parliament on 26 January 2012. Between 2012 and 2016, the Ministry was able to subsidize 670 projects with an overall budget of AED 156,109,439, which covered all areas of intervention of the Ministry, namely:</p> <ul style="list-style-type: none"> • Schooling of children with disabilities from poor families • Family mediation centres • Listening centres • Social protection institutions for persons in difficult situations • Seniors' centres <p>The second is women. The coordination of public policies in the field of equality and promotion of women's rights is one of the Ministry's major tasks and to respond to this cross-functional coordination commitment, the Ministry launched a project to rework its organization chart and establish a new administrative organization. The major tasks of the Directorate for Women are as follows:</p> <ul style="list-style-type: none"> • Implementing and monitoring the national strategy for equality and parity and establishing communication and awareness plans. • Implementing and monitoring the national strategy to combat violence against women and girls. • Ensuring consistency between the programmes and the interventions of ministerial departments, associations and the private sector to promote gender equity. • Conducting studies, research, collection and distribution of documents. • Supporting stakeholders in terms of service reception and offerings that are inclusive of women. • Strengthening cooperation with all stakeholders in the field of the advancement of women. • Supporting associations focused on women's issues. 	
Ministry of Foreign Affairs, African Cooperation and Moroccan Expatriates (MRE)	<p>The Ministry carries out the following missions:</p> <ul style="list-style-type: none"> • Strengthening solidarity and promoting social actions for the benefit of Moroccans around the world. • Preserving and consolidating the Moroccan identity. • Encouraging and promoting public services for the benefit of Moroccans around the world. • Facilitating integration in host countries. 	<p>Telephone: +212 6 61 07 60 60 Fax: +212 537 77 00 06</p> <p>Note: The following are some specific programmes.</p> <p>1. <i>Politique Nationale d'Immigration et d'Asile</i> [Migration National Policy Report] 2017: Considerable progress was achieved over the past four years that illustrates the magnitude and depth of the change driven by this new policy, including the 2014 regularization campaigns and the campaign that started at the end of 2016. To</p>

	<ul style="list-style-type: none"> • Mobilizing Moroccans to contribute to the development of known areas in Morocco. • Preparing and implementing government policy on migration and integration of immigrants and refugees. • Establishing sound governance for the immigration system. • Representing the Government among NGOs and in international forums on migration issues. • Overseeing policy development and taking necessary steps to facilitate social integration, education and culture for migrants and refugees in Morocco. • Coordinating and monitoring government policy on relations with institutions and NGOs concerned with the issues of migrants abroad and immigration matters, under the leadership of IOM. <p>A decree was issued on 1 December 2014 regarding the creation and institutionalization of the offices for Moroccans living abroad and migration in Nador, Béni Mellal, Tiznit and Khouribg as part of the Ministry's new organization chart, which was established by council order no. 2.14.192 of 4 April 2014. The main tasks of these houses are to:</p> <ul style="list-style-type: none"> • Welcome and guide MRE and migrants legally residing in Morocco, and follow their requests with the relevant regional and local authorities and institutions. • Support and guide MRE investors at the regional and local levels. • Support Moroccans around the world in difficult situations and coordinate with local authorities, local civil society associations and relevant administrations to develop social activities for the benefit of MRE and legally resident migrants in Morocco. • Monitor cultural activities organized by the Ministry at the regional or local level, as well as educational programmes organized for the benefit of MRE and migrants legally resident in Morocco. 	<p>activate the integration process, Morocco has proceeded with the opening of all its public services to migrants and refugees so that they can benefit in the same way as Moroccans: access health and education services, legal protection, social assistance, employment and vocational training. (see https://marocainsdumonde.gov.ma/wp-content/uploads/2018/03/POLITIQUE-NATIONALE_Rapport-2017.pdf).</p> <p>2. Politique Nationale d'Immigration et d'Asile [Migration National Policy Report] 2018: (see https://marocainsdumonde.gov.ma/wp-content/uploads/2019/01/Politique-Nationale-dimmigration-et-dAsile--Rapport-2018.pdf).</p> <p>3. Migration Management and Integration: Over the last 20 years, Morocco has become both a transit country and a destination for many migrants. In addition, an increasing number of Moroccans residing abroad are returning to settle in their country of origin. This trend is accompanied by challenges at the social, economic, institutional and legal levels. The following are several projects that deal with this trend:</p> <ul style="list-style-type: none"> • https://www.giz.de/en/downloads/Fiche_ENSA%20(EN).pdf • https://www.giz.de/en/downloads/Fiche%20projet%20RECOSA%20(EN).pdf • https://www.giz.de/en/downloads/Fiche_Action_EN.pdf • https://www.youtube.com/watch?v=KRGSO6cLUVU <p>These projects help to better understand the inflow/outflow of migration.</p>
Ministry of National Education, Vocational Training, Higher Education and Scientific Research	The national education system is coordinated by the Ministry of National Education, Higher Education and Scientific Research whose actions and interactions make it possible to design and implement national research policy.	<p>Département de l'Enseignement Supérieur et de la Recherche Scientifique [Department of Higher Education and Scientific Research]</p> <p>Address: Boulevard Mohamed Lyazidi – Hassan, PO Box 4500, Rabat</p> <p>Telephone: +212 537 21 75 / 01 / 02 / 03</p> <p>Fax: +212 537 21 75 47</p>

Ministry of the Interior	<p>Two subdirectorates are related to migration:</p> <p>1. General Directorate of National Security (GDNS): This subdirectorates is in charge of internal security. It delivers residence permits after collecting information both on the person applying for a permit and on their family members. Statistics on residence permits are provided only upon request. The necessary improvements must aim to harmonize this system and adapt it to produce migration statistics in line with international recommendations.</p> <p>2. Directorate of Migration and Border Control and the Migration Observatory: It is in charge of border management, immigration/emigration and assisted voluntary return of migrants.</p> <p>The Ministry of the Interior carries out border controls and combats illegal trafficking through a monitoring system implemented by the new Migration Directorate, which has compiled statistics on irregular migration.</p> <p>The only statistics available are related to arrests and irregular migrants transferred to their homes. These statistics cannot constitute indicators of entries, but they can inform about the nationality, gender, educational level, marital status and professions of migrants.</p>	<p>Address: Quartier Administratif, Rabat Telephone: +212 537 76.51.69 / +212 537 76 05 26 Fax: +212 537 76 68 61</p> <p>Note: The following are some important programmes concerning inflow and outflow migration:</p> <p>1. <i>Mobilité Interne et Migration: État des Lieux et Impacts Socio-Sécuritaires [Internal Mobility and Migration: State of Play and Sociosecurity Impacts]</i>: (see https://www.policycenter.ma/sites/default/files/OCPPC-PP1613.pdf)</p> <p>2. <i>Étude de Référence sur la Gouvernance de la Migration de la Main-d’Œuvre au Maroc : Défis et Opportunités [Final Report: Benchmark Study on the Governance of Labour Migration: Challenges and Opportunities]</i>: (see https://marocainsdumonde.gov.ma/wp-content/uploads/2018/02/2015.04.17_Etude_gouvernance-migration-OIT.VF_.pdf)</p> <p>3. <i>Projet de Coopération sur les Questions Liées à l’Intégration Sociale des Immigrés, à la Migration et à la Circulation des Personnes [Cooperation Project on the Issue of the Social Integration of Immigrants, Migration and the Movement of People] 2007</i>: This project focused on migration and immigration in Morocco, and how these flows shall be controlled. (https://cadmus.eui.eu/bitstream/handle/1814/7989/CARIM-RR_2007_04.pdf?sequence=3&isAllowed=y)</p>
Agence de Bassin Hydraulique [Water Basin Agency – ABH]	<p>ABH is a public institution of administrative character, legal personality and financial autonomy instituted by decree no. 2-00-480 of 17 Chaâbane 1421 (14 November 2000), modified and supplemented by decree no. 2-08-510 of 19 Muharram 1430 (16 January 2009). Its main activities and mandates are to:</p> <ol style="list-style-type: none"> 1. Develop the Integrated Water Resources Management Master Plan (PDAIRE/IWRMMP). 2. Issue authorizations and concessions for the use of the public water domain. 3. Provide financial assistance, services and technical assistance to prevent pollution. 4. Carry out hydrological and hydrogeological measurements, studies, etc. 5. Implement quality measures. 6. Propose and implement regulatory measures in the event of a reported water shortage, or to prevent the risk of flooding. 7. Manage and control mobilized water resources. 8. Maintain a register of recognized water rights, leases and approvals. <p>Its missions are as follows:</p>	<p>Address: Oum er-Rbia ABH Telephone: +212 23 48 23. Email: agence@abhoer.ma Website: http://www.abhsm.ma/</p> <p>Note: ABHs in Morocco are under the auspices of the General Directorate of Water of the Ministry of Equipment, Transport and Logistics – which supplies its budget – but they have financial autonomy.</p> <p>There are many ABHs in Morocco; the address provided is the one in Oum er-Rbia, which features in the case study in the project.</p>

	<ul style="list-style-type: none"> • Contribute to the research and development of techniques for the mobilization, rational use and protection of water resources in partnership with scientific institutions and specialized laboratories. • In partnership with the Administration, public institutions and local and regional authorities, implement the actions necessary for the prevention of and protection against floods. • Give its opinion on any project which may have an impact on water resources and the hydraulic public domain, including concession contracts and specifications relating to seawater desalination. • Develop and implement the IWRMMP, local water management plans and drought water shortage management plan. 	
National Office of Electricity and Drinking Water (ONEE)	<p>ONEE is an industrial and commercial public entity with financial autonomy. Created in 1972, the ONEE water branch is a major player in the drinking water and sanitation sector in Morocco. It carries out the planning, production and distribution of the country's water resources and is a strong example of sustainable development. Since the mid-1990s, it has been working on the sustainable development of all sectors, as well as increasing access to electricity and drinking water, wastewater treatment, developing a liquid sanitation service, upgrading and expanding production networks, marketing and distributing electricity and water resources, combating waste and implementing new instruments and techniques for saving water and electricity. Increasing access to drinking water in rural areas is a priority for the board, which has developed a strategy for providing drinking water in rural areas, the principles of which are as follows:</p> <ul style="list-style-type: none"> • Considering drinking water a right for all citizens. • Consolidating solidarity between urban and rural areas. • Adopting a participatory approach with rural populations. • Promoting partnership with local communities. • Promoting sustainability of drinking water services. • Ensuring the quality of the distributed water. • Prioritizing structuring projects and regions with water deficits. 	<p>Address: Avenue Belhassan El Ouazzani, PO Box Rabat-Chellah, Rabat, 10002</p> <p>Telephone: +212 537 75 96 00</p> <p>Fax: +212 537 65 06 49</p> <p>Note: This department is financially independent as it sells water and electricity to customers (citizens, industry, etc.), and directly benefits from these huge funds to finance the operation, management, maintenance and development of infrastructure.</p>

<p>Le Conseil Général du Développement Agricole [General Council for Agricultural Development]</p>	<p>The General Council is a permanent review, evaluation and research body that monitors the actions of the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests by predicting the evolution of agriculture and the rural world over the long term.</p> <p>Its tasks include:</p> <ul style="list-style-type: none"> • Analysing and providing opinions on any matter related to agricultural policy and rural development. • Formulating proposals for the definition of agricultural and rural choices and guidelines considering the changing national and international context and the specific potential and objectives of integrated rural development at the local and regional levels. • Suggesting any changes that could improve the efficiency and integration of agriculture in the national and international economic environment. • Contributing to the development of any legislative or regulatory measures that will improve the organization and operation of the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests' departments and the structures under its supervision to ensure the best value for money and expertise. 	<p>Address: Avenue Mohamed Belarbi Alaoui, Agdal Institutes, Rabat</p> <p>Telephone.: +212 537 68 64 61</p> <p>Fax: +212 537 68 27 63</p> <p>Email: contact@cgda.ma</p>
<p>Agency for Agricultural Development (ADA)</p>	<p>ADA is a public institution with legal personality and financial autonomy, even though supervised by the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests which supplies its budget. ADA is responsible for proposing action plans to government authorities to support solidarity agriculture through the promotion and implementation of economically viable projects to improve farmers' incomes.</p> <p>Its mission is to participate in the implementation of the Government's agricultural development strategy. In particular, it is responsible for proposing to government authorities the action plans for supporting high value added agricultural value chains with a view to improving productivity through:</p> <ul style="list-style-type: none"> • Researching and mobilizing land for the extension of agricultural schemes and the development of high value added crops. 	<p>Address: Espace les Patios, Avenue Annakhil & Mehdi Benbarka Buildings 2 & 3, Hay Riad, Rabat</p> <p>Telephone: +212 537 57 38 26</p>

	<ul style="list-style-type: none"> • Encouraging the valorization of agricultural products through the implementation of new irrigation systems, farm equipment, packaging and marketing. • Promoting agricultural investments and implementing partnerships with investors. 	
Agricultural Development Regional Office (ORMVA)	<p>Created in 1966, ORMVAs are responsible for the agricultural development of irrigated areas. They have the status of public commercial enterprises and are subject to State control. They were fully responsible for the management of large irrigation systems, but at present, some of their responsibilities have been transferred to the water users' associations. They were also responsible for managing the dams and the distribution of water through the irrigation networks, maintaining the irrigation systems, financial management, and, where necessary, performing additional engineering works. The area covered by the nine ORMVAs is approximately 500,000 ha.</p> <p>Their three fundamental missions are planning, agricultural development and irrigation water services. In terms of capacity-building, ORMVAs normally provide the following services:</p> <ul style="list-style-type: none"> • Technically supporting farm management. • Advising and assisting with the irrigation equipment of the farms. • Supporting aggregation projects. • Conducting awareness campaigns for the sustainable management of groundwater. • Establishing training plans for staff. • Supporting applied research programmes. 	<p>Website: Each ORMVA has its own web page (see, for example, the Haouz ORMVA – ORMVAH http://ormvah.com/).</p> <p>Note: The ORMVAs in the case studies of the project are important stakeholders and shall be contacted.</p>
Haut Commissariat aux Eaux et Forêts et pour la Lutte contre la Désertification [High Commission for Water, Forestry and Combating Desertification – HCEFLCD]	<p>Soil conservation and watershed management are strategic issues for the sustainable management of natural resources and the improvement of the living conditions of the people who depend on them, as well as for the rational mobilization of water, vital to the socioeconomic development of the country. Accordingly, HCEFLCD has the following missions:</p> <ul style="list-style-type: none"> • Develop and implement government policy in the areas of conservation and sustainable development of forest resources, alfalfa, pastoral resources in the forest regime, as well as to develop hunting, continental fish 	<p>Address: Direction de la Lutte contre la Désertification et de la Protection de la Nature, 3 Rue Haroun Arrachid, PO Box 605 Rabat-Chellah, Rabat (Rabat/Rabat-Salé-Kénitra), 10000</p> <p>Telephone: +212 537 67 02 90</p> <p>Fax: +212 537 67 02 90 / +212 537 67 10 31</p> <p>Website: www.eauxetforets.gov.ma</p> <p>Note: HCEFLCD reports to the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests, and DEF.</p>

	<p>farming and parks and nature reserves.</p> <ul style="list-style-type: none"> • Coordinate the establishment of institutional mechanisms for the preparation, implementation, monitoring and evaluation of government policy to combat desertification. • Participate in the development and implementation of government policy on rural development. <p>Activities: In terms of soil conservation and watershed management, HCEFLCD has developed the <i>Plan National d'Aménagement des Bassins Versants</i> [National Watershed Management Plan – PNABV]. This is a national watershed management plan based on the analysis of experience which advocates for a treatment action programme of 75,000 ha/year at an annual cost of AED 150 million over a 20-year period at the level of 22 priority watersheds.</p> <p>The soil conservation and watershed management projects are integrated development programmes with very ambitious objectives in terms of increasing farm incomes, better management of natural resources and reducing erosion. These projects took a participatory approach. Indeed, village communities will only properly manage the facilities they have freely chosen. These communities must therefore be seen as genuine partners with whom the various development programmes concerning them must be defined.</p>	
High Commission for Planning	<p>The High Commission for Planning is a ministerial structure inaugurated in September 2003 as a mission administration, under the authority of an appointed High Commissioner, who holds the rank of Minister. It enjoys institutional and intellectual independence in the establishment of its programmes and in the conduct of its investigations and studies. It is the main producer of economic, demographic and social statistical information and is responsible for compiling the national accounts. It has an observatory of household living conditions and a centre for demographic studies and research.</p>	<p>Contact person: Ahmed Lahlimi Alami (the High Commissioner for Planning) Telephone: +212 537 57 69 00 Email: hacolah@menara.ma</p>
Directorate of Statistics	<p>The Directorate of Statistics is responsible for the following tasks:</p> <ul style="list-style-type: none"> • Carrying out surveys, censuses and studies in the demographic, economic and social fields. • Collecting, centralizing, processing, analysing and organizing statistics from 	<p>Contact person: Oussama Marseli (Director) Telephone: +212 537 77 32 44 /45 Email: o.marseli@hcp.ma</p> <p>Division de la Cartographie et du Système d'Information Géographique [Cartography and Geographic Information System Division]</p>

	<p>different sources in databases and disseminating them.</p> <ul style="list-style-type: none"> • Ensuring the development and promotion of the national statistical system. • Ensuring the standardization of concepts, the harmonization and proper use of statistical methodologies in the national statistical system and the coordination of statistical work carried out by the various components of the system. • Carrying out statistical work and studies, information technology-related work for some and cartographic work for others, more specifically: <ul style="list-style-type: none"> o The Cartography and Geographic Information System Division is responsible for the following tasks: <ul style="list-style-type: none"> – Designing methodological approaches for census mapping, surveying and master sampling. – Carrying out cartographic work for the purposes of censuses, surveys and the master sample. – Collecting, processing, exploiting, analysing and disseminating geographical information. – Setting up, managing and updating the geographical information system. – Collecting, operating and disseminating data on community facilities. – Setting up a communal information system. o The Economic Census and Business Surveys division is responsible for the following tasks: <ul style="list-style-type: none"> – Carrying out surveys of enterprises. – Carrying out studies and surveys of private and public non-profit institutions (associations, NGOs, administrations, local authorities, etc.). – Carrying out the economic census. – Collecting, entering and analysing tax data and establishing a database 	<p>Contact person: Rachid Zoubir Email: r.zoubir@hcp.ma</p> <p>Division du Recensement Economique et des Enquêtes auprès des Etablissements [Economic Census and Business Surveys Division] Contact person: Mourad Feddouli Telephone: +212 5 37 27 29 26 Email: m.feddouli@hcp.ma</p>
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	<p>on organized enterprises.</p> <ul style="list-style-type: none"> – Managing and updating the national register of enterprises and their establishment, set up by the Directorate of Statistics. – Drawing up and updating the classifications of economic activities and products. 	
Royal Centre for Space Remote Sensing (CRTS)	<p>Created by decree in December 1989, CRTS was mandated to promote the exploitation and development of remote sensing applications in Morocco. CRTS coordinates and implements the national remote sensing programme in collaboration with ministerial departments, private operators and Moroccan universities. CRTS is responsible for the acquisition, archiving and dissemination of data and images, Earth observation, project implementation and the development of methodologies in remote sensing and geographic information systems and related areas. It also provides a continuous professional development training programme on space techniques and participates in research programmes and actions in partnership with national and foreign research institutions.</p> <p>Water resources: At CRTS, several projects carried out or in progress demonstrate the contribution of space techniques to the field of water resources, particularly in the areas of integrated management of water resources (e.g. project with the ABH Souss Massa as part of the TIGER initiative), the exploration of groundwater in cracked environments (SPOT IMAGE/CRTS/DRPE joint study in Guelmim region).</p> <p>Desertification: Space remote sensing is an effective tool for large-scale and small-scale monitoring and observation of this phenomenon. This monitoring is carried out using macro- and meso-geographical indicators calculated from satellite images in combination with exogenous data (soil, climate, agroecology, etc.). Several projects carried out at CRTS have made it possible to define indicators of desertification and methods of information processing and to strengthen national capacities, such as the indicators for monitoring desertification (LIFE and FORMA) and the Drought Monitoring and Management Project (SMAS).</p>	<p>Address: Hay Riad, Rabat Telephone: +212 537 71 54 48 / 98 Fax: +212 537 71 14 35</p>
Directorate of National Meteorology (DMN)	<p>Extreme and recurrent weather and climate events (drought, floods, etc.) have shown the importance of reliable and relevant meteorological information in the planning and management of the country's resources. Created in 1961, DMN is an</p>	<p>Telephone: +212 522 65 49 00 / 65 48 00 Email: contact@marocmeteo.ma Contact person: Said el Khatri (elkhatri@gmail.com) DMN Casablanca</p>

	<p>autonomously managed State department (SEGMA), under the supervision of the Ministry of Energy, Mines and Environment. Within the framework of its responsibilities are observation and forecasting. It also contributes to the economic and social development of the country by meeting the meteorological, climatological and environmental information needs of the various sectors of activity. Its powers described in decree no. 2-94-724 of 21 November 1994 are to:</p> <ul style="list-style-type: none"> • Carry out the activities relating to meteorological and climatological information necessary to satisfy all the needs of users at the national level and to ensure the international exchange of data in the application of the agreements ratified by the Kingdom of Morocco. • Conduct atmospheric, meteorological, climatological theoretical, experimental and applied studies and research. • Participate in the preparation of international agreements in liaison with the relevant authorities concerning the areas of its competence and to establish and enforce the regulatory texts relating to meteorology. 	<p>Contact person: Tarik el Hairech (tarik.elhairech@gmail.com) DMN Casablanca</p> <p>Website: http://www.marocmeteo.ma/</p>
Morocco's Climate Change Skills Centre	<p>The Climate Change Skills Centre is a platform for strengthening the skills of relevant actors from different sectors (public, economic, research and training, civil society, local and regional authorities, etc.) and a hub for the development and dissemination of climate change expertise open to both national and African clientele.</p> <p>The current four priority areas are:</p> <ul style="list-style-type: none"> • Institutionalization • Development of mitigation and adaptation instruments for climate policy implementation • Training and capacity-building • Exchange of experience and international dialogue 	<p>Address: Avenue Al Araa, Secteur 16 Villa A4, Hay Riad, Rabat</p> <p>Email: chafil.rajae@4cmaroc.com</p>

Research/academic

National Institute for Agricultural Research (INRA)	<p>INRA has the task of undertaking research for agricultural development. It is a public institution whose origins date back to 1914 with the creation of the first official agricultural research services. It has recently undergone a structural reorganization to modernize its management process. The purpose of the new organization is to provide the institution with:</p> <ul style="list-style-type: none"> • Adequate strategic planning to strengthen the prospective capacity to adapt, react and 	<p>Address: INRA, Avenue Ennasr Rabat, PO Box 415, Rabat RP</p> <p>Telephone: +212 537 77 98 06 / 537 77 09 55</p> <p>Fax: +212 537 77 17 13</p> <p>Website: www.inra.org.ma</p> <p>Contact person: Aziz Fadlaoui</p> <p>Telephone: +212 535 52 03 00 / 535 52 37 11</p> <p>Note: The following is a specific programme.</p>
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	<p>anticipate the social demand for agricultural research.</p> <ul style="list-style-type: none"> • A proximity policy based on the regionalization and devolution of research. • An integrated system for monitoring and evaluation. • An integrated and rational management of resources. • A promotion policy for its products. • A coherent policy of information and cooperation. <p>To fulfil its mission and keep pace with current scientific developments, INRA maintains partnerships with national and international organizations, development structures, the private sector and NGOs.</p> <p>Subgroups: Regional Agricultural Research Centre of Rabat/Research Unit on the Environment and the Conservation of Natural Resources and Regional Agricultural Research Centre of Meknes/Research Unit on sustainable development of natural resources.</p>	<p>Crop Growth Monitoring System – Morocco (CGMS-MAROC): Food security depends on grain crops sensitive to climatic hazards, both in Morocco and in the rest of the world. Domestic cereal production is highly exposed to climate risk as it is located primarily in arid and semi-arid areas with limited and marginal soil and water resources relative to crop growth needs. Crop year monitoring and crop prediction is an essential component of managing climate risk in agriculture. CGMS-MAROC monitors crop development, based on weather conditions, soil characteristics and crop parameters. CGMS-MAROC comprises three levels:</p> <ul style="list-style-type: none"> • Level 1: The collection of meteorological data and their interpolation on a square grid of 9 km² throughout the national territory • Level 2: The simulation of crop growth • Level 3: The prediction of harvests from a combined approach, using parametric and non-parametric statistical analyses of meteorological data, simulation data and satellite data <p>In the general vision of the project are three national institutes that have the following responsibilities:</p> <p><u>INRA:</u></p> <ul style="list-style-type: none"> • Collecting and providing the agronomic data necessary to calibrate the system at CGMS-MAROC Level 2 • With DMN and Decision Support System (DSS), contributing to the statistical analysis of crop prediction scenarios at CGMS-MAROC Level 3 • Analysing data from satellite imagery for the prediction of agricultural yields at CGMS-MAROC Level 3 <p><u>Directorate of Statistics:</u></p> <ul style="list-style-type: none"> • Collecting and providing data on agricultural areas and yields necessary for the proper functioning of CGMS-MAROC • Estimating agricultural areas through satellite image processing and field surveys <p><u>DMN:</u></p> <ul style="list-style-type: none"> • Hosting and IT maintenance of CGMS-MAROC for the benefit of the three institutions • Interpolating climate data from the network of weather stations and using these interpolated data at CGMS-MAROC Level 1 <p>For all the reports and data exchanges, the main coordinator is INRA, whose contact person is:</p> <p>Contact person: Riad Balaghi Email: riad.balaghi@gmail.com</p> <p>Address: Campus Rabat, Madinat Al Irfane, PO Box 6202-Instituts, Rabat, 10112</p>
Hassan II Institute of Agronomy and Veterinary Medicine (IAV)	A polytechnic centre of multidisciplinary expertise, IAV provides initial and in-service	

	<p>training to specialists in life and Earth sciences and technologies (engineers, veterinarians and agriculturalists). The competencies of IAV extend to the following broad areas:</p> <ul style="list-style-type: none"> • Agriculture and agricultural resources • Rural development and spatial planning • Environment and natural resource management • Agro-industrial processing • Plant, animal and microorganism biotechnologies • Veterinary public health • Services associated with agricultural production, distribution and marketing 	<p>Telephone: + 212 537 77 17 45 / 58 / 59</p>
<p>Centre National d'Etudes et de Recherche sur l'Eau et l'Energie [National Centre for Water and Energy Studies and Research – CNEREE]</p>	<p>Created by the Ministry of National Education, Vocational Training, Higher Education and Scientific Research within the framework of the five-year plan for 2000–2004. Attached to the University Cadi Ayyad, CNEREE began its activities in 2011. Its research/development activities revolve around the programmes and priorities set by the Moroccan State in the field of water and energy.</p> <p>CNEREE develops a research activity including technologies for the treatment, recycling and recovery of wastewater, water quality, nanotechnologies, water desalination, geophysical studies, renewable energy and energy efficiency.</p> <p>The research activities developed by CNEREE thus enable it to spread internationally and nationally and to position itself as a research actor at the service of development and the socioeconomic fabric.</p>	<p>Address: Avenue Abdelkrim Elkhattabi, PO Box 511, Marrakesh, 40000</p> <p>Telephone/fax: +212 524 43 48 13</p> <p>Email: cneree@uca.ma</p>
<p>Pôle de compétences Eau & Environnement [Water and Environment Skills Centre – PC2E]</p>	<p>PC2E is a national, open-source, network-based research structure. It brings together public and private higher education and research institutions through their accredited research laboratories, unifying the research theme “integrated management of water resources and environmental protection”.</p> <p>The overall objectives of PC2E are to:</p> <ul style="list-style-type: none"> • Strengthen synergy between research laboratories. • Transfer know-how and research results to the socioeconomic sectors which are unlikely to exploit them. • Promote research and development in the field of water. • Establish and strengthen bilateral and multilateral cooperation. 	<p>National focal point: University Cadi Ayyad Faculty of Sciences</p> <p>Address: Avenue Moulay Abdellah, PO Box 2390, Marrakesh</p> <p>Telephone: +212 524 43 46 49</p> <p>Fax: +212 524 43 67 69</p> <p>Email: pc2e@ucam.ac.ma</p> <p>Note: This stakeholder is a research institution.</p>

	<ul style="list-style-type: none"> • Support the implementation of the National Sustainable Development Strategy and public policies in the fields of water. • Contribute to the respect of international commitments of Morocco. 	
University Cadi Ayyad	<p>The university offers a water and environment bachelor's degree in science and technology.</p> <p>Option: "Exploration and exploitation of water resources" is a qualifying training course with an omnipresent concern for the preservation of the environment. Its scientific and technical character gives students relevant analytical skills adapted to the prospection, management and quality control of natural water resources through a good knowledge of the geological, hydrogeological, hydrochemical and environmental context.</p>	<p>Address: Avenue Abdelkrim Khattabi, PO Box 511, Marrakesh, 40000</p> <p>Telephone: +212 524 43 77 41 / 524 43 48 14</p> <p>Fax: +212 524 43 44 94</p> <p>Email: ucacom@uca.com</p>
Mohammed VI Polytechnic University	<p>The International Water Research Institute (IWRI) aims to become an international reference for research, education and innovation in the fields of water and climate. It aims to rethink and adapt research, development, innovation and training to new paradigms to meet the future challenges of water and climate.</p> <p>IWRI implements inter- and transdisciplinary programmes on water- and climate- related issues within the Benguerir campus of the Mohammed VI Polytechnic University, as well as two future research and innovation platforms dedicated to water within the Mazagan campus and the Fout El Oued-Laayoune technology park.</p> <p>The objective of the IWRI programme is to conduct cutting-edge research where local and global water and climate issues are closely linked. Its mission is to:</p> <ul style="list-style-type: none"> • Explore new ways to address water issues in Africa. • Develop innovative and low-cost water technologies, and solutions to combat water stress and better manage water use (in agriculture, industry, etc.), as well as water-saving solutions through advanced technologies. • Focus on the impact of climate change and climate change adaptation metrics. • Sensitize citizens to the value of water and capitalize on and value traditional methods of water management. 	<p>Address: IWRI, Mohammed VI Polytechnic University, Lot 660, Hay Moulay Rachid Ben Guerir, 43150</p> <p>Telephone: +212 525 07 31 00</p> <p>Fax: +212 525 07 31 34</p> <p>Email: contact@um6p.ma</p>

	<ul style="list-style-type: none"> • Act as an African Water Hub through triangular strategic cooperation and partnerships (international open space exchange platform). 	
Private sector		
Agricultural Water Users' Associations (AUEA)	In 1990, the State opted for participatory irrigation management, aimed at empowering farmers in future hydro-agricultural schemes and irrigation systems management. AUEAs were created in an institutional framework. There are hundreds of such associations in Morocco.	Note: AUEAs will be promptly contacted during the development of the case studies.
Resilient Communities	Resilient Communities seek to help develop communities by implementing sustainable energy technologies and waste management practices. They aim to inspire youth to invigorate sustainable change in their communities and host a variety of community workshops in communities to educate on sustainable development pathways. They also host various research projects at educational institutions to give students the opportunity to create sustainable solutions to community development challenges.	<p>Contact person: Robert Eastman Johnson (Chair) Address: Tamsloht, Province Al Haouz Telephone: +001 502 642 7252 / +212 603 85 34 46 Email : ejohnson@resilientcommunitiesngo.org</p> <p>Note: Available information focuses on the Chair.</p>
Development partners		
French Development Agency (AFD)	<p>AFD funds, supports and accelerates the transition to a fairer and more sustainable world. It focuses on climate, biodiversity, peace, education, urban development, health and governance. Its teams carry out more than 4,000 projects in France's overseas departments and territories and a further 115 countries. In this way, it aims to contribute to the commitment of France and French people to supporting the SDGs.</p> <p>AFD's work in Morocco: AFD has been a partner of Morocco since 1992; it is one of the main partners of the country's public authorities and private actors. It mobilizes all its tools (grants, loans, guarantees, technical assistance, etc.) to act in several key sectors.</p> <p>AFD has five major programmes in Morocco, including:</p> <ul style="list-style-type: none"> • Developing rural areas (focus on agriculture, food security, territorial balance and natural resource management – AFD also finances the Green Morocco Plan and the Halieutis Plan). • Improving the urban environment (including access to basic services such as drinking 	<p>AFD in Rabat Address: 162 Avenue Mohammed VI, Route des Zaers Souissi, Rabat, 10170 Telephone: + 212 537 63 23 94 Fax: + 212 537 63 23 97 Email: afdrabat@afd.fr</p>

	<p>water and sanitation, to create better living conditions for city dwellers. AFD thus supported Morocco's National Sanitation Programme).</p> <ul style="list-style-type: none"> • Adapting to climate change, which includes activities in the agricultural, financial and industry sectors, broken down as follows: <ul style="list-style-type: none"> o Agricultural sector: AFD supports the <i>Adaptation au Changement Climatique de l'Agriculture du Maghreb</i> [Adaptation to Climate Change for Agriculture in the Maghreb region – ACCAGRIMAG] programme, a pilot project for adapting agriculture in the Maghreb to climate change, the objective of which is to modify practices to integrate new meteorological data. Its central focus is climate insurance. o Industry sector: AFD is strengthening sustainable development strategies for businesses. It has thus financed the water strategy of the OCP Group, a project that optimizes the reuse of treated wastewater to put an end to all groundwater withdrawal. o Financial sector: AFD supports the financial sector through a partnership with the BMCE Bank, in strengthening its financing offer for projects aimed at protecting water resources, industrial depollution and water recycling and reuse in Morocco. 	
World Bank	<p>Through the World Bank Morocco country office based in Rabat, the World Bank Water Global Practice conducts projects in collaboration with the national and local governments in Morocco.</p> <p>Launched in 2014, the World Bank's Water Global Practice brings together financing, knowledge and implementation in one platform.</p> <p>By combining the World Bank's global knowledge with country investments, this</p>	<p>Contact person: Country office contacts Address: 7 Rue Larbi Ben Abdellah, Souissi-Rabat, Rabat Telephone: + 212 537 54 42 00 Email: jalaoui@worldbank.org</p>

	<p>model generates more firepower for transformational solutions to help countries grow sustainably.</p> <p>The World Bank has continuously supported the development of Morocco in these focus areas:</p> <ul style="list-style-type: none"> • Water supply • Sanitation • Water resources management • Water in agriculture <p>In 2020, the World Bank Water Global Practice released a report titled <i>Water Scarcity in Morocco: Analysis of Key Water Challenges</i>.</p>	
<p>United States Agency for International Development (USAID)</p>	<p>The USAID/Morocco Country Development Cooperation Strategy (CDCS) directly reflects the United States Government's support for key aspects of the resulting reform agenda that targets employment for youth, citizens' participation in governance and education improvement.</p> <p>USAID/Morocco CDCS 2013–2019</p> <p>Goal: Advance Moroccan initiatives for peaceful reform</p> <p>Development objective 1: Employability of target youth enhanced</p> <p>Development objective 2: Increased civic participation in governance</p> <p>Development objective 3: Enhanced educational attainment for children at the primary level</p> <p>Among its engagement in Morocco, CDCS aims to improve water security and climate resilience in Morocco by building a green and resilient future.</p> <p>USAID has provided support to Morocco's water sector for over 20 years. In the late 1990s, USAID improved water resources management in the Souss Massa river basin, establishing a model of integrated water management that is still in use today. USAID's work in Morocco has helped mitigate climate risks by introducing new technologies and building local capacity.</p> <p>Three programmes are supporting this engagement:</p> <ol style="list-style-type: none"> 1. Research: USAID supports Partnerships for Enhanced Engagement in Research (PEER), a programme administered by the United States National Academy of Sciences to award grants to scientists in developing countries who partner with United States collaborators on research activities with strong potential development impact. 	<p>Address: American Embassy/USAID Km 5.7, Avenue Mohamed VI, Rabat, 10170</p> <p>Telephone: +212 537 63 72 00</p> <p>Fax: +212 537 63 20 20</p> <p>Email: MoroccoDesk@usaid.gov</p>

	<p>2. Improving irrigation efficiency: USAID is working with the Massachusetts Institute for Technology (MIT) on a new Ultra-Low Energy Drip Irrigation programme for Middle East and North African (MENA) countries.</p> <p>3. Drought monitoring: USAID is working with the United Nations Food and Agriculture Organization (FAO), the International Center for Biosaline Agriculture (ICBA), the University of Nebraska-Lincoln and in-country partners at various government ministries and agencies to further develop a regional drought monitoring system that will serve as a catalyst to improve the drought early warning capabilities of MENA countries.</p>	
<p>Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH [German Agency for International Cooperation – GIZ]</p>	<p>GIZ has been working in Morocco on behalf of the German Federal Ministry of Economic Cooperation and Development (BMZ) since 1975. GIZ is now taking on an increasing number of commissions in Morocco for other clients, such as the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMU), the German Federal Foreign Office (AA), the Federal Office for Economic Affairs and Climate Action (BMWi), the European Union and Moroccan companies. It opened its office in Rabat in 1999.</p> <p>Among its actions in Morocco, GIZ supports:</p> <p>Conservation and management of water resources Morocco's average water availability is well below the internationally accepted minimum standard and is subject to extreme seasonal and spatial fluctuations. GIZ is therefore helping to build the capacities of water authorities to adopt integrated water resources management (IWRM) in Morocco.</p> <p>Environment and climate change Morocco's future development will strongly depend on whether it can reduce environmental damage and conserve its natural resources so that they are available for use on a sustainable basis. To achieve this, GIZ is assisting its Moroccan partners to introduce a development model that minimizes the negative impacts on the environment and mitigates climate change.</p>	<p>Office address: GIZ Office Morocco, 29 Rue d'Alger, Rabat Hassan, 10001, PO Box 433, 10020 Rabat RP Telephone: +212 537 20 45 17 / 18 Fax: +212 537 20 45 / 19 Email: giz-maroc@giz.de</p> <p>Postal address: Bureau de la GIZ à Rabat, PO Box 433, 10000 Rabat RP</p>

Civil society (INGO, NGO)

<p>Tensift Regional Development Center (CRDT)</p>	<p>CDRT is an NGO created on 25 April 1998 as a space for reflection and support of regional development policies and</p>	<p>Address: 1st floor, 511, Apartment 3, Boulevard Almachaar Alharam, Issil, Marrakesh, 40000 Telephone: +212 524 31 16 08 / 668 16 81 89</p>
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	<p>evaluation of public policies in the Marrakesh-Safi region. It currently has more than 200 members, most of whom are senior executives (academics, engineers, doctors, architects, lawyers, business leaders, students, etc.).</p> <p>This diversity and versatility in its human resources in addition to its openness and collaboration with regional, national and international institutions have been an asset that has enabled it to adequately and appropriately address development issues in their various aspects and to carry out flagship projects in terms of capacity-building for development actors of the region, combating poverty through socioeconomic integration, environmental protection and cultural outreach.</p> <p>The efforts of CDRT have been rewarded by the acquisition of the status of public utility in 2006 and its admission as an observer member to the United Nations Framework Convention on Climate Change (UNFCCC) in 2010.</p>	<p>Fax: +212 524 31 15 54</p>
<p>Ribat Al Fath Association for Sustainable Development</p>	<p>The Ribat Al Fath Association for Sustainable Development has been the benchmark association in Rabat since its creation in 1986 and aims to offer residents of the capital the means to help enrich their lives and promote their city.</p> <p>Recognized as a public utility since 1988, Ribat Al Fath contributes each year to:</p> <ul style="list-style-type: none"> ● Promote cultural and intellectual activities and bring to life the heritage and identity of the city. ● Allow each citizen to play their role in the process of sustainable development. ● Give everyone the opportunity to be useful to the community. 	<p>Address: Rue Madani Bel Housni, PO Box 1390, Rabat (Rabat/Rabat-Salé-Kénitra), 10000</p> <p>Telephone: +212 537 75 61 06 / 75 61 08</p> <p>Fax: +212 537 75 64 09</p> <p>Website: www.ribatalfath.org</p>
<p>Mohammed VI Foundation for Environmental Protection</p>	<p>The Mohammed VI Foundation for Environmental Protection develops programmes within six areas:</p> <ul style="list-style-type: none"> ● Environmental education, which aims to raise awareness and sensitize the public on sustainable development issues. ● Coastal preservation, which aims to protect wetlands and coastal environments threatened by human activities. ● Sustainable tourism, which aims to change the practices and reduce pressures on the environment by the sector. ● Air and climate, which aims to raise awareness about improving air quality and reducing greenhouse gas emissions. ● The restoration of historic gardens, which aims to protect 	

	<p>exceptional heritage, improve the living environment for residents and make the living environment a place for learning and environmental awareness.</p> <ul style="list-style-type: none"> ● The safeguarding and development of the Marrakesh palm grove, which aims to maintain and plant adult palms, and manage the water resources, particularly using wastewater treatment for irrigation, solar energy for irrigation pumping, and by including the local population by supporting the development of ecological agriculture. 	
High Atlas Foundation (HAF)	<p>It is a Moroccan association and a United States 501(c)(3) non-profit organization founded in 2000 by former Peace Corps volunteers committed to furthering sustainable development. HAF supports Moroccan communities to act on implementing human development initiatives. HAF promotes organic agriculture, women's empowerment, youth development, education and health. HAF has had consultancy status at the United Nations Economic and Social Council since 2011. HAF is dedicated to local initiatives that community beneficiaries determine and manage:</p> <ul style="list-style-type: none"> ● Sustainable agriculture: Nurseries of fruit trees and wild medicinal plants, irrigation efficiency, organic certification, technical skill- building, carbon sequestration and commercialization. ● Education: School infrastructure, gardens and environmental stewardship. ● Health: Clean drinking water and waste management. ● Women's and youth empowerment: Self-discovery, human rights and cooperative development. ● Capacity-building: Participatory planning, project organization and environmental management. <p>One of the most important projects is the Irrigation Systems for Fruit Tree Agriculture project. Due to deforested mountainsides and the heavy seasonal rains, the Tifnoute Valley is vulnerable to erosion and mud slides which destroy villages and the subsistence crops that they depend on. Also, because of the lack of drinking water, the villagers drink from irrigation ditches and streams that contain high rates of harmful microorganisms because they are open and pre-used by upstream communities and</p>	<p>Telephone: +212 524 42 08 21 Email: haf@highatlasfoundation.org</p>

	animals. This remote and marginalized region now has a special opportunity in the form of this project.	
National Association for Land Improvement, Irrigation, Drainage and the Environment (ANAFIDE)	<p>ANAFIDE has been working on rural and agricultural development for over 40 years. It is recognized as a public utility and is Morocco's official representative in the International Commission on Irrigation and Drainage (ICID) and the International Commission of Agricultural Engineering (CIGR). It has as honorary Presidents the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests, the Ministry of Equipment, Transport, Logistics and Water/General Directorate of Water. This association has constantly ensured that its technical committees work in line with those of CIGR and ICID and develop an interface with the international scientific community on rural development issues, water management and environmental protection of interest to Morocco.</p> <p>Its technical committees are:</p> <ul style="list-style-type: none"> • Environment, irrigation and drainage • Infrastructure and rural development • Enterprises • Communication and publishing <p>It has partnerships with:</p> <ul style="list-style-type: none"> • Ministry of Water Resources • IAV • GIZ • ICID 	<p>Address: 2 Rue Haroun Errachid, Agdal, Rabat</p> <p>Telephone/fax: +212 537 67 03 03</p> <p>Email: anafide.ma@gmail.com</p> <p>Website: www.anafid.net</p>
Moroccan Drinking Water and Sanitation Association (AMEPA)	<p>AMEPA was founded in 1997 by public and private operators in the drinking water and sanitation sector in Morocco to meet future challenges and defend the interests of the sector.</p> <p>It aims to be a platform for exchange and capitalization on experiences, to support its members and to be a benchmark for the sector, an information centre and a centre of reflection on the organization of the sector. its main activities include:</p> <ul style="list-style-type: none"> • Promoting the quality of services, engineering and the national water industry, as well as research and specialized training in the sector. • Working with public authorities to communicate progress, innovations and improvements in the sector. • Participating in actions to raise awareness about the water economy, the protection of water resources and access to drinking water and sanitation. 	<p>Address: Station de Traitement ONEP – Bouregreg Rabat, Avenue Mohamed Belhassan El Ouzzani, PO Box Rabat-Chellah, Rabat</p> <p>Telephone: +212 537 76 86 53</p> <p>Fax: +212 537 76 86 51</p>

	<ul style="list-style-type: none">• Coordinating members' activities to raise awareness about sector concerns and build relationships with regional, national or international organizations involved in the drinking water and sanitation sector.	
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Stakeholders' analysis and valuing

Based on the information obtained, a further analysis of how stakeholders presented themselves, their mandates and their declared activities in relation to water management, climate change and migration was performed. In a first round, a Cartesian graph (Figure 1) was drafted to semi-quantitatively evaluate the power and interest (high and low) of each stakeholder.


The graph shows contrasting results regarding the public sector: ministries are all powerful and only differ by their interest, while DMN exhibits low interest and low power in a nexus driven by climate change. Another biased result is the high interest of the powerful Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests, while ADA, which is supervised by the same ministry but exhibits high interest, has no power.


The differentiation per category or cluster provides an additional key insight.

The following legend has been created to facilitate the understanding.

Government/public 

Research/academic 

Private sector 

Development partners 

Civil society (INGO, NGO) 

Some stakeholders belonging to the same cluster show different levels of power and/or interest. This applies to the research stakeholders, for example, where the only powerful stakeholders are those that deal with water and energy, while others – particularly the development partners – are simultaneously all powerful and exhibit high interest. In contrast to the public sector, civil society has no power at all, even when the interest is high.

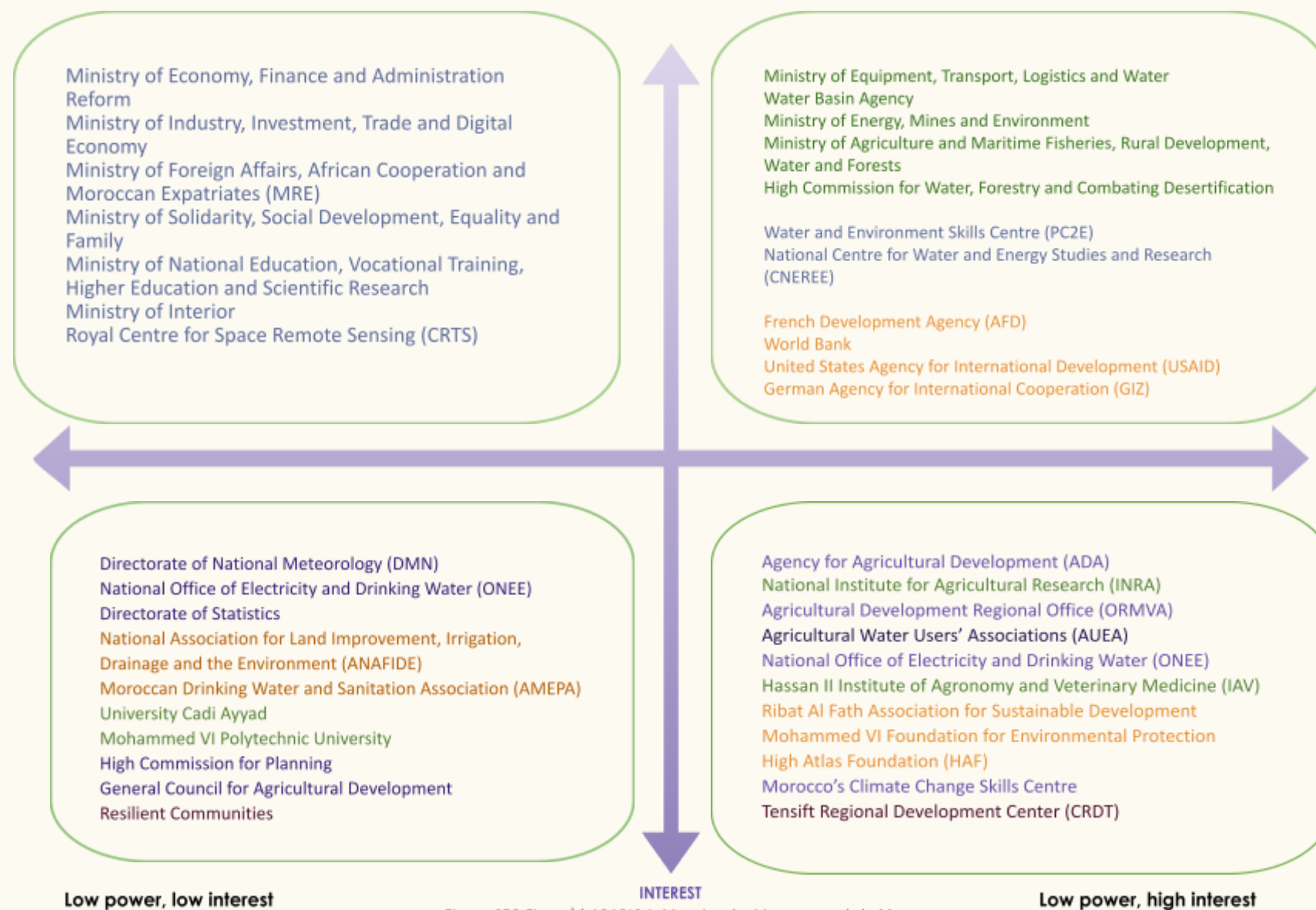


Figure SEQ Figure * ARABIC 1. Mapping the Moroccan stakeholders

The valuing diagram (Figure 2) provides an analysis of all Moroccan stakeholders, as suggested by the European Commission (2003) for the common implementation strategy for the water framework directive (2000/60/EC), in conjunction with the technique called “snowball identification” (ODA 1995). This exercise lays the foundations for a mind-mapping operation in which all the acquired information is enclosed in a single graph that includes the following:

1. The importance and the value of the stakeholders with regard to the examined dimensions: the external circuit (+1) is the least relevant, the internal circuit is the most authoritative (+3), and the central circuit has an intermediate importance (+2).
2. The existing connections between the actors (cited according to their mandates, programmes, projects or activities) identified by arrows. Different colours are used only for legibility.
3. The collaborations that are supposed to exist to address the nexus (but no evidence was found to attest to them), as identified by the focal contacts and the MedYWat network. These are indicated using dotted lines.

The National Drought Observatory (ONS), set up as part of the National Drought Adaptation and Mitigation Strategy of the Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests and CGMS-MOROCCO joint project that involves INRA, the Directorate of Statistics and the Directorate of National Meteorology (DMN), and that was mentioned in the notes regarding the main stakeholders, were considered for the valuing diagram (marked in black) in an attempt to assess the coordination among the different involved institutions in performing the important tasks for which they are responsible.

This valuing diagram clearly demonstrates the complex organization of the Moroccan system and the lack of integration and synergies.



Figure 2. Value exchange among Moroccan stakeholders

IV. Algeria mapping

Table 2. Algeria stakeholders' list

Stakeholder	About	Contact/note	Cont
Government/public			
Ministry of Water Resources and Environment	<p>The main tasks of the Ministry of Water Resources and Environment are:</p> <ul style="list-style-type: none"> Quantitative and qualitative assessment of water resources and water infrastructure development planning. Mobilization and integrated management of surface-, ground- and unconventional water resources. Drinking and industrial water supply. Irrigation in large perimeters and small and medium-sized hydraulic installations. Urban sanitation and flood protection. Adaptation of the legal and institutional framework. 	<p>Contact person: Arezki Beraki (Director General)</p> <p>Address: 03 Rue Caire, Kouba, Algiers</p> <p>Telephone: +213 23 78 69 60</p> <p>Fax: +213 23 78 69 60</p> <p>Email: communication@mre.gov.dz</p> <p>Website: http://www.mre.gov.dz/</p> <p>Facebook: https://www.facebook.com/water.dz/</p>	
Ministry of Agriculture, Rural Development and Fisheries	<p>The Minister of Agriculture, Rural Development and Fisheries works in consultation with the Minister of Water Resources and Water Security, in defining the policy in terms of agricultural hydraulics as well as in developing water use in irrigation including non-conventional water. This is to promote a participatory policy, in conjunction with professional agricultural organizations, in order to stimulate a mobilizing dynamic for all the actors in the sector. Poor economic conditions and employment opportunities drive high levels of emigration in certain rural regions, both internal rural-to-urban migration and irregular migration to international destinations. The phenomenon is particularly prevalent among youth and exacerbates the economic decline of these regions as it creates a labour shortage. To reverse this trend, the Ministry of Agriculture, Rural Development and Fisheries is set to implement a strategy for the sustainable economic development of rural regions through sustainable and economically viable agricultural projects that provide employment opportunities.</p> <p>IOM is planning to collaborate with the Algerian Ministry of Agriculture, Rural Development and Fisheries to improve economic and employment opportunities in the <i>wilayas</i> of Khenchela and Souk Ahras by improving agricultural infrastructure and building the capacity of the local community to engage in productive and sustainable agricultural practices.</p> <p>Its international cooperation projects are as follows:</p> <ul style="list-style-type: none"> IAEA / RAF 5071: "Improving plant nutrition, water and soil management and technology transfer in irrigated systems to increase agricultural production and income generation", IAEA 	<p>Address: 12 Boulevard Colonel Amirouche, Algiers</p> <p>Telephone: +213 23 50 32 38</p> <p>Fax: +213 23 50 31 17</p> <p>Email: contact@madrp.gov.dz</p> <p>Website: http://madrp.gov.dz/</p> <p>Note: The General Directorate of Forests has launched a programme to analyse the issues of drought and water use. The National Forestry Strategy 2030 has as its main objective the conservation and sustainable management of resources (soil, water, flora, fauna) of the forest domain and other natural spaces, in order to ensure the sustained production of goods and services for the benefit of the population and the national economy. The second specific objective is to "restore affected ecosystems in arid areas and strengthen their resilience to climate change and drought".</p> <p>It prioritizes mitigation of climatic effects and drought, particularly by rehabilitating and breeding species adapted to drought: <i>Pistacia atlantica</i> on 95,000 ha <i>vachellia tortilis</i> on 764,000 ha by 2030.</p> <p>General Directorate of Forestry</p> <p>Address: Chemin Doudou Mokhtar, PO Box 232, Algiers</p> <p>Telephone: +213 23 23 82 63/64/69</p> <p>Fax: +213 23 23 82 86</p>	

	<p>/ INRAA and National Higher School of Agronomy (ENSA), 2014–2018.</p> <ul style="list-style-type: none"> Horizon 2020 (European Commission) / STOI 4EWAS: “Quintuple Helix Approach to Targeted Open Innovation in Energy, Water, Agriculture in the South Mediterranean Neighborhood”, European Union / INRAA and <i>Agence Nationale de Valorisation des Résultats de la Recherche et du Développement Technologique</i> [National Agency for the Valorization of Results of Research and Technological Development – ANVREDET] 2016–2019. 	<p>Email: forets.algerie@gmail.com Website: http://dgf.org.dz/fr</p>
Ministry of Higher Education and Scientific Research	<p>Within the framework of the laws and regulations in force and within the limits of its attributions, the Minister of Higher Education and Scientific Research is in charge of studying and proposing the necessary organization and development measures at the various levels of higher education, with a view to putting in place a comprehensive and integrated system.</p>	<p>Address: 11 Chemin Doudou Mokhtar Ben Aknoun, Algiers Telephone: +213 23 23 80 23 Fax: +213 23 23 80 14 Email: webmaster@mesrs.dz</p>
Ministry of Energy and Mining	<p>Environmental protection: With the expansion of the energy sector and the large-scale availability of energy products to the population and the industry, the need has arisen to prevent the degradation of the environment. The energy sector attaches great importance to issues related to the preservation of the environment and public health. The integration of these concerns into sectoral policy is founded on the “energy policy” component of the government programme. This has resulted in the implementation of measures that revolve mainly around the depollution and rehabilitation of polluted sites and the development of environmental management in the energy sector. The integration of environmental preservation and sustainable development at the level of policy development, planning and management is essential for the sector in order to preserve natural environments, public health and the country’s commitments, in relation to international legal instruments and the various agreements and conventions binding the country.</p>	<p>Address: Tour A, Val d’Hydra, PO Box 229, Ben Aknoun, Algiers, 16028 Telephone: +213 21 48 85 26 / 21 48 85 22 / 21 48 85 31 Website: https://www.energy.gov.dz/</p>
Ministry of Finance	<p>The Ministry of Finance is responsible for the national financial policy, ensuring its implementation, in accordance with the laws and regulations in force.</p>	<p>Address: Immeuble Ahmed Francis Ben Aknoun, Algiers, 16306 Telephone: +213 21 59 51 51 / 21 59 52 52 / 21 59 53 53 Website: www.mf.gov.dz</p>
Ministry of Environment and Renewable Energy	<p>A new ministerial department on renewable energies has been created to deliver clean and renewable energy production facilities, and to achieve Algeria’s commitments in international forums, by ratifying the relevant protocols and agreements.</p> <p>Environmental Constitution: Article 19 of the 2016 Constitution mandates the use of sustainable development: “The State guarantees the rational use of natural resources and their preservation for the benefit of future generations.”</p> <p>Article 68 also clearly states: “Citizens have the right to a healthy environment.”</p>	<p>Address: 4 Rue des Quatre Canons, Alger Centre, 16000, Algiers Telephone: +213 21 43 28 01 / +213 21 43 28 78 Email: info@meer.gov.dz</p>

Ministry of Interior, Local Authorities and National Planning	<p>The powers of the Ministry, defined by executive decree no. 94-247 of 10 August 1994 and subsequent texts, are exercised in the following areas:</p> <ul style="list-style-type: none"> • Public order and security • Civil liberties • The State and movement of persons and goods • Associative life • Elections • Events and public meetings • Operations of national interest, those of an urgent nature • Regulated activities • Decentralized activities and control of local acts • Local development • The territorial organization • Local finance • Cooperation between local authorities • Civil protection • National transmissions 	<p>Address: Palais du Gouvernement, 01 Rue Dr Saadane, Algiers Telephone: +213 21 73 23 40</p>
L'Algérienne des Eaux [Algerian Water Authority – ADE]	<p>ADE is a national public industrial and commercial establishment with legal personality and financial autonomy. The establishment is under the supervision of the Minister of Water Resources and Environment, and its head office is in Algiers. Within the framework of the national development policy, it is mandated to ensure the implementation of the national drinking water policy through the management of the production, transport, treatment, storage, supply and distribution of drinking and industrial water throughout the country, as well as the rehabilitation and development of the related infrastructure. As such, it has been delegated the responsibility for:</p> <ul style="list-style-type: none"> • Standardizing and monitoring the quality of the distributed water. • Initiating any action aimed at saving water, particularly by improving the efficiency of the transfer and distribution networks. • Introducing any water preservation techniques. • Combating waste by developing information, training, education and awareness-raising actions aimed at users. • Designing school programmes disseminating the culture of saving water in partnership with public educational services. • Training and development. 	<p>Contact person: Smaïn Amirouche (Director General) Email: dg@ade.dz</p> <p>Contact person: Farida Chikh (Assistant Director General) Email: as1@ade.dz Website: https://www.ade.dz/</p>
National Agency for Hydraulic Resources (ANRH)	<p>ANRH is a public establishment of administrative nature, with a scientific and technical vocation. Its missions are:</p>	<p>Contact person: Director General (anrh@anrh.dz)</p>

	<ul style="list-style-type: none"> • Prospection and evaluation of the country's water and soil resources. • Collection, processing and updating of information relating to water and soil resources. • Quantitative and qualitative monitoring of water resources. • Preservation, protection and safeguarding of the resource against any form of degradation. • Calculation of the water balance. 	Contact person: Secretariat Directorate (contact@anrh.dz) Telephone: +213 23 54 04 70 Standard: +213 23 54 04 28
National Agency for Dams and Transfers (ANBT)	<p>Created as an Algerian public administrative establishment in 1985 by decree no. 85-163, ANBT is a public industrial and commercial establishment. The geoportal of the Algeria dams is an information technology infrastructure that enables access to geographic information services via the Internet, and also allows people to search and visualize geographic data and geo-referenced Algerians dams. This tool, which is both publicly accessible and accessible to the scientific community in particular, contributes to the dissemination of information for sustainable development of water infrastructure. It offers the advantage of making available to visitors a range of consultation tools, research analysis and printing.</p>	Telephone: +213 21 92 23 55 Fax: +213 21 92 35 16 Email: sinformatique@anbt.dz
National Agency of Integrated Water Resources Management (AGIRE)	<p>In December 2014, AGIRE was officially launched to provide orientation, coordination and assessment for hydrographic basin agencies (ABHs) from an IWRM perspective. Under the supervision of the Ministry of Water Resources and Environment, its main missions include:</p> <ul style="list-style-type: none"> • Carrying out all surveys, studies and research related to the development of IWRM. • Developing and coordinating integrated water information management systems at the national level. • Contributing to the elaboration, evaluation and updating of medium- and long-term sector development plans. • Contributing to the management of incentive measures for saving water and preserving the quality of water resources. • Planning to mobilize water for sustainable economic and social development. 	Telephone: +214 23 59 83 10 Email: contact@agire.dz Website: http://www.abh-cz.com.dz/index.php
National Agency for Irrigation and Drainage (ONID)	<p>ONID is responsible for all agricultural hydraulic activities in large irrigation areas. It was created in accordance with decree no. 05-183 of 09 Rabi' al-Thani 1426 of 18 May 2005, which reorganizes the statute of the National Agency for the Construction and Management of Hydraulic Infrastructure for Irrigation and Drainage (AGID). To extend the irrigated area within the irrigation schemes, ONID has developed actions to support water users in the agricultural sectors through its operational units. These actions mainly concern subsidizing water-saving techniques and the rational use of inputs.</p>	Telephone: +213 23 87 91 53 / 56 Email: dg@onid.com.dz
Office National de l'Assainissement (Division de l'eau potable) [National Sanitation Office/Drinking Water Division – ONA]	<p>ONA is a State-owned public industrial and commercial institution (EPIC), created by executive decree no. 01-102 of 21 April 2001 and operates</p>	Address: Carrefour de Sidi Arcine, Route de Baraki, PO Box 86, Kouba, Algiers, 16000

	<p>under the supervision of the Ministry of Water Resources and Environment. ONA works on behalf of the State to undertake project management and delegated work concerning studies, rehabilitation, diagnostics of treatment plants, sewerage networks and rainwater harvesting, as well as pumping stations. ONA replaces all public, national, regional and local establishments and bodies responsible for the public sanitation service, in particular:</p> <ul style="list-style-type: none"> • The National Agency for Drinking Water and Sanitation (AGEP) • National public bodies with regional sanitation management skills • The EPEDEMIA of <i>wilaya</i>; municipal boards and services for the management of sanitation systems <p>The ONA is also responsible for:</p> <ul style="list-style-type: none"> • Proposing measures to promote technical or financial incentives to the supervising ministry. • Undertaking all awareness, education, training, study and research actions for combating water pollution. • Rainwater evacuation when necessary, on behalf of local communities. • Implementing new projects funded by the State or local communities. <p>ONA studies and proposes to the regulatory authority the prices and charges that apply in the sanitation field and ensures their application. The ONA social fund is made up of an initial grant from the State and the positive net assets of dissolved public establishments transferred to the institution. ONA has its own assets made up of transferred assets acquired as well as subsidies granted by the State. The amount of the social fund is fixed by a joint decree by the Ministry of Finance and the Ministry of Water Resources and Environment. ONA also has the right to use all public properties not included in its own assets that are allocated to it by the State for the needs of the public sanitation service.</p> <p>Accounting: ONA acts as a merchant in its relations with third parties. Its accounts are kept in commercial form in accordance with the laws and regulations in force. For the implementation of the projects entrusted to it as delegated for project management, ONA implements the rules of public accounting. One or more auditors designated by the responsible ministry are responsible for the accounts. The social accounts are discussed and approved by the Orientation and Supervision Council (COS) before their submission to the relevant ministry and the Ministry of Finance.</p>	<p>Telephone: +213 23 92 21 82 / 23 92 21 76 / 23 92 21 77 Fax: +213 23 92 21 71 Website: http://ona-dz.org/</p>
<p>Bureau National des Etudes sur le Développement Rural [National Office of Rural Development Studies – BNEDER]</p>	<p>Founded in 1976, BNEDER is a public institution (EPIC) under the supervision of the Ministry of Agriculture, Rural Development and Fisheries.</p> <p>BNEDER has carried out more than a thousand studies in the field of agricultural and rural development since its creation. It is the national</p>	<p>Address: Villa Bouchaoui, Chéraga, Wilaya d'Alger Telephone: +213 23 27 62 23 Fax: +213 23 27 61 39 Email: contact@bneder.dz</p>

	leader in the agricultural world, a privileged partner for any decision maker, operator or investor interested in its fields of activity and areas of expertise.	
Agence Nationale des Changements Climatiques [National Agency on Climate Change – ANCC]	<p>ANCC, created by executive decree no. 05-375 of 26 September 2005, is a public administrative institution with legal personality and financial autonomy working under the supervision of the Minister for the Environment. It is administered by a Policy Council, headed by a Director General, and has a Scientific Council.</p> <p>Its missions include:</p> <ul style="list-style-type: none"> • Studies to analyse and exploit the results of work on climate change. • Studies on greenhouse gas emission scenarios and climate models in relation to natural resources. • Studies of the impacts of climate change on all socioeconomic activities. • Development of alternatives and solutions that address national and economic models. • Integration of the climate change dimension into land-use planning instruments. • Development of indicators for integrating climate risk into the national economic strategy for sustainable development. 	<p>Address: 30 Avenue Mohammed Fellah, Kouba, Algiers</p> <p>Telephone/fax: +213 23 77 78 86</p> <p>Email: direction.generale@ancc.dz</p> <p>Email: moyens.generaux@ancc.dz</p> <p>Website: http://www.ancc.dz</p>
National Office of Statistics (ONS)	<p>ONS is the central institution for statistics in Algeria. It is a public administrative institute responsible for collecting, processing and disseminating socioeconomic statistical information (such as population and housing census, labour-force survey, survey on industrial companies, etc.).</p> <p>It operates under the supervision of the Ministry of Finance. Some of its publications include:</p> <ul style="list-style-type: none"> • Agricultural production (2017–2018) • The main indicators of the fishing sector (2018) • National Compendium on Environmental Statistics (with a specific section dedicated to water) 	<p>Headquarters of the Directorate General of ONS</p> <p>Telephone: +213 21 77 78 38 / 21 63 99 74</p> <p>Email: ons@ons.dz; stat@ons.dz</p> <p>Headquarters of the General Management (secondary)</p> <p>Telephone/fax: +213 21 63 99 74</p>
Organisme National de Contrôle Technique de la Construction Hydraulique [National Hydraulic Engineering Inspection Agency – CTH]	<p>CTH is a company supervised by the Ministry of Water Resources, whose parent company is the <i>Groupe Études et Réalisations Hydrauliques</i> [Hydraulic Study and Production Group – GERHYD].</p> <p>CTH is responsible for:</p> <ul style="list-style-type: none"> • The “control plan” for documents developed at the study stage. • “Site control” of construction works. • “Component control” based on the quality control of the materials and equipment. • The carrying out of all tests and analyses at its own laboratories. 	<p>Address: 504 Lgts, Ain Naadja, Gué de Constantine, Algiers</p> <p>Telephone: +213 23 60 59 16</p> <p>Fax: +213 23 60 59 03</p> <p>Email: drcentre@cth.dz</p> <p>Website: https://www.cth.dz/</p>

<p>National Institute of Cartography and Remote Sensing (INCT)</p>	<p>INCT is a public institute with industrial and commercial character operating under the economic sector of the Ministry of National Defence. Created in 1967, INCT has four principal missions: production, collection, conservation and geographical information diffusion. It collaborates with various administrations, collectives and public and private institutions.</p> <p>The main activities of the institute are:</p> <ul style="list-style-type: none"> • Realization and conservation of a basic canvas in geodesy, levelling and gravimetry of the national territory. • National coverage by aerial imagery with multispectral cameras (resolution 0.10 to 080 m). • Establishment and update of the basic topographic map 1/50,000 and 1/200,000 and those that are derived from it. • Collection and conservation of satellite data (distributor of satellite images (SPOT, QuickBird, EOSDIS Worldview)); support for the selection of appropriate images for specific projects. • Development of geographic databases (production of ortho-numeric data from satellite images and of spatial maps at various scales). • Development of research in geographic information (GIS solutions, possibility of short trainings). • Conservation of archives. 	<p>Algiers: Address: Palais des Expositions, Pins Maritimes, SAFEX Telephone: +213 23 79 50 25 / 26 Fax: +213 23 79 50 27 Email: contact@inct.dz Email: inct@mdn.dz</p> <p>Oran: Rue Bouamama Ali, Haï El Maquarri, Oran Telephone: +213 41 28 39 39 Fax: +213 41 28 37 37</p> <p>Ouargla: Place de L'ALN, Ouargla Telephone: +213 29 76 44 81 Fax: +213 29 76 44 80</p> <p>Constantine: Zone Industrielle Cité Palma, Constantine Telephone: +213 31 66 48 39 Fax: +213 31 66 48 40</p>
<p>Algerian Space Agency (ASAL)</p>	<p>ASAL is a national public institution with moral personality and financial autonomy. It was created by presidential decree no. 02-48 of 16 January 2002.</p> <p>ASAL is the instrument for the design and implementation of the national policy for the promotion and development of space activity.</p> <p>Its main objective is to make space a powerful vector for the economic, social and cultural development of the country and to ensure the security and well-being of the national community.</p> <p>It has a board of directors composed of representatives of 15 ministerial departments and a scientific committee composed of experts in the fields of space technologies and applications.</p> <p>Tasks and responsibilities:</p> <ul style="list-style-type: none"> • Proposing to the Government the elements of a national strategy in the field of space activity and ensuring its execution. • Building space infrastructure as part of national capacity. • Implementing, monitoring and evaluating the annual and multiannual programmes for the development of national space activities 	<p>Address: 14 Rue Omar Aissaoui El Hammadia – Bouzareah, Algiers Telephone: +213 23 27 05 31 Fax: +213 23 27 05 24 Email: info@asal.dz</p>

	<ul style="list-style-type: none"> Proposing to the Government the space systems best suited to national concerns and ensuring, on behalf of the State, their design, construction and operation. Proposing to the Government bilateral and multilateral cooperation policy adapted to national needs. Monitoring and evaluating commitments arising from the State's obligations to regional and international agreements in the areas of space activity. 	
National Institute of Soils, Irrigation and Drainage (INSID)	<p>INSID is a public institution, with scientific and technical vocation, legal personality and financial autonomy. It was created by decree no. 87-15 of 13 January 1987 to conduct integrated research and development programmes in the field of the physical environment (soil characterization, agrometeorology, monitoring of soils under irrigation, monitoring of land degradation including salinity, irrigation and drainage techniques, etc.).</p> <p>Some of its activities include:</p> <ul style="list-style-type: none"> Drawing agropedological maps for cropping and climatic aptitudes at different scales. Determining the conditions for irrigation water use according to farming systems and different regions of the country. Determining the influence of climatic parameters on agricultural production. Assisting farmers in the definition of irrigation and drainage equipment. <p>INSID also has an experimental station located in Ksar Chellala (with a laboratory for soil and irrigation water analyses).</p>	<p>General Directorate Telephone: +213 21 82 54 57 Email: insid@insid.dz</p> <p>Chair of Irrigation and Drainage Department Email: DID@insid.dz</p>
National Meteorological Office	<p>The National Meteorological Office operates under the Ministry of Public Works and Transport, coordinates all weather activities throughout the provinces and provides meteorological services for the protection of properties and people and for the secure management of economic and social infrastructures. The data of the meteorological services include climate indices maps; spatio-temporal studies of temperature, rainfall patterns and extreme events; a monthly newsletter; and seasonal forecasting of rainfall and temperatures.</p>	<p>General Directorate: Address: 1 Avenue Mohamed Khemisti, PO Box 153, Dar el Beida, Algiers, 16011 Telephone: +213 21 50 73 93 / 021 50 77 94 / 021 50 55 99</p> <p>Note: At the same level there are two other departments that can be taken into account:</p> <p>Direction du Développement et de la Planification [Development and Planning Directorate] Telephone/fax: +213 21 50 89 47 Email: commercial@meteo.dz</p> <p>Centre Climatologique National [National Climate Centre – CCN] Telephone/fax: +213 21 50 89 57 Email: climatologie@meteo.dz Website: http://www.meteo.dz</p>
Direction des Ressources en Eau [Department of Water Resources – DRE]	<p>In Algeria, until 1984, irrigation schemes were managed by the <i>wilaya</i> DRE. This management had many technical and financial disadvantages. Subsequently, it was conceded to irrigation schemes (11 irrigation agencies in 2005), public institutions of an industrial and commercial nature, whose</p>	<p>Address: Immeuble Pépinière, RN 5 Cinq Maisons, PO Box 365, Hassan Badi, El Harrach, Algiers Telephone: +213 21 52 53 27 / 021 52 50 53 Fax: +213 21 52 13 35</p>

	<p>supervision is carried out according to their size, either by the Ministry of Water Resources and Environment for the five national offices or by the <i>wilaya</i>. The office must ensure the management, operation and maintenance of the irrigation perimeters, in conjunction with the services of AGID, which has a management and operation department. The hydro-agricultural sector in Algeria, with its large irrigation schemes, is currently facing great technical, financial and organizational difficulties. This limitation of water resources is exacerbated by many factors external to the hydro-agricultural sector: weakness in the planning of water resources; conflicts with other uses (drinking water and industrial uses have priority, and irrigation funding is very often limited); and the absence of tools to manage this situation (forecasting, definition of shortage management rules, communication, pricing). Other internal factors must also be mentioned: the alarming deterioration of infrastructure due to a lack of maintenance; significant losses in the networks; waste facilitated by the low price of agricultural water; a difficult financial situation for the national offices and the cessation of activity for the majority of the <i>wilaya</i> offices. At present, the reform of this sector appears essential and strongly desired by all actors. A new body, the National Agency for Irrigation and Drainage (ONID), is being set up, a structure which will provide the necessary dynamics to strengthen the organization of the irrigation sector in accordance with the guidelines of the development strategy for the water resources sector. Greater participation by the various users is sought. It must be reflected in the financial balances of the various water-related services, through the search for more suitable pricing.</p>	<p>Email: dre@mre.dz Email: Wa_dre@yahoo.com Website: http://www.wilaya-alger.dz/les%20informations%20de%20la%20DRE_FR.pdf</p>
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Research/academic

<p>École Nationale Supérieure Agronomique [National Higher School of Agronomy – ENSA]</p>	<p>Previously known as the National Institute of Agronomy (INA), ENSA is the only school that trains agricultural engineers in Algeria and undertakes research in fields of food, sustainable agriculture, biotechnology, the environment and territories. Students can prepare for an engineer's degree in agricultural sciences (equivalent to a master's degree). ENSA is the oldest higher education institution founded in 1905 in El Harrach, Algiers.</p> <p>ENSA is officially accredited/recognized by the Ministry of Higher Education and Scientific Research in Algeria. It offers programmes leading to recognized higher education degrees such as bachelor's, master's and PhD degrees.</p>	<p>Address: Avenue Kasdi Merbah, Hassan Badi, El Harrach. Algiers Telephone: +213 23 82 85 07 / 12 / +213 23 82 85 03 / 04 Email: webmaster@ensa.dz Website: http://www.ensa.dz/ecole/presentation/</p>
<p>Institut National de Recherches Forestières [National Institute of Forestry Research – INRF]</p>	<p>INRF is responsible for conducting research and experimentation in the following areas:</p> <ul style="list-style-type: none"> • Growth and production of trees and forest stands, wood technology, exploitation of forest derivatives and by-products, forestry machinery and forest fire protection. • Forest ecology. • Genetics and improvement of forest species use and conservation of forest genetic resources. 	<p>Address: 12 Boulevard Colonel Amirouche, Algiers Telephone: +213 23 50 32 38 Fax : +213 23 50 31 17 Email : contact@madrp.gov.dz</p>

	<ul style="list-style-type: none"> • Reforestation, improvement of reforestation and plant production techniques. • Entomology and forest pathology. • Water erosion and the development of anti-erosion control methods in experimental microwatersheds. • Wind erosion and the fight against desertification (causes, processes and methods of control). • Forest biotechnology. • Wildlife and wildlife management practices. 	
National Institute of Agronomic Research of Algeria (INRAA)	<p>Under the supervision of the Ministry of Agriculture, Rural Development and Fisheries, it was created on 11 April 1966 by virtue of ordinance no. 66 78. Its legal status was initially as a public establishment of administrative nature, but was transformed into a public scientific and technological establishment.</p> <p>Agroecology and the environment, with the following priorities, is one of its research areas: study of agroecological factors; control and monitoring of the level of soil fertility; improvement of poor or polluted soils; irrigation water quality monitoring; isolation and selection of microorganism strains; and the benefits of improving the fertility of cultivated soils.</p>	<p>Telephone: +213 23 82 85 64 / 67 Email: inraa.dz@gmail.com Website: www.inraa.dz</p>
Renewable Energy Development Center (CDER)	<p>CDER is a research centre resulting from the restructuring of the High Commission for Research, created on 22 March 1988.</p> <p>Its missions include:</p> <ul style="list-style-type: none"> • Gathering the elements necessary for the identification of the research projects to be undertaken and the data enabling their programming, execution and evaluation. • Stimulating and promoting assimilation, mastery, scientific and technical progress and technological innovation in the field of renewable energies. • Ensuring scientific and technological monitoring in relation to renewable energies. • Gathering and processing scientific and technical information and ensuring preservation and dissemination. • Contributing to the exploitation of research results by ensuring dissemination, exploitation and use. • Ensuring the continuing training, retraining and capacity-building of research staff. • Contributing to training and research. • Coordinating, monitoring and evaluating units, laboratories and research teams. 	<p>Address: Route de l'Observatoire Bouzareah, PO Box 62, Algiers, 16340 Telephone: +213 23 18 90 51 / 23 18 90 53 Fax: +213 23 18 90 56 / 23 18 90 58 Email: lacon@cderr.dz</p>
Centre for Scientific and Technical Research on Arid Regions (CRSTRA)	<p>CRSTRA was launched under the auspices of the Ministry of Higher Education and Scientific Research as a centre with a legal personality and a financial autonomy.</p> <p>Its missions include:</p> <ul style="list-style-type: none"> • Carrying out scientific and technical research programmes on arid regions 	<p>Address: CRSTRA Campus of Mohamed Khider University, Biskra Telephone: +213 33 52 20 90 / 33 52 20 91 Email: crstra@crstra.dz</p>

	<p>and/or regions threatened with drought or desertification.</p> <ul style="list-style-type: none"> • Undertaking and/or participating in any multidisciplinary research relative to arid zones. • Being a scientific and technical databank on arid regions and processing, storing and disseminating these data. • Contributing to all research aimed at understanding and combating human vulnerability to environmental changes. <p>CRSTRA is responsible for developing scientific and technical research including a technical database on arid and semi-arid territories (Saharan and steppe regions) which cover more than 2 million km² or more than 85 per cent of the national territory.</p> <p>After a detailed diagnosis of the research situation at CRSTRA, in terms of impact and effect on the development of these regions, given the numerous and complex missions assigned and taking into account the immensity, diversity, potentialities and vulnerability of arid ecosystems, it was imperative to develop a specific research strategy and handle issues by thematic and spatial priorities of these environments. An expert group assessed the alignment of the activities with the goal of “sustainable development of arid regions”.</p>	
<p>Centre National d'Etudes et d'Analyses pour la Population et le Développement [National Centre for Population and Development Studies and Analyses – CENEAP]</p>	<p>CENEAP is the modern extension of the illustrious Algerian Association for Demographic, Economic and Social Research (AARDES), founded after independence, in 1963, by the Directorate General for Economic Planning and Studies (DGPEE). The first national body specialized in studies and a meeting place for the pioneers of demographic, economic and social research, AARDES quickly assumed a leading role in the collection and analysis of data on the country's development indicators and trends. Within the framework of the economic and social development process of the country, the mission of CENEAP is to undertake economic, political, demographic, social and cultural studies, and analyses.</p>	<p>Address: 98 Route Nationale no. 1, PO Box 34, Birkhadem, 16029 Telephone: +213 21 54 29 82 Fax: +213 21 54 21 49 Website: www.ceneap.com.dz</p> <p>Note: CENEAP is an institution operating under the supervision of the Ministry of Interior, Local Authorities and National Planning.</p>
<p>École Supérieure de Gestion des Ressources en Eau [Higher School of Water Resources Management – ESMRE]</p>	<p>The school is a State-owned public industrial and commercial institution (EPIC), created in 2010 to carry out a public service mission of contribution, through continuous training, to the development of managerial and technical capacities in the management of water resources.</p>	<p>Contact person(s): Abdelkrim Abbouni (Director General) Address: 4e Rocade d'Oran, 31130 Bir El Djir, Oran Telephone: +213 41 71 60 03 Email: contact@esmre.dz Website: https://esmre.dz/</p>

Private sector

<p>Algerian Energy Company (AEC)</p>	<p>The AEC is the principal seawater desalination actor in Algeria. Its current main mission is to promote and develop major projects in partnership with foreign partners in the field of seawater desalination. The use of seawater desalination was a public response to the severe water stress, particularly in western Algeria. The Government had decided to launch a major seawater desalination programme, composed of 11 plants spread out along the whole coastline.</p>	<p>Address: 168 Rue Hassiba Ben Bouali, Hamma, Algiers Telephone: +213 23 82 43 98 Fax: +213 23 82 43 89</p>
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Water and Sanitation Company of Constantine (SEACO)	<p>SEACO is a joint-stock company, created by the Algerian Water Company (ADE) and the National Sanitation Office (ONA). It manages the public water services and sanitation of the municipalities of the <i>wilaya</i> of Constantine. The Algerian public authorities have embarked on an institutional reform in the water sector enshrined in the promulgation of law no. 05-12 of 04.08.2005 relating to water. This far-reaching reform introduces the right to delegate public water and sanitation services.</p> <p>Created in 2006, Spa SEACO has been entrusted with the delegated management of the water and sanitation services of the Province of Constantine. Since 2008, Spa SEACO has implemented a new mode of management and operation of water and sanitation services in accordance with the objectives of national institutions and the challenges of public services.</p>	<p>Address: 22 Zone Industrielle du 24 Février 1956, Constantine Telephone: +213 31 61 63 37 / 31 61 63 38 Fax: +213 31 61 63 39</p> <p>Contact person: Kasmi Kamel (Director) Telephone: +213 31 61 63 37 / 31 61 63 38</p>
Société des Eaux et de l'Assainissement d'Alger [Algiers Water and Sanitation Company – SEAL]	<p>SEAL is a public joint-stock company, which is 70 per cent owned by ADE and 30 per cent by ONA.</p> <p>Its main mission is to produce and supply the <i>wilayas</i> of Algiers and Tipasa with potable water, and to collect and treat wastewater in these two areas. It serves 3.8 million inhabitants, which is around 10 per cent of the national population.</p> <p>SEAL provides services to 761,824 customers (households, administrations, businesses, manufacturers and tourist sites), with its number of employees standing at 6,293.</p> <p>The company was established in 2006 by the Algerian authorities to rapidly improve the quality and living environment of citizens, particularly in the capital.</p>	<p>Address: 97 Parc Ben Omar, PO Box, Kouba, Algiers, 16050 Website: http://www.seal.dz/qui-sommes-nous/</p>
Société de l'Eau et de l'Assainissement d'Oran [Oran Water and Sanitation Company – SEOR]	<p>SEOR is a joint-stock company whose shareholders are ADE and ONA. Established on 1 April 2008, SEOR is responsible for providing drinking water and sanitation services to the <i>wilaya</i> of Oran, with its main objective being to improve supply as well as citizens' quality of life.</p>	<p>General Directorate Address: Cité Administrative, USTO, Oran Telephone: +213 41 98 53 10 Website: https://www.seor.dz/</p>
	Development partners	
United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women)	<p>UN-Women is the United Nations entity dedicated to gender equality and women's empowerment, and was created to accelerate progress in meeting the needs of women and girls worldwide. UN-Women supports United Nations Member States in adopting international standards to achieve gender equality, and also works with governments and civil society to design laws, policies, programmes and services necessary to ensure the effective implementation of these standards, and to ensure that all women and girls benefit from them.</p>	<p>UN-Women headquarters Address: 220 East 42nd Street, New York, NY, 10017 Telephone: +1 646 781 44 00 Fax: +1 646 781 44 44 Website: www.unwomen.org/fr</p> <p>Note: The UN-Women programme is more oriented towards violence against women, with one section focused on the empowerment of women in politics. The “Renforcement de l'effectivité de l'égalité des droits entre les hommes et les femmes en Algérie” [Strengthening the effectiveness of equal rights between men and women in Algeria] project was launched in October 2015 by the</p>

		Algerian Government and UN-Women, with financial support provided by the Belgian Government as part of the Algeria-Belgium cooperation programme for 2014–2017.
	Civil society (INGO, NGO)	
Amnesty International	Amnesty International is one of the largest NGOs in Algeria and does remarkable work in the field of human rights. It also defends women's rights and human dignity, and protects refugees, migrants and asylum seekers.	National Secretariat of Amnesty International Algeria Address: 70 Rue Didouche Mourad, Alger Centre, 16004 Telephone/fax: +213 23 50 46 04 Email: Contact@amnestyalgerie.org Website: https://www.amnesty.org/en/countries/middle-east-and-north-africa/algeria/
Green Tea	<p>Green Tea is the second-largest NGO, and is located in Tamanrasset (south of Algeria). It provides humanitarian and medical aid in Algeria.</p> <p>Its mission and main activities include:</p> <ul style="list-style-type: none"> • Women's rights, children's rights and gender equality • Migration and mobility • Climate justice and socioeconomic development • Health promotion 	Address: 03 Boulevard les Frères Merakchi, Belouizdad, ex- Belcourt, Algiers Telephone/fax: +213 29 31 55 40 Mobile: +213 666 873 969 Website: https://greenteadz.org/index.php

Stakeholders' analysis and valuing

Once again, based on the information obtained, a further analysis of how stakeholders presented themselves, their mandates and their declared activities in relation to water management, climate change and migration was performed. A Cartesian graph (Figure 3) was drafted to semi-quantitatively evaluate the power and interest (high and low) of each stakeholder, with the connections among different stakeholders (actual or expected) then drawn (Figure 4).

Algeria's institutional structure seems to be articulated and theoretically well connected. On drought management, the National Agency for Hydraulic Resources (ANRH) and the National Agency for Dams and Transfers (ANBT) are responsible for monitoring water supply and preparing emergency plans yet there is no evidence of any operational early warning system.

Urban water management is delegated to several companies operating as public-private partnerships, including the Oran Water and Sanitation Company (SEOR) and Algiers Water and Sanitation Company (SEAAL), which are supervised by two branches of the Ministry of Water Resources and Environment: the National Sanitation Office (ONA) and the Algerian Water Authority (ADE).

Since agriculture is the main water consumer in Algeria, the National Agency for Irrigation and Drainage (ONID) acts as link between the Ministry of Water Resources and Environment and the Ministry of Agriculture, Rural Development and Fisheries, and coordinates with the National Institute of Soils, Irrigation and Drainage (INSID). For example, INSID is able to warn ONID about


inadequate water supply, given that it is in direct contact with users (e.g. farmers) and is responsible for water advisory programmes.

Climatic data are essential for the entire system to operate. The National Meteorological Office is the entity that collects climatic data such as temperature, rainfall patterns and extreme events, which it uses to develop seasonal forecasting newsletters. As expected, several governmental bodies are clients of the National Meteorological Office, as shown in Figure 4. These include ANBT of the Ministry of Water Resources, ONID (coordination between ministries) and ADE (supervising organization).


Although the Algerian institutional and management body seems to be well structured, several multi-path connections were noticed, i.e. the connection of two entities via two or more different paths to perform the same function.


The differentiation per category or cluster provides an additional key insight and outlines the extensive and imperative presence and power of the State, the quasi-absence of development partners, the limited presence of the private sector and the power of the very few NGOs. Research stakeholders are shown to be scattered, with none having both power and interest.

The following legend has been created to facilitate the understanding.

Government/public 

Research/academic 

Private sector 

Development partners 

Civil society (INGO, NGO) 

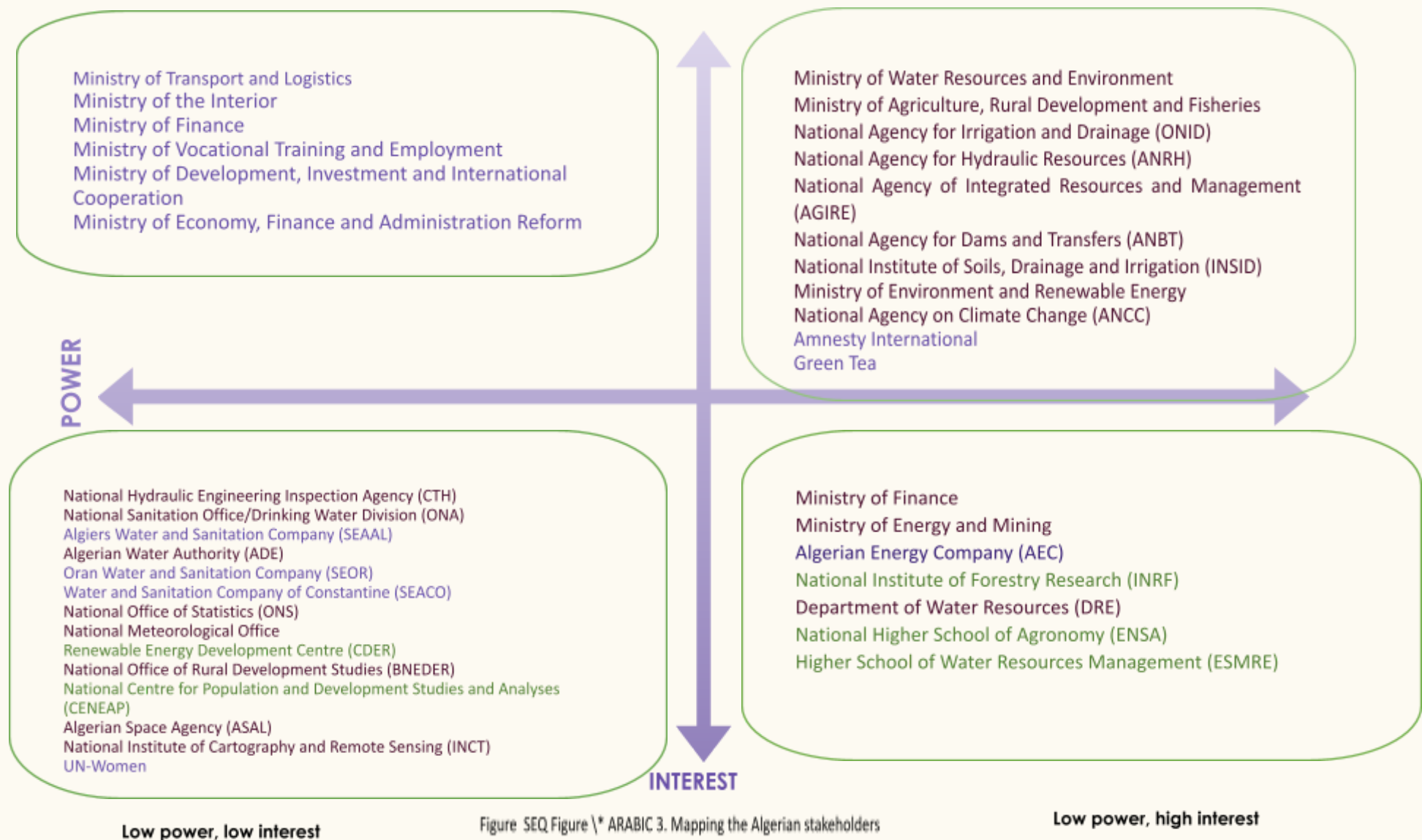


Figure SEQ Figure * ARABIC 3. Mapping the Algerian stakeholders

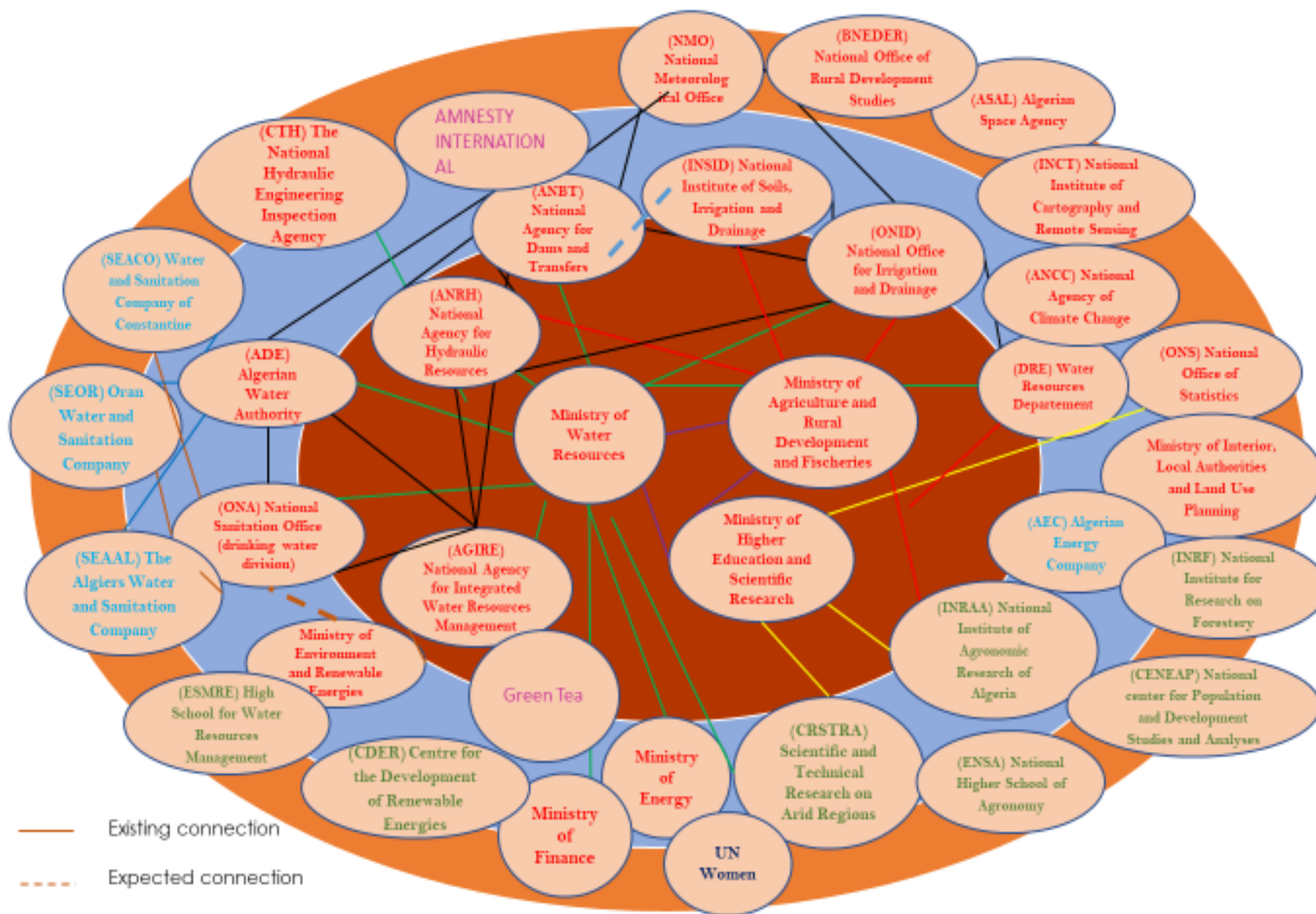


Figure 4. Value exchange among Algerian stakeholders

V. Tunisia mapping

Table 3. Tunisian stakeholders' list

Stakeholder	About	Contact/note
Government/public		
Ministry of Agriculture, Water Resources and Fisheries	<p>The Ministry of Agriculture, Water Resources and Fisheries is responsible for developing policies for the following in response to climate change:</p> <ul style="list-style-type: none"> • Better management of natural resources • The development of new smart agricultural systems that pave the way for ecological and agricultural transformation • The development of knowledge and ecological agricultural engineering to propose and test alternative farming systems <p>Current challenges include:</p> <ol style="list-style-type: none"> 1. Enhancing Tunisia's ability to cope with the decline in local agricultural crops, especially wheat and olives. 2. Preserving productive agricultural lands through the adoption of agricultural circulation practices. 3. Developing agroecological engineering to facilitate transportation by anticipating the impacts of climate change. <p>In this context, the greatest challenge is the development of effective systems through water management and soil fertility, which requires knowledge- and experience-sharing. Agroecological transformation can also reduce the impact of climate change on Tunisian society and its economy. Given the importance of climate change-related activities and projects at the national, regional and local levels, as well as the need to ensure the adoption of climate change issues by all Ministry-affiliated departments, it was decided that a national climate change committee would be created (2017).</p> <p>The committee will mainly mobilize all actors in the field of climate change and coordinate the efforts of all those involved within the Ministry, while also:</p> <ul style="list-style-type: none"> • Optimizing and financing opportunities to limit and adapt to the impacts of climate change. • Coordinating activities related to the implementation of the UNFCCC with partners at the national level. • Lending more efficiency to the Ministry's contribution to climate negotiations. • Setting a work programme in the field of climate change and following up on its implementation and evaluation. • Following up on the achievement of the national greenhouse gas inventory that is being prepared by the sectoral committee. • Promoting consultations, dialogues and coordination with all parties involved in climate change issues at the national, regional and local levels, among relevant ministries, international, 	<p>Contact person: Akissa Bahri (Secretary of State) Email: bahri.akissa@planet.tn</p> <p>Contact person: Abdellatif Boutouta (Deputy Director of Rural Equipment and Infrastructure) Address: 30 Rue Alain Savary, Belvédère, 1002, Tunis Telephone: +216 98 93 45 52 Email: boutoutaabdo@gmail.com Website: http://www.agriculture.tn</p> <p>Contact person: Ridha Gabouj (Director General of Rural Engineering and Water Exploitation)</p> <p>Contact person: Najet Gharbi (Director of Water Saving in Irrigation) Email: najet_gharbi@yahoo.fr</p> <p>Contact person: Hafedh Khelif (Director of International Cooperation) Address: 30 Rue Alain Savary, Belvédère, 1002, Tunis Telephone: +216 71 78 68 33 Website: http://www.agriculture.tn</p> <p>Note: Within the ministerial framework, the General Directorate of Rural Engineering and Water Exploitation's project "Amélioration de la gouvernance locale de l'eau potable en milieu rural (gouvernorats de Beja, Bizerte, Kasserine and Zaghuan)" [Enhancing local governance of drinking water in rural areas (Beja, Bizerte, Kasserine and Zaghuan governorates)] should be considered as one of the most important projects.</p>

	<p>regional and local donor organizations, NGOs and civil society representatives.</p> <ul style="list-style-type: none"> Developing a work programme to support capacities in the areas of climate change adaptation and fundraising within the framework of available climate finance mechanisms, especially the Green Climate Fund. 	
Ministry of Environment	<p>The Ministry of Environment's duties and functions include:</p> <ul style="list-style-type: none"> Proposing the Government's general policy for environmental protection, nature conservation and promotion of the quality of life. Establishing the foundations for the sustainability of development in the Government's general and sectoral policies in collaboration with relevant ministries and agencies, and ensuring that these policies are implemented. Promoting the laws on environmental protection and nature conservation and making every effort to integrate the concept of development sustainability into national strategies and plans by taking measures of a general or special nature in the various environment- and development-related fields and by drawing up specifications of the concept of equilibrium in the natural environment. Improving environmental conditions and the living environment, limiting or eliminating the dangers that threaten humans, the environment and natural resources, protecting and developing the spaces assigned to wildlife and landscape development, and protecting and developing the open spaces needed for the growth of future generations. Establishing environmentally-friendly rules for the management of all sectors of activity and natural resources, taking necessary measures with all concerned parties to protect and guard against environmental risks and tackling potential or anticipated environmental problems without waiting for their actual occurrence. <p>The Ministry plays an important role in tackling climate change in Tunisia. The country's climate varies but has extreme aridity, with the effects of climate change expected to increase socioeconomic and environmental vulnerabilities. Rising temperatures and sea levels, declining precipitation and increasing extreme events are affecting the availability of resources (water, coastlines, agricultural resources, biodiversity), as well as sectoral activities (health, agriculture, tourism, etc.). Tunisia must therefore make reasoned choices for the long term to adapt to these impacts.</p> <p>Moreover, despite contributing little to global greenhouse gas emissions, Tunisia is expected to participate in international efforts to collectively attenuate global warming to 2°C by 2030.</p> <p>The uncertainties weighing on available prospective fossil fuels and their prices may also lead Tunisia to opt for a proactive policy of controlling energy (and hence attenuation) without compromising its development objectives.</p>	<p>Address: Ministry of Environment Cité Administrative, Rue du Développement, Cité el Khadra, 1003, Tunis</p> <p>Telephone: +216 70 243 800 / 70 243 801 / 70 243 802 / 70 243 803 / 70 243 804 / 70 243 805 / 70 243 806</p> <p>Fax: +216 71 95 53 60</p> <p>Website: environnement.gov.tn</p> <p>Contact person: Chokri Mezghani (Director General of Sustainable Development and spokesperson for the Green Climate Fund)</p> <p>Telephone: +216 22 74 93 62 / +216 70 24 38 00</p> <p>Email: chokri.mezghani@mineat.gov.tn Email: chokri.mezghani@yahoo.fr</p>

	<p>Recognizing these challenges, Tunisia was among the first countries to ratify the UNFCCC in 1993 and the Kyoto Protocol in 2002. The Tunisian authorities, with international support, have undertaken many initiatives, the actions of which now require coherence and the establishment of a national climate change strategy that will take into account new challenges and directions of post-revolutionary Tunisia.</p> <p>In this context, the Ministry, supported by the German Agency for International Cooperation (GIZ), has entrusted the development of this strategy to a group of national and international consultants (Offices ALCOR-TEC). Work on this was based on a broad consultation process that lasted longer than a year and which mobilized a broad group of national experts representing public sector institutions, the private sector and civil society.</p>	
Ministry of Finance	<p>In coordination with the Ministry of the Interior, the Ministry of Finance carries out the financial supervision of local authorities, in particular providing its opinion on the budgetary impact of all municipal or regional affairs.</p> <p>It also intervenes in financing agricultural projects and reimbursing farmers affected by climate change and natural disasters. Decree no. 75-316 of 30 May 1975 sets out the responsibilities of the Ministry of Finance, the main aim of which is the elaboration and implementation of the State's financial, monetary and fiscal policy. Within this framework, it participates in designing economic policy objectives and defining an appropriate means of achieving them. The Ministry is also responsible for:</p> <ul style="list-style-type: none"> • Drawing up draft finance laws and ensuring, in accordance with the legislation and regulations in force, the implementation of the State budget, supplementary budgets, the budgets of public institutions of an administrative nature, as well as special funds of the treasury, and as such, will therefore be consulted on all matters with a budgetary impact, in particular those relating to public remuneration. • Preparing draft texts of a fiscal and customs nature and ensuring the enforcement of legislation in this field. • Preparing draft texts relating to the accounting of the State and local authorities and taking all necessary measures to implement them. • Providing oversight to public accountants in the exercise of their statutory and regulatory responsibilities. 	<p>Address: Government Square, Rue de la Kasbah, 1000, Tunis Telephone: +216 71 57 36 49 / 71 56 37 78 / 71 56 21 29 Fax: +216 71 56 84 42 Email: accesinformation@finances.tn Website: http://www.finances.gov.tn/</p> <p>Communication Unit: Telephone: +216 71 57 35 27 Fax: +216 71 569 595 Email: psahraoui@finances.tn</p> <p>Administrative Document Access Officer Telephone: +216 71 57 36 49 / 71 56 37 78 / 71 56 21 29 Fax: +216 71 56 84 42 Email: accesinformation@finances.tn</p>
Ministry of the Interior	<p>The Ministry intervenes in the event of a natural disaster (e.g. flooding) in coordination with a national committee formed of various ministries.</p>	<p>Address: Avenue Habib Bourguiba, 1000, Tunis Telephone: +216 71 34 79 29 Fax: +216 71 34 79 29 Website: http://www.interieur.gov.tn/</p>
Ministry of Transport and Logistics	<p>The Ministry provides oversight for meteorology, seismology and astronomy activities and participates in the development of the national climate change strategy in coordination with relevant departments and agencies.</p>	<p>Address: 13 Rue Borjine, Montplaisir, 1073, Tunis Telephone: +216 71 90 50 26 Fax: +216 71 90 15 59 Email: boc@mt.gov.tn</p>
Ministry of Development, Investment and International Cooperation	<p>The Ministry is responsible for:</p>	<p>Address: Avenue Cheikh Mohamed Fadhel Ben Achour,</p>

	<ul style="list-style-type: none"> Establishing sectoral policies and programmes for infrastructure and human development in collaboration with the concerned departments. Preparing policies and strategies for regional and sectoral development in collaboration with ministries, regional councils and relevant regional structures. Preparing the economic and sectoral studies necessary for sectoral and regional development and supporting sectoral and regional private and public investments. Promoting opportunities for partnership and international investments through the support and assistance of investors in Tunisia and ensuring the multiplication of employment opportunities abroad for Tunisian executives and experts. <p>Within this Ministry there is a General Committee for International Cooperation which is responsible for:</p> <ul style="list-style-type: none"> Preparing, proposing and contributing to the implementation of a comprehensive and coherent strategy to strengthen cooperation between Tunisia and foreign countries, organizations, bodies and international and regional organizations in economic, financial, technical and other fields related to development. Participating in meetings, symposiums and conferences organized by States, institutions, bodies and international organizations to represent and defend Tunisia's interests. <p>The General Committee for International Cooperation includes a coordination and monitoring unit and the following four general directorates:</p> <ul style="list-style-type: none"> Directorate General for European Cooperation Directorate General for Multilateral Cooperation Directorate General for Cooperation with the Countries of the Middle East and North Africa Directorate General of African, Asian and American Cooperation and Prospective Studies 	<p>Immeuble B4, Tour A, Centre Urbain Nord, 1082, Tunis Telephone: +216 70 55 66 00 / 70 55 66 00 Fax: +216 71 79 90 69 Email: boc.mdici@tunisia.gov.tn</p>
Ministry of Social Affairs	<p>The Ministry's main aim is to implement the State's social policy focused on ensuring balanced social development, establish the principles of solidarity among individuals, segments and generations that make up society, and consolidate social well-being through the consecration of values of self-responsibility in work and professional relations, health and safety at work, social security, the promotion of vulnerable and special needs categories, adult education, supervision of the Tunisian community abroad and social housing.</p>	<p>Address: 25 Boulevard Bab B'net, 1006, Tunis (Rue Mohamad Annabi) Telephone: +216 71 15 01 43 / 71 15 00 33 Fax: +216 71 15 00 03 / 71 15 00 04 Email: brc@social.gov.tn Website: http://www.social.tn/</p>
Ministry of Vocational Training and Employment	<p>The Ministry is responsible for:</p> <ul style="list-style-type: none"> Employment Professional training Immigration and the foreign workforce 	<p>Address: 10 Avenue Ouled Haffouz, 1002, Tunis Telephone: +216 71 79 13 31 / 71 79 81 96 Fax: +216 71 79 46 15 Website: webmaster@mfpe.gov.tn</p>
Ministry of Education	<p>Within the framework of the State's general policy, the Ministry of Education makes national choices in the areas of school education and the development of related plans and</p>	<p>Address: Boulevard Bab B'net, 1030, Tunis Telephone: +216 71 56 87 68</p>

	programmes, as well as their implementation and evaluation of results.	Email: ministere@minedu.edunet.tn Website: http://www.education.gov.tn/
Ministry of Higher Education and Scientific Research	<p>The Ministry:</p> <ul style="list-style-type: none"> • Develops and implements higher education and scientific research policy. • Oversees the activities of universities, higher education institutions, research institutions and research structures. • Supervises the academic life of students and coordinates the activities of university offices. • Coordinates and monitors international cooperation in higher education and scientific research. 	Address: Avenue Ouled Haffouz, 1030, Tunis Telephone: +216 71 78 63 00 Fax: +216 71 80 17 01 Email: mes@mes.rnu.tn
Agence de Protection et d'Aménagement du Littoral [Coastal Protection and Planning Agency – APAL]	<p>APAL is a public institution of non-administrative character, created by law no. 95-72.</p> <p>Its responsibilities include implementing State policy in the area of coastal protection and management, protecting the public marine domain from unlawful encroachment and occupation and approving any development and equipment projects on the shoreline prior to their implementation, in consultation with stakeholders to:</p> <ul style="list-style-type: none"> • Propose the State's general policy for environmental protection, nature conservation and the promotion of the quality of life, to establish the foundations of sustainable development in the State's general and sectoral policies, in cooperation with relevant ministries and institutions, and to ensure implementation. • Promote environmental protection and nature conservation legislation and help integrate the concept of sustainable development into national strategies and plans, by taking general or specific measures in the various fields related to the environment and development and by setting standards for equilibrium in the natural environment. • Improve the environmental situation and the living environment, to prevent, reduce or eliminate the dangers that threaten people, the environment and natural resources, to protect and promote areas reserved for the development of biodiversity and panoramic sites, and to protect and promote the free spaces necessary for the growth of future generations. • Work towards the establishment of rules of good ecological governance in all sectors of activity and in the field of natural resources, and to take all necessary measures, in cooperation with all the parties concerned, to prevent and avoid risks and to address potential or foreseeable environmental problems. 	Head office: Address: 02 Rue Mohamed Rachid Ridha, Belvédère, 1002, Tunis Telephone: +216 71 90 65 77 Fax: +216 71 90 84 60 Email: boc@apal.nat.tn
Office National de l'Assainissement [National Sanitation Office – ONAS]	<p>ONAS was created under law no. 73/74 of 3 August 1974, with the mission of ensuring the management of the sanitation sector.</p> <p>The law establishing ONAS was amended by law no. 93/41 of 19 April 1993, by virtue of which the Office passed from the role of manager of the sewerage network to that of a main</p>	Address: 32, rue Hédi Nouira 1001 Tunis Telephone: +216 71343200

	<p>actor in the protection of the water environment and the fight against all sources of pollution. ONAS is a public industrial and commercial establishment, endowed with legal personality and financial autonomy. It is placed under the supervision of the Ministry of the Environment.</p> <p>ONAS's missions include:</p> <ul style="list-style-type: none"> • Tackling water pollution sources. • Ensuring the management, operation, maintenance, renewal and construction of any work intended for the sanitation of towns, the coverage of which is fixed by decree. • Promoting the distribution and sale of treated water and sludge from wastewater treatment plants. • Planning and implementing sanitation projects. • Developing and integrating projects on wastewater treatment and rainwater evacuation. 	<p>Fax: +216 71350411</p>
<p>Agence Nationale de Protection de l'Environnement [National Agency for Environmental Protection – ANPE]</p>	<p>ANPE is a public industrial and commercial establishment, created under law no. 88-91 of 2 August 1988, with its trusteeship and initial mission substantially revised by law no. 92-115 of 30 November 1992 as a result of the creation of the Ministry of Environment. Under the supervision of the Ministry of Environment, ANPE's general missions include:</p> <ul style="list-style-type: none"> • Participating in the development of the State's general policy to tackle pollution and protect the environment, and its implementation through specific, sectoral and global actions within the framework of the national development plan. • Proposing to the competent authorities any measure intended to ensure the implementation of the State's policy on pollution control and environmental protection, in particular measures to ensure the preservation of the environment and to strengthen the mechanisms that lead to it, and in general measures to prevent risks and natural or industrial disasters. • Tackling all sources of pollution and nuisance and all forms of environmental degradation. 	<p>Address: Immeuble ICF, Centre Urbain Nord, 1080, Tunis Telephone: +216 71 23 36 00 Fax: +216 71 23 28 11 Email: ds.etude@anpe.nat.tn</p>
<p>Centre International des Technologies de l'Environnement de Tunis [Tunis International Centre for Environmental Technologies – CITET]</p>	<p>CITET is a public non-administrative establishment, placed under the supervision of the Ministry of the Environment. Created in 1996 in response to the international recommendations of the Rio summit (1992) on strengthening the capacities of developing countries and supporting the transfer of environmental technologies, CITET was made responsible for the development of skills needed to ensure an adequate environmental technology transfer that is well suited to local, national and international contexts.</p> <p>Its missions include:</p> <ul style="list-style-type: none"> • Acquiring, adapting and developing new technologies. • Promoting environmental technologies and their production. • Strengthening national capacities and developing scientific and technical environmental knowledge appropriate to specific national and regional needs. 	<p>Address: Boulevard du Leader Yasser Arafat Telephone: +216 71 20 66 42 Email: cdi-info@citet.nat.tn Website: http://www.citet.nat.tn/</p>
<p>Commissariat Général du Développement Régional [General Committee for Regional Development]</p>	<p>The General Committee for Regional Development is a public body under the supervision of the Ministry of Development, Investment and International Cooperation. At national level, it</p>	<p>Address: 25 bis Rue Asdrubal, Lafayette, 1002, Tunis</p>

	<p>is responsible for participating in the development, monitoring and implementation of regional development guidelines, perspectives and policies, participating in the design of regional planning tools, supporting regions in the development and implementation of specific development programmes, and supporting civil society in the identification and implementation of development actions in alignment with public projects and programmes.</p> <p>The Committee is essentially responsible for:</p> <ul style="list-style-type: none"> • Participating in the development and evaluation of sectoral strategies and policies in accordance with development objectives. • Developing, monitoring the implementation of and evaluating public projects and programmes. • Developing regional development strategies. • Participating in the preparation of economic and social development plans. • Coordinating and monitoring the implementation of the SDGs and preparing the national report. • Monitoring human development and infrastructure indicators. • Establishing a unified public investment management framework. <p>An annual budget is allocated to governorates through a regional development programme, which regional councils, programme actions and projects use to improve living conditions (electrification, drinking water supply, rural and agricultural roads and tracks, housing and sanitation improvements), vocational training and employment opportunities through regional construction projects. The Committee has an important role in coordinating with the European Union and African Bank for Development on financing climate change-related projects.</p>	<p>Telephone: +216 71 79 92 00 / 71 79 94 54 Fax: +216 71 78 72 34 Email: cgdr@cgdr.nat.tn</p>
National Institute of Statistics (INS)	<p>INS was created in 1969 as a non-administrative public institution. It operates under the supervision of the Ministry of Development, Investment and International Cooperation. It is the central body of the national statistics system and performs important studies on climatology, population and demography, industry (including the agrifood industry), agriculture and plant production, and the environment and water.</p>	<p>Address 70 Rue Ech-cham, PO Box 265, Cedex, Tunis Telephone: +216 71 89 10 02 Fax: +216 71 79 25 59 Email: ins@mdci.gov.tn Website: http://www.ins.tn/</p>
Observatoire National de la Migration [National Migration Observatory – ONM]	<p>ONM is a public administrative institution that operates under the supervision of the Ministry of Social Affairs. It is responsible for the following tasks: observing migration, collecting, updating and analysing information and data, conducting research and studies, organizing seminars and publishing migration-related journals.</p>	<p>Address: 5 Rue Mahdia, Bab El Khadhra, 1075, Tunis Telephone: +216 70 10 88 26 Email: onm@social.gov.tn Website: http://www.migration.nat.tn/</p>
Agence Nationale pour l'Emploi et le Travail Indépendant [National Agency for Employment and Self-employment – ANETI]	<p>ANETI is a non-administrative public institution, with a civil personality and administrative and financial autonomy.</p> <p>Its main mission is to implement the Government's policy for the promotion of employment and is notably responsible for:</p> <ul style="list-style-type: none"> • Animating the job market at the national, regional, local and sectoral levels through the network of offices of employment and self-employment. • Developing the information on employment and professional qualifications for businesses and job seekers. 	<p>Address: 19 Rue Asdrubal, 1002, Tunis Telephone: +216 71 78 24 58 / 71 78 43 91 / 71 79 92 20 / 71 79 55 74 Fax: +216 71 78 32 36 Email: aneti@emploi.nat.tn Website: http://www.emploi.nat.tn/</p>

	<ul style="list-style-type: none"> • Providing the support necessary for the promotion of small firms and self-employment. • Ensuring job seekers receive information and vocational guidance with the aim of their integration into active life. • Supporting workers dismissed for economic and technical reasons and those with specific needs. 	
Agence de Promotion des Investissements Agricoles [Agricultural Investment Promotion Agency – APIA]	<p>APIA is a non-administrative public establishment, created in 1983. Its main mission is to promote private investment in the fields of agriculture, fishing and associated services, as well as in transformation, agricultural and fishing projects.</p>	<p>Address: 6 Rue Alain Savary, Cité El Khadra, 1003, Tunis Telephone: +216 71 77 13 00 Fax: +216 71 80 84 53 Email: prom.agri@apia.com.tn Website: http://www.apia.com.tn/</p>
Centre National de la Cartographie et de la Télédétection [National Centre for Cartography and Remote Sensing – CNCT]	<p>Created by law no. 88-83 of 11 July 1988, CNCT is a non-administrative public institution that works under the supervision of the Ministry of National Defence. It is responsible for promoting remote sensing techniques and associated research and training, and performs the following tasks:</p> <ul style="list-style-type: none"> • Drawing and managing basic maps, nautical charts, spatial maps, thematic maps and city plans, which are published and commercialized following permission from the Ministry of National Defence. • Capturing aerial photos across the national territory or supervising these when captured by others. • Ensuring the establishment and conservation of a grading network, in coordination, where appropriate, with the Topography and Cadastre Office, and of a gravimetry network covering the entire national territory. <p>CNCT also carries out work related to geographical information, in particular satellite geolocation and remote sensing techniques, the establishment and updating of geographical databases concerning the national territory and the execution of various topographical works, excluding those for the drawing up of documents related to land registration and land registry.</p>	<p>Address: Route la Marsa, l'Aouina, PO Box 200, Cedex, 1080, Tunis Telephone: +216 71 76 13 33 Fax: +216 71 76 08 90 Email: cnct@defense.tn</p>
National Meteorological Institute	<p>The National Meteorological Institute's missions include:</p> <ul style="list-style-type: none"> • Designing programmes and policies that enable the development of the meteorological, geophysical and climatological sectors, by taking advantage of technological and scientific advances. • Contributing to sustainable development through participation in programmes for environmental protection, nature conservation and the promotion of the quality of life. • Contributing to the protection of persons and property against the dangers caused by natural and industrial disasters and to the mitigation of their impacts in coordination with the various bodies concerned. • Managing and maintaining the meteorological and geophysical database (law no. 2009-10 of 16 February 2009 – JORT of 20 February 2009/P548). <p>With respect to climatology and applied meteorology, responsibilities include:</p> <ul style="list-style-type: none"> • Analysing the main climatological elements. 	<p>Address: Avenue Mohamed Ali Akid, Cité Olympique, El Khadhra, 1003, Tunis Telephone: +216 70 24 77 40 Fax: + 216 71 77 26 09 Email: admin@meteo.tn</p>

	<ul style="list-style-type: none"> Carrying out investigations to the study Tunisian climate trends during the last century. Exploiting meteorological data for the development of useful products (bulletins and specific studies) for various economic activities, including agriculture and hydrology, and contributing to the fight against diseases and natural disasters (drought, frost, hail, forest fires, etc.). 	
Groupe Chimique Tunisien [Tunisian Chemical Group – GCT]	<p>Tunisia is the second country in the world to recover a large percentage of its natural phosphate production (85 per cent). GCT (endowed under the Ministry of Industry, Energy and Mines) processes approximately 6.5 million tonnes of natural phosphate each year to produce merchant phosphoric acid (MGA), diammonium phosphate (DAP), triple super phosphate (TSP) and dicalcium phosphate (DCP). GCT also produces agricultural ammonium nitrate and porous ammonium nitrate intended mainly for the local market. GCT has four production sites spread over four regions in southern Tunisia: Gabes, Sfax, Skhira and M'dhilla.</p> <p>It employs more than 6,500 people, with its missions including:</p> <ul style="list-style-type: none"> Producing high added value phosphate. Producing and exporting of phosphoric acid and solid fertilizers worldwide. Creating jobs and improving citizens' social life. 	<p>Address: Siège Social, 7 Rue du Royaume d'Arabie Saoudite, Belvédère, 1002, Tunis</p> <p>Telephone: +216 71 78 38 22</p> <p>Fax: +216 71 78 34 95</p>
Commissariat Régional du Développement Agricole [Regional Commission for Agricultural Development – CRDA]	<p>Water-related responsibilities of CRDAs include: the preservation of natural resources, watershed management, the construction of hydraulic works, irrigation development and infrastructure management in public systems, agricultural extension and technical support, financial incentives and authorizations and promotion of the section.</p> <p>CRDAs are organized in divisions and districts and are currently still responsible for supervising major works and providing services to water users' associations (known as Agricultural Development Groups).</p>	<p>Note: There are 24 CRDAs (one per governorate) in Tunisia, which represent the regional administration. The contact person will depend on the selection of the case study.</p>
Research/academic		
Institut des Régions Arides [Arid Regions Institute – IRA]	<p>Created under law no. 76/6 of 7 January 1976, IRA's main task includes carrying out the research necessary for the development of the agricultural sector, the protection and conservation of natural resources and the fight against desertification in arid and desert regions.</p>	<p>Contact: Mohamed Ouessar</p> <p>Address: Institut des Régions Arides Médenine, Route du Djorf km 22</p> <p>Telephone: + 216 75 63 38 47 / 75 63 30 05</p> <p>Fax: + 216 75 63 30 06</p> <p>Email: ouessar.mohamed@ira.rnrt.tn</p>
Institution de la Recherche et de l'Enseignement Supérieur Agricoles [Agricultural Research and Higher Education Institute – IRESA]	<p>IRESA is responsible for the following:</p> <ul style="list-style-type: none"> Ensuring the promotion of agricultural research. Developing agricultural research programmes and budgets necessary for their implementation. Ensuring that agricultural research and higher education institutions serve agricultural production and development institutions under guardianship. <p>It covers:</p> <ul style="list-style-type: none"> Education: National Agricultural Institute of Tunisia (INAT); Higher School of Agriculture in Mograne; Higher School of Agriculture in Mateur; Tunis 	<p>Address: 30 Rue Alain Savary, Belvédère, 1002, Tunis</p> <p>Telephone: + 216 71 79 16 70 / 71 79 10 56</p> <p>Fax: +216 71 79 61 70</p> <p>Email: bo.iresa@iresa.agrinet.tn</p>

	<p>Higher School of Food Industries; Higher Institute of Fishing and Aquaculture of Bizerte; Higher Institute of Preparatory Studies in Biology and Geology in Soukra; National School of Veterinary Medicine; Higher School of Engineers of Medjez El Bab; Higher School of Agriculture in Kef; Sylvo-Pastoral Institute of Tabarka; and Higher Agronomic Institute of Chott Mariem.</p> <ul style="list-style-type: none"> Research: Tunis National Institute of Agronomic Research; National Research Institute for Rural Engineering, Water and Forestry (INGREF); Olive Tree Institute in Sfax; Institute of Veterinary Research; IRA in Médenine; National Institute of Marine Sciences and Technologies; Regional Oasian Agriculture Research Centre in Degueche; Regional Agriculture Research Centre in Sidi Bouzid; Regional Horticulture and Organic Agriculture Research Centre; and Regional Field Crop Research Centre of Beja. 	
Institut National de Recherches en Génie Rural, Eaux et Forêts [National Research Institute for Rural Engineering, Water and Forestry – INRGREF]	<p>In 1996, the National Research Institute for Forestry and the Research Centre for Rural Engineering merged to create INRGREF, a public multidisciplinary research institution. INRGREF's four research laboratories focus on rural engineering, non-conventional water use in agriculture, forest management and forest ecology. Its seven experimental stations support field research activities in different ecological regions of Tunisia.</p> <p>As part of its research programme, INRGREF supervises PhD projects, offers seminars and professional training and hosts yearly workshops and conferences. It has financial autonomy under IRESA and a permanent staff of 57 researchers, 62 technicians, 17 administrative personnel and 109 workers. INRGREF collaborates with more than 50 international institutions and organizations from the MENA region, Europe, Asia and the United States of America.</p>	<p>Address: Rue Hédi Karray, PO Box 10, 2080, Ariana Telephone: +216 71 70 90 33 / 71 71 96 30 / 71 23 00 39 Fax: +216 71 71 79 51 Email: ingref@iresa.agrinet.tn Website: http://www.ingref.agrinet.tn/</p>
Centre Technique de l'Agro-Alimentaire [Technical Agrifood Centre – CTAA]	<p>CTAA is an industrial technical centre administered by a board of 12 directors that are appointed by order of the Minister of Industry and Trade, with a quarter of these members representing Tunisia's Administration (the Ministry of Industry and Trade, Ministry of Finance and Ministry of Investment, Development and International Cooperation) and three quarters representing the professional sector.</p> <p>It works under the supervision of the Ministry of Industry and Trade and provides technical assistance to the agrifood industry. It has five directorates, one of which focuses on food safety and quality and the environment.</p>	<p>Address: 12 Rue de l'Usine, Z.I. Charguia II, 2035, Ariana Telephone: +216 71 94 00 81 / 71 94 01 98 / 71 94 10 15 Fax: +216 71 94 10 80 Email: CTAA@ctaa.com.tn</p>
Institut National Agronomique de Tunisie [National Agricultural Institute of Tunisia – INAT]	<p>INAT is a higher education and research institution that focuses mainly on sustainable development issues. It has significant capacity (100 permanent research teachers) and is recognized at the international level for its specialization in themes including biodiversity and the environment, the engineering of natural and cultivated ecosystems, the marine ecosystem, water and the environment and animal production.</p> <p>INAT houses a doctoral school and hosts five laboratories and a research unit working on priority themes, whose scientific productions and publications provide solutions to the agroecology and agro-industry sectors, which are considered the two pillars of Tunisian agriculture.</p>	<p>Address: 43 Avenue Charles Nicolle, Mahrajène, 1082, Tunis Telephone: +216 71 28 71 10 / 71 28 94 31 / 71 89 27 85 Fax: +216 71 79 93 91 Email: daghari.hedi@inat.agrinet.tn Email: mail@inat.rnu.tn</p>

<p>Centre de Recherches et des Technologies des Eaux [Water Research and Technology Centre – CERTE]</p>	<p>CERTE is responsible for carrying out research and technological development in the water sector, taking into account economic and social dimensions. It is responsible for the following (article 2, decree no. 337/2005):</p> <ul style="list-style-type: none"> • Conducting research projects and programmes in fulfilment of its contract with the Government. • Undertaking, upon request by ministries, national and international institutions, public and private institutions, research or experimentations, or providing water-related expertise. • Developing and improving manufacturing processes, production equipment and water quality. • Developing and improving water treatment and recycling processes and technologies. • Treating and improving non-conventional water sources. • Promoting research for sustainable water governance. • Contributing to the development and dissemination of water science and technology. • Exploiting research results and establishing partnership agreements. • Contributing to the training of graduates. <p><u>Ongoing international projects (partnerships):</u></p> <p>- Sustainable domestic water use in Mediterranean Regions project (SWMED; www.swmed.eu). Partners: Italy, Malta, Palestine and Tunisia (CERTE).</p> <p>- Water integrity: strengthening dialogue and advocacy for integrity, transparency and accountability in water resources management. Partners: Jordan, Lebanon, Palestine, Morocco, Sweden and Tunisia (CERTE).</p>	<p>Technopole de Borj-Cédria, Route Touristique de Soliman, PO Box 273, 8020, Soliman</p> <p>Telephone: +216 79 32 51 22 / 79 32 51 99</p> <p>Fax: +216 79 32 58 02</p> <p>Email: webmaster@certe.rnrt.tn</p>
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Private sector

<p>Société Centrale pour Equipement du Territoire Tunisie [Central Company for Equipment in Tunisia – SCET-TUNISIE]</p>	<p>Established in 1972, SCET-TUNISIE has developed new expertise and expanded its geographic coverage, making it one of the leading consulting firms in Africa. The company's skills cover all engineering stages, including studies, design, work supervision, technical assistance, project management and audits, particularly in transport infrastructure, hydraulics, the environment, agricultural and rural development, construction, the general economy, regional planning and town planning.</p> <p>Many projects have been funded by major international donors such as the World Bank, African Development Bank (AfDB), Arab Bank for Economic Development in Africa (BADEA), Inter-American Development Bank (IDB), Arab Fund for Economic and Social Development, Arab Fund for Economic and Social Development, KfW, Japan International Cooperation Agency (JICA) and European Investment Bank (EIB), and by national budgets.</p> <p>For more information, see: https://www.scet-tunisie.com/sites/default/files/brochure/PLAQUETTE-SCET-FR-2019.pdf</p>	<p>Address: 2 Rue Sahab Ibn Abbad, Cité Jardins, Belvédère, 1002 Tunis, PO Box 16</p> <p>Telephone: +216 71 89 45 65 / 71 79 54 98</p> <p>Email: direction@scet-tunisie.com.tn Email: r.kchaou@scet-tunisie.com.tn</p>
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Groupements de Développement Agricoles [Agricultural Development Groups]	<p>In Tunisia, Agricultural Development Groups are the only democratically legitimate local structures. These public utility organizations bring together owners and users and are responsible for managing certain natural resources. They play a very important role because natural resources, such as water, forests and pastures, are subject to severe over-exploitation, which, aggravated by the effects of climate change, threatens to cause irreversible damage.</p> <p>Its members lack knowledge of democratic consultation processes and their technical and administrative skills are limited.</p> <p>A vague legal framework worsens the situation. However, an efficient participatory management mechanism, which includes men and women, is essential for the effective management of natural resources.</p>	<p>Note: Agricultural Development Groups will be contacted promptly during the development of the case studies.</p>
Union Tunisienne de l'Agriculture et de la Pêche [Tunisian Union of Agriculture and Fisheries – UTAP]	<p>UTAP is an active social party that participates to the country's development process. It is part of many national committees and councils related to agriculture and marine fisheries, and has a significant role as a trade union. This is thanks to its balanced structure, which combines the supervision and mobilization of its basic, local and regional structures with specialized development of sectoral and specialized universities for professional and technical progress (more than 120 regional universities and 20 national sectoral and specialized universities).</p> <p>Thanks to its geographical extension and sectoral diversity, UTAP was able to spread throughout the territory, reaching more than 220 local federations, 24 regional federations and more than 850 unions.</p>	<p>Address: 62 Avenue Alain Savary, Belvédère, 1002, Tunis Telephone: +216 71 80 08 00 / 71 79 76 51 / 71 80 68 00 Fax: +216 71 79 72 92 / 71 79 85 98 Website: http://www.utap.org.tn/language/en/about-us/ Email: utap.tunis@Email.ati.tn</p> <p>Note: UTAP is a farmers' union.</p>
Development partners		
Mercy Corps	<p>Mercy Corps is an international development aid organization, created in 1979 with a presence in 46 countries. It supports local actors in building safer, more equitable and more productive communities around the world, including in contexts of humanitarian disaster.</p> <p>Since its installation in Tunisia in 2011, Mercy Corps has deployed the following strategy:</p> <ul style="list-style-type: none"> • Support to civil society: strengthening the capacity of associations and their networks to work effectively for coordinated local development. • Valuing the role of young people in the economy: developing opportunities in employability, entrepreneurship and financial inclusion. • Strengthening community resilience: improving civic engagement and dialogue to prevent risks. • Promotion of local governance: encouraging constructive dialogue between local authorities, the private sector and civil society. <p>Implementation teams are based in Médenine, Gafsa and Tunis.</p>	<p>Contact person: Mickael Amar (North Africa Director) Address: 1 Villa Jasmin, Rue du Lac Tibériade, Les Berges du Lac, 1053, Tunis Telephone: +216 71 86 18 24 / 29 14 60 18 Fax: +216 71 86 26 24 Email: mamar@mercycorps.org Email: tn-recruitment@mercycorps.org Website: http://www.mercycorps.org/</p>
French Development Agency (AFD)	<p>AFD is a major partner of Tunisia and has been working in the country since 1992. In line with the country's national policies, AFD supports its political, economic and social transition. This commitment was reiterated in 2016 with the announcement</p>	<p>Address: Rue du Lac Windermere, Les Berges du Lac, 1053, Tunis Telephone: +216 71 86 17 99</p>

	<p>of an exceptional €1 billion worth of support over the course of five years.</p> <p>AFD is using various financial tools (loans, grants, guarantees, funding) to support the Tunisian Government and its public, private and non-profit sectors.</p>	<p>Fax: +216 71 86 18 25 Email: afdtunis@afd.fr Website: www.afd.fr</p>
World Bank	<p>Among the World Bank's active projects in Tunisia are:</p> <ul style="list-style-type: none"> • Tunisia – First Resilience and Recovery Emergency Development Policy Financing • Energy Sector Improvement Project • Tunisia Innovative Startups and SMEs Project • Tunisia Irrigated Agriculture Intensification Project • Youth Economic Inclusion Project • Tunisia Tertiary Education for Employability Project 	<p>Contact: Sadok Ayari Tunis Address: Building Le Boulevard, 3rd floor, Cité les Pins, Les Berges du Lac II, 1053, Tunis Telephone: +216 31 37 30 00 Email: sayari@worldbank.org</p>
KfW	<p>On behalf of the German Government, and primarily the Federal Ministry for Economic Cooperation and Development (BMZ), KfW finances and supports programmes and projects that mainly involve public sector actors in developing countries and emerging economies – from their conception and implementation to the monitoring of their success.</p> <p>KfW is very active in Tunisia, with one of their most important programmes in the country being the “Modernisation of irrigation schemes in the lower Medjerda Valley”. The programme involves modernizing ageing public irrigation systems, which have been in operation for approximately 60 years in the lower Medjerda Valley. Its aim is to rationalize the use of water resources, increase the efficiency and productivity of agriculture in the long term and enable water users’ associations (Agricultural Development Groups) to self-manage their irrigation systems.</p>	<p>KfW Tunis office: Sven Neunsinger (Director) Address: Rue du Grand Boulevard de la Corniche, Building Le Boulevard, Bloc A, Rez-de-Chaussée, Cité des Pins, Les Berges du Lac II, 1053, Tunis Telephone: +216 71 96 72 15 Fax: +216 71 96 72 14 Email: kfw.tunis@kfw.de Website : https://www.kfw-entwicklungsba nk.de/</p>
Deutsche Gesellschaft für Internationale Zusammenarbeit [German Agency for International Cooperation – GIZ]	<p>GIZ has over 50 years of experience in a wide variety of areas, including economic development and employment promotion, energy and the environment, and peace and security. GIZ is active in Tunisia on behalf of the German Government and the European Union, among others. It works with local partners on more than 50 projects and supports the country in its economic policy and democratic development, with a focus on Tunisia’s rural regions.</p> <p>The priority areas of German development cooperation in Tunisia are:</p> <ul style="list-style-type: none"> • Sustainable economic development and employment promotion • Regional development, local governance, and democracy • Water and the protection of natural resources <p>GIZ also promotes the sustainable regional use of water resources. Together with public, private and civil society organizations, solutions are developed for agricultural practices and rural development that conserve resources. Other projects focus on the key areas of energy and climate, as well as migration. GIZ also coordinates country-specific activities in Tunisia on digitalization, sustainability and gender.</p>	<p>GIZ Tunisia office: Manfred Horr (Country Director) Address: Rue du Grand Boulevard de la Corniche, Building Le Boulevard, Cité des Pins, Berges du Lac II, 1053, Tunis PO Box 753, Cedex, 1080 ,Tunis Telephone: +216 71 96 72 20/ 71 96 72 27 Email: giz-tunesien@giz.de</p> <p>Note: GIZ promoted the “Promotion des GDA et encouragement des femmes à participer au développement rural durable” [Promotion of Agricultural Development Groups and encouragement of women to in sustainable rural development] project, which lasted from 2015 to 2015. The project focused on improving skills, resources and efficiency (capacity-building) within Agricultural Development Groups. It also provided advisory services that focus on democracy, governance and management, in particular with regard to women’s awareness and training in general</p>

		interest work and forest and pasture management processes.
Civil society (INGO, NGO)		
Association Tunisienne du Développement Agricole et Rural [Tunisian Association for Agricultural and Rural Development – ATUDAR]	<p>ATUDAR's main activities include:</p> <ul style="list-style-type: none"> • Contributing to the promotion of rural employment. • Supporting rural populations with implementing small-scale projects. • Promoting employment and entrepreneurship among rural youth. • Identifying and preparing participatory rural development projects. • Partnering with governmental institutions and international development agencies to implement rural development projects. • Developing rural communities, professional agricultural organizations and the management of human and natural resources. <p>ATUDAR's objectives are to contribute to:</p> <ul style="list-style-type: none"> • The design and implementation of agricultural projects in rural areas • The improved quality of agricultural products and food • The establishment and strengthening of professional agricultural organizations • The preservation of the environment, management of natural resources and sustainable development • The creation of and support for jobs in rural areas 	<p>Email: atudar2011@gmail.com</p> <p>Website: http://ruraldevelopmentdotcom.wordpress.com/</p> <p>LinkedIn: http://www.linkedin.com/groups/ATUDAR-Association-Tunisienne-D%C3%A9veloppement-Agricole-4673163?trk=myg_ugrp_ovr</p>
Syndicat des Agriculteurs de Tunisie [Tunisian Farmers' Union – SYNAGRI]	<p>SYNAGRI is a trade union organization created in 2012 in accordance with the provisions of the Tunisian Labour Code. The union is operational in the agricultural sector, but its activities do not yet cover the fishing sector.</p> <p>According to its charter, SYNAGRI is open to anyone practising agriculture as a main activity. Legal entities (groups, associations, mutual agricultural service companies) that have a direct link with agriculture can also join. SYNAGRI is still in its infancy, with its members totalling around 2,000 according to its managers. The union brings together individuals and producers' organizations, such as Agricultural Development Groups, as well as a large central mutual agricultural services company (SMSA). Geographically, SYNAGRI has 12 regional representations.</p> <p>SYNAGRI mainly brings together farmers of large and medium-sized farms, who represent different agricultural sectors and regions of the country. These farmers agreed to create the union as an independent professional organization to promote agriculture and farmers in Tunisia. While not part of a pro-farmer project, the union supports the interests of corporate farming and new agricultural promoters, most of whom are from trade and liberal professions.</p>	<p>Address: 2eme étage, Boulevard Farhat Hached, 3000, Sfax</p> <p>Telephone: +216 71 89 97 93</p> <p>Email: agriculteursdetunisie@gmail.com</p>
Association Tunisienne de l'Agriculture Environnementale [Tunisian Association of Environmental Agriculture – ATAE]	<p>ATAE is an NGO created in June 2011 by a group of Tunisian researchers as a partner organization of the Association Abel Granier (AAG), which was founded in 2001 by Abel Granier, a senior farmer experienced in rehabilitating degraded soils.</p> <p>ATAE brings together more than 106 members, researchers and farmers involved in agronomy in Tunisia, who are</p>	<p>Email: aaggranier@gmail.com</p>

	<p>concerned about modern industrial agriculture and its consequences on the environment, particularly on agricultural soils and human health. ATAE's activities are diverse and concern farmers' specific issues, such as soil inertia and pest pullulation, among others.</p> <p>Among its main objectives are knowledge-sharing, the dissemination of good agricultural practices and the identification of economically sustainable agricultural strategies. ATAE seeks all possible actions to restore soil fertility and protect the country's ecosystems to preserve the future of Tunisian agriculture.</p>	
Association Abel Granier (AAG)	AAG is a French, German and Swiss association founded in 2001 in Alsace, which brings together men and women concerned about modern agriculture and its consequences on the environment, particularly on agricultural soils and human health.	AAG Tunisia: Address: 13 Rue Al Mamoun, Cité Mahrajène, 1082, Tunis Telephone: +216 71 79 12 73 Website: www.abelgranier.net
Alternative Network of Young Tunisians (RAJ Tunisie)	RAJ Tunisie is an association of young Tunisian citizens united around anti-globalization. The network believes in the importance of the role of youth in the development and promotion of civil society and works specifically in the areas of climate and climate immigration in Tunisia. It has organized a Green Climate Forum.	Contact person: Wafa Hamadi (Coordinator of Environment and Climate programme) Address: 2ème étage, 15 Rue 18 janvier 1952, 1001, Tunis Telephone: +216 52 12 42 96 / 71 24 75 38 Email: contact@raj-tunisie.org

Stakeholders' analysis and valuing

As was done for the cases of Morocco and Algeria, based on the information obtained, a further analysis of how stakeholders presented themselves, their mandates and their declared activities in relation to water management, climate change and migration was performed. A Cartesian graph (Figure 5) was drafted to semi-quantitatively evaluate the power and interest (high and low) of each stakeholder, with the connections among different stakeholders (actual or expected) then drawn (Figure 6). The differentiation per category or cluster provides an additional key insight.

The following legend has been created to facilitate the understanding.

- Government/public ■
- Research/academic ■
- Private sector ■
- Development partners ■
- Civil society (INGO, NGO) ■

Despite the stated sociological assumptions associated with part of the migratory flow due to the declared climatic changes, data from the National Observatory of Migration show a complex sociopolitical state. This is a completely different aspect of the subject, with studies focusing more on a migratory profile that differs from the one conceived in this project, highlighting illegal immigration from Tunisia to Europe. Since the 2011 revolution, Tunisia has experienced a deep

economic crisis that is impacting every work profile, especially in the agricultural sector, with demographic shifts from rural to central areas observed, as well as profound sociodemographic change (i.e. irregular immigration). These changes are considered a cause of the collapse of agricultural production, with the decline in the number of young generations presented to the world of work also a significant issue.

The applied methodology enabled a series of interesting projects and programmes to be identified, with two projects of particularly great relevance, as they allow for the identification of future case studies:

1. In 1999, the Government published its first guidelines on drought management, the *Guide Pratique de la Gestion de la Sécheresse en Tunisie* [Practical Guide to Drought Management in Tunisia] (Ministry of Agriculture, 1999). These guidelines outlined methodological approaches, identified principal drought indices and described drought preparedness and management processes. The project was undertaken by the Ministry of Agriculture, Water Resources and Fisheries and the National Meteorological Institute.
2. The EnviroMobile project (2005–2014) used a travelling caravan to raise awareness on environmental issues among younger generations through workshops, various teaching materials and environmental microprojects at primary schools and colleges throughout Tunisia (including medium-sized urban areas, rural areas, disadvantaged areas). The project was the result of a concerted reflection between the Ministry of Environment, GIZ, the Spanish Agency for International Cooperation and Development and the Ministry of Education. This initiative is now implemented by the National Agency for Environmental Protection (ANPE).

Figure 5 shows that the public sector dominates, though power is concentrated in the ministries, with the Ministry of Agriculture, Water Resources and Fisheries, Ministry of Environment and Ministry of Higher Education and Scientific Research having crucial roles. The various associated public agencies with specific mandates have no power, such as research and academic stakeholders, despite their interest. Another biased result is observed in the relation between highly influential development agencies (high power and interest) and the Ministry of Development, Investment and International Cooperation, which is their direct interlocutor, yet has low interest despite its power.

These observations are shown in Figure 6, which depicts very few value exchanges and a multitude of desired ones.

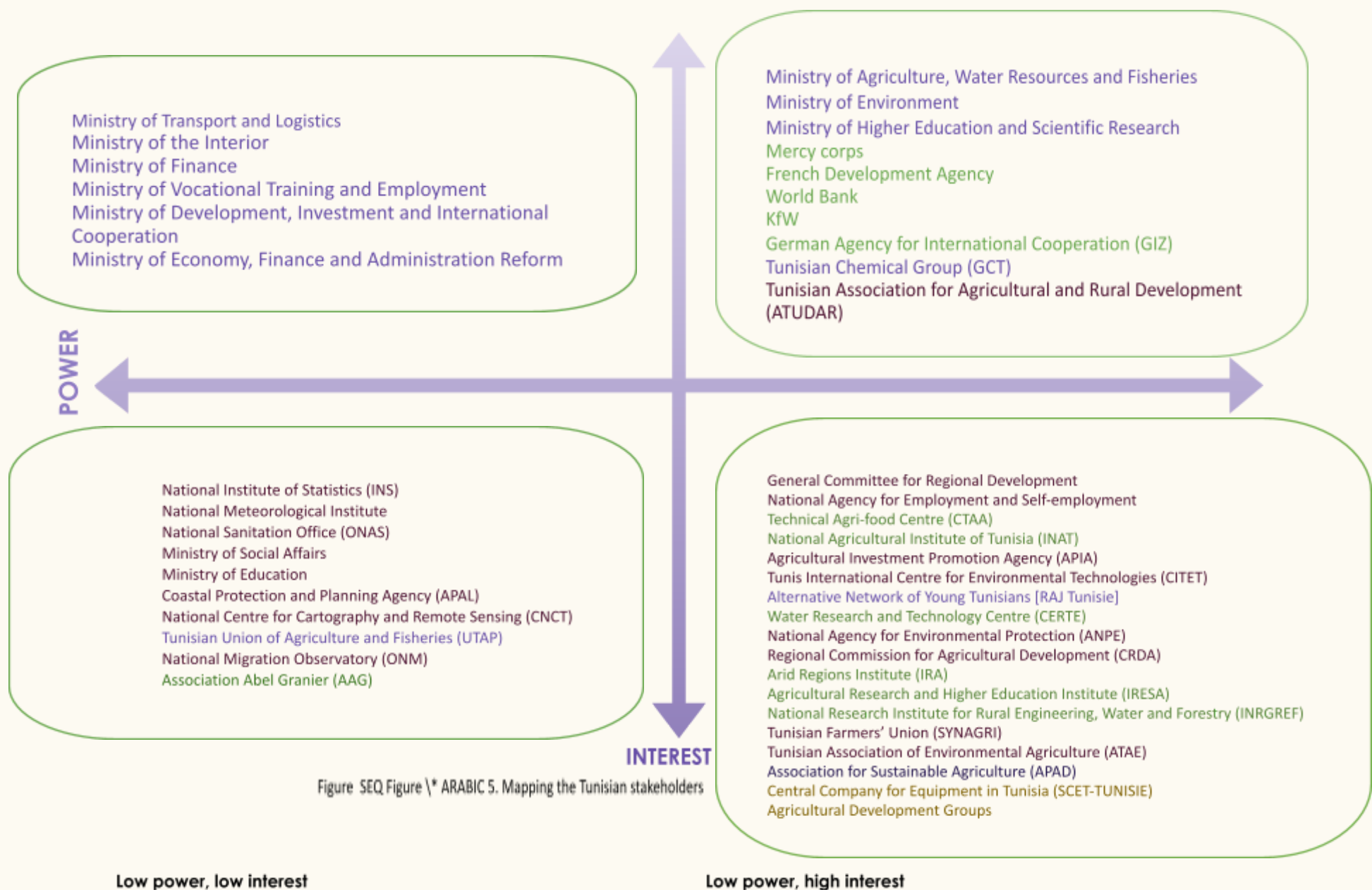


Figure SEQ Figure * ARABIC 5. Mapping the Tunisian stakeholders

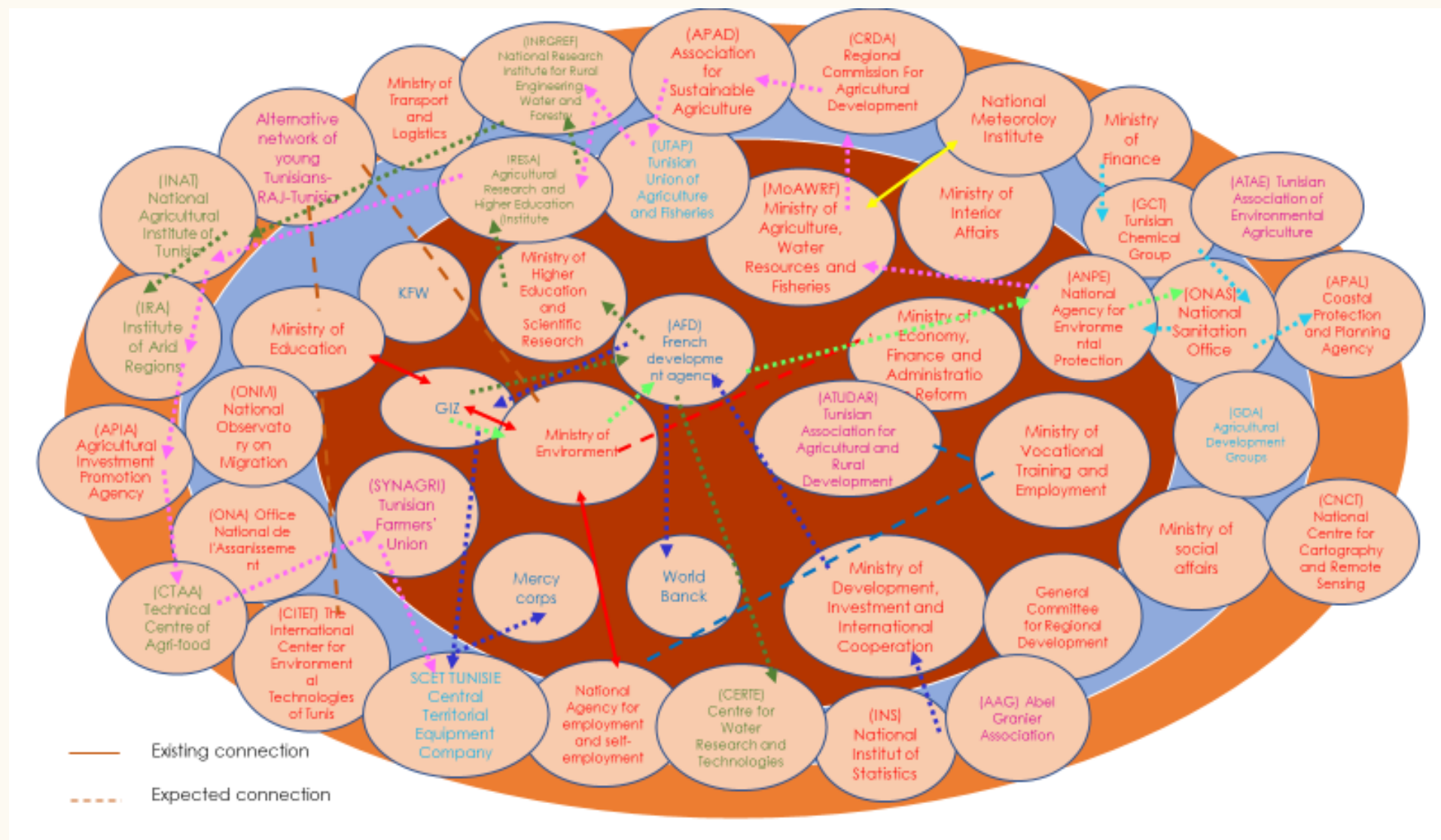


Figure 6. Value exchange among Tunisian stakeholders

IV. Maghreb mapping

CIHEAM Bari's Working Group considered it appropriate to list the regional stakeholders putting emphasis on the regional dimension of the project. In addition to the international actors active in the region (e.g. FAO and CMI), the Sahara and Sahel Observatory (OSS) is of great importance and recently resumed its activities.

Table 4. Maghreb stakeholders' list

Stakeholder	About	Contact/note
Sahara and Sahel Observatory (OSS)	<p>OSS is an African intergovernmental organization established in 1992 and based in Tunis, Tunisia. Its aim is to protect the Sahara and Sahel environments, supervise the usage of natural resources in the region and lobby for environmental agreements, especially those concerning desertification and climate change. As a regional entity in Africa, OSS aims to serve as an international framework for partnership and dialogue in the fight against desertification and in the attenuation of the effects of drought, the adaptation to climate change and the protection of biodiversity. It supports the efforts of its member countries in the Sahara-Sahel region in the fields of natural resource management and sustainable development, particularly on key themes such as land degradation, desertification, drought and the adverse impacts of climate change on ecosystems and populations.</p> <p>In April 2016, Morocco was elected to preside the Observatory for a four-year term.</p>	<p>Address: Boulevard du Leader Yasser Arafat, PO Box 31, Carthage, 1080, Tunis, Tunisia Telephone: +216 71 20 66 33 / 6 34 Fax: +216 71 20 66 36 Email: boc@oss.org.tn Website: http://www.oss-online.org/en</p> <p>Note: The OSS project on the "Sustainable management of water for agriculture" submitted to the Group on Earth Observations (GEO) was recently approved. The project's purpose is to establish an operational monitoring system for irrigation and water abstraction for agriculture using Earth observation data and technologies. Based on new and regular acquisitions of satellite images, the project will provide accurate and up-to-date information on agricultural campaigns as well as on water abstraction in irrigated areas, while observing food security and the management of seasonal water allocation restrictions issues.</p> <p>Since the project was only recently approved, additional information is not available at present. It is therefore not possible to know whether the project concerns one or several countries and as such is not listed under regional programmes.</p>
Arab Maghreb Union (AMU)	<p>In June 1988, Algerian, Libyan, Mauritanian, Moroccan and Tunisian Heads of States met in Algiers to deliberate the creation of an Arab Maghreb Union. AMU was founded in February 1989 in Marrakesh through the approval of the Treaty Instituting the Arab Maghreb Union, with member States agreeing to coordinate, harmonize and rationalize their policies and strategies to achieve sustainable development in all sectors of human activities. In addition to the Treaty, the Marrakesh Summit adopted the Solemn Declaration on the establishment of AMU and its work programme.</p> <p>Maghreb Charter on environmental protection and sustainable development:</p>	<p>Address: 73 Rue Tensift Agdal, Rabat, Morocco Telephone: +212 537 68 13 71 / 72 / 73 / 74 Fax: +212 537 68 13 77 Email: Sg.uma@maghrebarabe.org Web: http://www.maghrebarabe.org/</p>

	http://maghrebarabe.org/fr/wp-content/uploads/2019/03/charte-maghr%C3%A9bine.pdf (in French).	
International Water Management Institute (IWMI)	<p>IWMI climate-related research activities include:</p> <ul style="list-style-type: none"> • Modelling, monitoring and scenario planning for surface water and groundwater to help governments and partners plan and operationalize climate change adaptation. • Using river basin modelling tools to assess the hydrological impacts of plans for climate change mitigation through land-use change or changes in energy technologies. • Supporting effective water governance for climate change adaptation and mitigation. • Strengthening the gender-responsive implementation of climate-smart agriculture. 	<p>Contact person: Rachael McDonnell (Strategic Programme Director – Water, Climate Change and Resilience)</p> <p>Address: PO Box 2075, Colombo, Sri Lanka</p> <p>Telephone: +94 (0)11 288 00 00 Email: iwmi@cgiar.org Website: www.iwmi.org</p>
Food and Agriculture Organization of the United Nations (FAO)	<p>Migration, its drivers and impacts must be addressed when striving towards the eradication of hunger and poverty. With its mission of ending food insecurity and malnutrition, eliminating poverty and promoting the sustainable management of natural resources, FAO is uniquely placed to support countries in addressing the rural dimensions of migration, its implications for rural populations and its impact on the future of agriculture and food systems. Together with its partners, FAO is expanding on its work to strengthen the positive contribution that migrants are making towards poverty reduction, improved food security and nutrition, and the resilience of rural households. Areas of work focus on:</p> <ul style="list-style-type: none"> • Rural poverty and food insecurity • Lack of employment or income-generating opportunities • Inequality • Limited access to social protection • Climate change • The degradation of natural resources • The depletion of natural resources due to environmental degradation or climate change • Conflicts • Poor governance • Political instability 	Note: FAO's interest is both regional and local.
Center for Mediterranean Integration (CMI)	<p>CMI is a multi-partner knowledge exchange platform that development agencies, governments, local authorities and civil society organizations from around the Mediterranean use to exchange ideas, discuss public policies and identify solutions to address key regional challenges in the Mediterranean.</p> <p>Active themes include:</p> <ul style="list-style-type: none"> • Development and violent extremism prevention • Education, innovation and employability • Mediterranean Forum on Energy and Climate Change • Refugees and host communities • Regional Knowledge Program on Water • Territorial resilience to climate change • Youth 	<p>Contact person: Blanca Moreno-Dodson (CMI Manager) Email: bmorenododson@worldbank.org</p> <p>Contact person: Frederic de Dinechin (Senior Knowledge Management Officer) Address: Tour la Marseillaise, 2 bis Boulevard Euroméditerranée Quai d'Arenc, Marseille, 13002, France Telephone: + 33 491 99 24 51 Fax: + 33 491 99 24 79 Email: fdedinechin@worldbank.org Website: https://www.cmimarseille.org/</p>
International Commission on Irrigation and Drainage (ICID)	<p>ICID was established in 1950 and is a leading scientific, technical, international non-profit NGO. It is a professional network of experts from across the world in the field of irrigation, drainage and flood management. Its main mission is to promote sustainable agriculture and water management to achieve a water-secure world free of poverty and hunger through sustainable rural development.</p> <p>ICID is a knowledge-sharing platform dedicated to issues that covers the entire spectrum of agricultural water management practices</p>	<p>Address: ICID, 48 Nyaya Marg, Chanakyapuri, New Delhi, 110021, India Telephone: 91 11 26 11 68 37 / 91 11 26 11 56 79 Fax: 91 11 26 11 59 62 Email: icid@icid.org</p>

	<p>ranging from rain-fed agriculture to supplemental irrigation, land drainage, deficit irrigation and full irrigation. The drainage of agricultural lands forms the core theme of the Commission's activities. Floods and drought, the two extremes of an increasingly variable climate as a result of potential climate change, are also the focus of its activities.</p> <p>International cooperation</p> <p>ICID is the main international organization striving to promote programmes that enhance the sustainable development of irrigated agriculture. The Commission has a consultative status with the United Nations Economic and Social Council (ECOSOC), FAO, United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), World Meteorological Organization (WMO) and International Organization for Standardization (ISO). UNESCO is a permanent observer in the Commission's International Executive Council, while the United Nations Disaster Relief Organization (UNDRO) and WMO are represented in its technical work bodies. The Commission is also a partner organization of UN-Water.</p>	
International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM)	<p>Since 1962, CIHEAM has been dedicated to developing agriculture, fisheries and sustainable food systems, supporting the inclusive growth of rural and coastal Mediterranean territories and promoting multilateral cooperation through specialized training, networked research, scientific diplomacy and political partnerships. CIHEAM has its headquarters in Paris and four technical institutes in Bari, Chania, Montpellier and Zaragoza.</p>	<p>Address: 11 Rue Newton, 75116, Paris, France Telephone: +33 153 23 91 00 Email: secretariat@ciheam.org</p> <p>CIHEAM Bari has long-lasting experience in the water sector and a multitude of active projects in the Mediterranean and Africa. Contact person: Roula Khadra, Senior Researcher and International Officer, Water Resources Management and Planning. Address: Ceglie 9, 70010 Valenzano (BA), Italy Telephone: +39 080 4606 227 Email: khadra@iamb.it Website: iamb.ciheam.org</p>
	Regional programmes	
Regional Cooperation in the Water Sector in the Maghreb (CREM) project of OSS	<p>Approval date: January 2014 Project duration (phase 1): Five years (January 2014 to December 2018)</p> <p>Technical and financial partners: BMZ, GIZ and the German Federal Institute for Geosciences and Natural Resources (BGR)</p> <p>Countries of operation: Algeria, Morocco and Tunisia Main beneficiaries:</p> <ul style="list-style-type: none"> ● ANRH and AGIRE in Algeria ● Ministry of Energy, Mines and Environment of Morocco ● Ministry of Agriculture, Water Resources and Fisheries (Office of Planning and Hydraulic Balance in Tunisia) 	
Système Maghrébin d'Alerte précoce de la Sécheresse [Maghreb Drought Early Warning System – SMAS] of OSS	<p>Approval date: 2006.</p> <p>The SMAS project is part of an integrated approach to the establishment of an observatory for drought-related environmental degradation through improved crisis diagnosis and the development of adaptation strategies to impacts by using an early warning system to regularly monitor environmental changes in Algeria, Morocco and Tunisia. The project will be extended to the two other Maghreb countries – Libya and Mauritania – in a second phase.</p>	

	<p>During a meeting held in August 2004, OSS proposed to Algeria, Morocco and Tunisia the creation of a drought warning system for the Maghreb, based on the achievements of the “Monitoring of desertification in the countries of the southern shore of the Mediterranean” project, which OSS coordinated between 2002 and 2004, and which led to the production of reliable indicators for monitoring desertification in the three countries. The OSS proposal was welcomed by the relevant technical departments in Algeria, Morocco and Tunisia and received approval from the European Commission for funding through its LIFE-Third Countries programme. On 1 March 2006, the SMAS project was launched for a period of three years, during which the competent institutions in each country worked to set up national drought warning systems.</p>	
<p>World Meteorological Organization (WMO) Regional Climate Centre (RCC)-Network Northern Africa</p>	<p>Designated in: May 2017</p> <p>Nodes: (1) Casablanca Node on Long-Range Forecasting led by DMN, Morocco; (2) Tunis Node on Climate Monitoring led by the National Meteorological Institute, Tunisia; (3) Algiers Node on Data Services led by the National Meteorological Office, Algeria; and (4) Cairo and Tripoli Node on Training led jointly by the Egyptian Meteorological Authority (EMA) and National Meteorological Centre (NMC), Libya.</p> <p>Overall coordination: DMN, Morocco Domain of interest: Algeria, Egypt, Libya, Morocco and Tunisia</p> <p>Tasks:</p> <ul style="list-style-type: none"> ● Producing key climate monitoring products and in line with operational schedules, including: <ul style="list-style-type: none"> ○ monthly mean temperature maps ○ monthly total precipitation maps ○ mean sea level pressure maps ○ mean sea surface temperature maps ○ temperature, precipitation, sea level pressure and sea surface temperature anomaly maps. ● Performing climate diagnostics, including analysis of variability and extremes. <p>Annual bulletins and monthly bulletins have been suspended since 2016 and October 2017, respectively.</p> <p>Seasonal predictions are provided with an update on a monthly basis and comprise monthly bulletins that are developed using inputs from international long-range forecast centres. At the beginning of the main rainy season, during the Regional Climate Outlook Forum for North Africa (PRESANORD), an outlook bulletin is developed for the main rainy seasons (November–January and December–February) by the DMN, which is published on the RCC-Network website. At the end of the rainy season, the outlook is verified using inputs from most North African countries within the framework of the Mediterranean Climate Outlook Forum, with a simple verification completed using maps of the Long-Range Forecasting node prior to PRESANORD.</p>	<p>Website: http://rccnara1.marocmeteo.ma</p> <p>Website: http://acmad.net/rcc/presanord.php</p>

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The Center for Mediterranean Integration (CMI) is a multi partner institution where international development agencies, national governments, local authorities, and civil society from around the Mediterranean convene to exchange ideas, discuss public policies, and identify regional solutions to address regional challenges in the Mediterranean.

As of July 1st, 2021, and eleven years after its creation, the CMI has officially joined the United Nations (UN), hosted by the United Nations Office for Project Services (UNOPS).

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