



**OBSERVATOIRE  
DU SAHARA  
ET DU SAHEL**

**Regional initiative "Water stress and climate change in North Africa" Facility to support public policy dialogue**

*"Mobilization of unconventional water resources to cope with the worsening water stress situation in North Africa in a context of climate change" Program*

Algeria, Egypt, Libya, Morocco, Tunisia

**Implementation of a national study/summary on the challenges and solutions related to the valuation of unconventional water and fossil water in a context of climate change**

## **Terms of Reference**

**For the recruitment of a national individual consultant  
(Libya)**

**[AC/OSS/WaterStressNA-AFD\_NatStudy-LY/090121-36]**

November 2020

## 1. General context: Water resources in North Africa caught between water scarcity and stress, together with the adverse impacts of climate change

The North African region has scarce renewable water resources and all countries are experiencing water stress situations<sup>1</sup>. Algeria, Libya and Tunisia are already living under water resources scarcity<sup>2</sup> (OSS, 2020)<sup>3</sup>. The latest WRI report ranks the 5 countries in a situation of high or critical water stress for Libya<sup>4</sup> (in 6<sup>th</sup> position among the most vulnerable countries)<sup>5</sup>. The region has a naturally arid or semi-arid climate and is already experiencing the impacts of climate change: exacerbated water stress, declining agricultural yields and increasing pace and intensity of extreme weather events. Despite a spatial and temporal disparity, the projections of the different climate models speak of an increase of the main risks (increase in temperatures, decrease in rainfall or increase in their inter-annual variability, increase in the pace and/or intensity of extreme weather events such as droughts and floods and sea level rise). According to climate models, the region is likely to experience a heavy drying trend due to rising temperatures (leading to increased evaporation) combined with a relative rainfall decrease. Maps generated by the Aqueduct Water Atlas (WRI)<sup>6</sup> in 2013 and new climate simulations from the Swedish Meteorological and Hydrology Institute (SMHI)<sup>7</sup> show a sharp reduction in renewable water resources available by 2040 due to climate change in the region. With regard to Libya, SMHI rainfall evolution forecasts by 2040, according to the Model Cordex Middle East North Africa, High Scenario (RCP 8.5) show that the northern part of the country will experience significant rainfall decrease by 2040 (from 10 to 30%) compared to the reference period (1971-2000).

These climate-related phenomena, combined with multiple anthropogenic causes (demographic growth, increase in living standards with an inefficient use of the resource) will continually intensify the pressures on water resources and the significant potential reduction.

In terms of exploitation, the mobilization of renewable groundwater and surface water resources has reached its limits in most hydraulic basins as well as in most aquifers in the 5 countries (OSS, 2020). In Libya, for example, recent information produced by the OSS<sup>3</sup> indicates the country has the highest exploitation rate in the region, up to 892% of the country's renewable water resources. This exploitation index value shows that the country lives under a very critical situation of water shortage (index greater than 100%).

In order to contend with this situation, it is absolutely vital to adopt strict water resources management strategies, in particular through demand management. Likewise, it is becoming crucial to fall back on alternative resources, in particular unconventional water resources such as fossil water in order to meet these growing demands. For this reason, the countries of the region have already been committed for several decades to the mobilization of

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<sup>1</sup> Water stress: Water availability between 500 and 1000 m<sup>3</sup> / inhabitant / year

<sup>2</sup> Water shortage: Water availability less than 500 m<sup>3</sup> / inhabitant / year

<sup>3</sup> Sahara and Sahel Observatory - Water in our Regions (2020). ISBN 978-9938-933-28-4. 120p

<sup>4</sup> More than 40% of available water resources are withdrawn each year leaving little room between supply and demand in the event of fluctuations (drought or increased withdrawals).

<sup>5</sup> WRI Atlas, 2019

<sup>6</sup> <https://www.wri.org/resources/maps/aqueduct-water-risk-atlas>

<sup>7</sup> SMHI, Climate Information, <https://climateinformation.org/>, last accessed: (11/12/2020).

The SMHI portal also contains data and information from Cordex Med relating to several hydro-climate parameters (Rainfall, flows, temperature, humidity, etc.).

unconventional water: reuse of treated wastewater (REUT), desalination of seawater or brackish water.

Libya's experience in mobilizing unconventional water can be presented as follows (OSS, 2020):

- With regard to seawater desalination, the country has planned since the 1960s, in its successive hydraulic resources promoting strategic plans, to give priority to exploiting desalinated seawater. About thirty desalination plants have been established along the coast with an approximately 157 million m<sup>3</sup>/year (411,000 m<sup>3</sup>/d) total capacity. However, due to the shutdown of a number of factories, current production does not exceed 70 million m<sup>3</sup>/year (191,800 m<sup>3</sup>/d), i.e. only 57.6% of the established capacity. The main reason for this underperformance is the implementation of the Great Man-Made River (GMMR) artificial river project, for which there has been more interest. In 2014, the Libyan General Water Authority drew up a plan for the establishment of 15 new desalination stations by 2025 for a 728.2 million m<sup>3</sup>/year (1,995,000 m<sup>3</sup>/d) production capacity in order to cope with the growing water scarcity (OSS, 2020).
- As for wastewater valuation, out of the 504 million m<sup>3</sup> produced each year Libya treats only 40 million m<sup>3</sup> today. Only 13% of treated wastewater is recovered, the remaining part is sent back to nature.

Despite the efforts, there are still major challenges to be taken up in order to achieve appreciable performance in view of the available potential.

The AFD which is already committed to water in most of the countries in the region, has offered support to countries so that they effectively meet these challenges, by funding through the Sahara and Sahel Observatory, an international organization with an institutional vocation, the “**Water stress and climate change in North Africa**” initiative with the aim of supporting an exchange and cooperation dynamic between countries in the region on the water resources management challenges in a context of climate change.

A summary note on the initiative is attached in annex 1.

## 2. Presentation of the assignment

### 2.1 Context and rationale for the assignment

Through its component 1, the global initiative provides for (annex 1) collecting and summarizing the existing information and already produced in each of the 5 countries and producing a regional summary on the “**challenges and solutions related to the valuation of unconventional water and fossil water in a context of climate change**” topic. These summaries would be the cornerstone for the other actions of the project (components 2 and 3) and will be used for regional exchanges between countries and for communication to different targets, in particular policy makers. In this context, the OSS, which is implementing the initiative is launching a call for applications for the recruitment of a national consultant in each of the 5 countries (Algeria, Egypt, Libya, Morocco and Tunisia) to carry out national studies/summaries. The reports of these national studies will be used to elaborate a regional summary by the OSS team.

## 2.2 Purpose of the assignment

The overall objective of the service is to support the OSS team in the project implementation, in particular through the completion of national studies.

Specifically, the service will provide for:

- Collecting the existing information and providing a national summary on the main topic of the study, namely "**challenges and solutions related to the valuation of unconventional water and fossil water in a context of climate change**";
- Producing an associated briefing paper (for external release in the AFD's collections).

## 2.3 Consistency of the service

### 2.3.1 Carrying out a comprehensive national study and summary

The assignment will be carried out based on data and information available and collected from key partners in the country and/or made available at the start of the consultation by the OSS.

In order to foster this data collection, one (or more) exchange workshop (s) with the main stakeholders will be organized, if necessary, at the OSS initiative with the support of the consultant at country level.

The main issues to be addressed within the framework of this study and for which the consultant will have to produce consistent and detailed information are as follows: (i) the expected evolution of water resources by 2050, (ii) good practices of demand management, (iii) the prospects for a complementary response provided by unconventional water and fossil water.

#### a) Expected evolution of water resources by 2050 in the country

The consultant will carry out a nationwide study based on the information and data available. The consultant will then be able to rely, in the context of data collection, on the strategic corpus and existing documentation on national policies and strategies for water resources management, the country's climate plans (NDC, NAP and existing national communications), scientific studies/releases and tools, national, regional and international databases (including climate), etc.

An indicative list of documents useful for the study is provided in Annex 2. This study will integrate the future impacts of climate change and population growth and will include, for information purposes (non-exhaustive list), the following elements:

- Current situation of the (quantity and quality) availability of water resources in the country: overall balance and by type of resources (surface water, groundwater, unconventional water, etc.);
- Situation of current uses/withdrawals and needs by sector of use (agriculture, domestic drinking water, industries, other sectors). For each sector of use, the share from each type of resource must be specified;
- Situation of physical and technical losses on the network;
- Projections of the expected evolution of water resources in a context of climate change, all other elements being equal, based on the climate models available for the

region or the country (cf. database indicated in the annex in particular), for information purposes only. , for 2030, 2040 and 2050, to be adapted according to the availability of information. In this case, the High (RCP 8.5) and Medium (RCP. 4.5) scenarios will be given priority.

- Projections of overall needs and for each sector of use at different times: 2030; 2040 and 2050 with an explanation for the choice of approaches, parameters and scenarios used.
- Analysis and presentation of the adequacy between the expected evolution of available resources and the evolution of overall needs by 2050 in the country.

Moreover, the consultant must guarantee the consistency and exactness/accuracy of the data and information he/she will present, the latter may be different from one source to another. He/she must also refer to the sources of information used and if necessary present several scenarios.

Time limits can be defined by national logic, depending on the available studies<sup>8</sup>.

#### **b) Summary of good demand management practices**

Based on the results of the projects/programs carried out and available studies, as well as his/her different field experiences, the consultant will produce a summary of good practices in demand management promoting the best possible use of resources. The consultant will specify the criteria for evaluating good practices that he/she will have defined and explained.

#### **c) Summary of good practices in reducing network losses**

Based on the results of the projects/programs carried out and available studies, as well as his/her different field experiences, the consultant will produce a summary of good practices in reducing network losses, particularly physical losses. The consultant will specify the criteria for evaluating good practices that he/she will have defined and explained.

#### **d) Prospects for additional responses provided by unconventional waters and fossil waters**

The aim is to estimate the contribution of unconventional water to support the water shortage (current and/or future in a context of climate change). In this context, the consultant will have to make an in-depth analysis of the data and existing results of initiatives, supports and public policies<sup>9</sup> and will provide detailed information including the elements (for information purposes) below:

- The potential of unconventional water, in particular the wastewater produced;
- The current situation of mobilization and development of unconventional water and fossil water and the country's long-term prospects (deadline 2050);

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<sup>8</sup>For information purposes, in Egypt, the deadline defined for the National Water Plan is 2037 (2017-2037)

<sup>9</sup>Initiatives, public policy support and projects financed by i) the AFD Group (Adapt'Action Facility for the REUT 2050 program) including the FGEF pilot programs; WB, EU programs (EU SWIM program - pillar A on unconventional resources); programs financed by the Adaptation Fund or the Green Climate Fund; etc.

- The identification and analysis of the possibilities and means of effective contribution of unconventional water and fossil water to meet current and future needs (2050) in order to sustainably support responses to water stress and water scarcity issues in the area. Plus, the analysis will highlight:
    - *The place of unconventional water exploitation in mobilization policies and strategies and the tools to have it strengthened;*
    - *Examples of innovative and inspiring programs in the Mediterranean region (feedback from regional or international experiences);*
    - *The socio-economic and environmental issues associated with the mobilization of these resources (e.g. cost-benefit analysis, environmental impacts of desalination, etc.) and innovative solutions (desalination using renewable energies for example) to deal with them;*
    - *The limits and possible hardships related to the implementation of policies and programs and the means to have them resolved.*
  - *The summary review of the different methods of wastewater treatment for REUT in the region (advantages/limitations) and identifying the lowest GHG emitting technologies (e.g. certain tertiary treatments can release a lot of methane).*
- e) Recommendations for additional studies and work to fill the gaps in scientific information and/or existing and reliable data.**

At the end of his/her investigations, the consultant will highlight:

- The limits in terms of availability and consistency of relevant and reliable data and information that can effectively provide answers to the questions to be analysed;
- The gaps in scientific information and/or reliable data on which additional actions must be taken subsequently;
- Difficulties in terms of access to data and information.

Finally, the consultant will propose relevant recommendations in relation to each of the points herein above.

### **2.3.2 Preparation of a briefing paper associated with the results of the national study**

At the end of this study, the consultant will produce a briefing paper presenting the results and key information of the study for information and communication purposes, in particular to decision-makers. The document should be written in an easily accessible and clearly structured style and language with an appropriate mix of text and graphic objects.

## **3. Expected products/deliverables and conditions**

The consultation will start in early January 2021 and end in June 2021. The expected deliverables, deadlines and payment terms are explained hereunder:

- **Deliverable L1: Inception report/consultancy work plan**

An inception report must be submitted by the consultant within **10 days of signing the service contract and approved by the OSS.**

The inception report should:

- Present the methodology/strategy for the improved execution of the service;
- Propose a provisional format/plan for presenting the main report and the deliverables expected from the assignment;
- Specify, from the list already communicated by the OSS, the list of national structures/organizations and in particular the national community of scientists/researchers<sup>10</sup> as well as international and/or regional scope<sup>11</sup> to be involved in the process.
- Identify the risks for the assignment to fail and the means to have them overcome/bypassed.
- **Deliverable L2: National report including all the required elements (see § 2.3.1)**
  - A temporary version must be produced after **06 weeks of the signature of the service contract**. The commissioner will comment on this report and the consultant will take these comments into account. The amended version will be presented and validated during a (virtual) national workshop scheduled for mid-May 2021 involving the main relevant stakeholders in the country.
  - The final version of the report will be submitted 01 week after the said workshop is held.

**This national report should be supported by a maximum 10 page extended summary.**

- **Deliverable L3: Briefing paper proposal**
  - A temporary version of the briefing paper must be submitted for amendments, **01 week after validation of the national report**,
  - The final version of the briefing paper must be returned **01 week after receiving and integrating the commissioner's comments** on the temporary version;
- **L4 deliverable: A PowerPoint presentation**

The consultant will provide a PowerPoint presentation (15 to 20 minutes) summarizing and best reflecting the main findings and recommendations of the study. This deliverable must be returned **01 week after the validation of the deliverables L1, L2 and L3**.

The table below gives an overview of the duration of the service and the deliverables submission deadlines. Moreover, the consultant must participate in the regional exchange workshop scheduled for the end of June 2021.

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<sup>10</sup>The participation of the scientific community and researchers working on the topic is crucial. The aim is to have a complete vision of the existing scientific work on the region as well as their contribution to the reflection

<sup>11</sup>For example, IRD, WRI, COSTEA or even experts attached to the MedeCC network are some of the international research organizations working on similar topics in the region.

N°	Deliverables	Duration (Effort/Man day)	Deadlines	Payment terms
L1	Inception report	2	10 days after signing the service contract	20%
L2	National report	25	<ul style="list-style-type: none"> <li>• Temporary report: 06 weeks after the signature of the service contract</li> <li>• Final report: one week after the (virtual) national workshop scheduled for mid-May 2021</li> </ul>	50%
L3	Briefing paper	2	01 week after validation of the national report	20%
L4	PowerPoint presentation	1	01 week after validation of deliverables L1, L2 and L3	
	Participation in the regional workshop		June-21	10%

#### 4. Profile of the national consultant

The national consultant needed for the assignment must meet the following minimum conditions:

- University degree (minimum bachelor degree + 5) in the specialties needed by the service (water resources, rural engineering, environment, etc.);
- 10 years of proven experience in the field of water resources management;
- Good knowledge of the challenges of climate change and the strategies and information available in the country (modelling work, various studies, etc.);
- Particular experience in the development and/or implementation of policies and strategies for the management and development of unconventional water at national and regional levels (particularly in North Africa) will be an asset;
- Good technical references in the relevant country;
- Good writing and summary skills of scientific, technical and policy/strategy documents (ability to draft and present quality documents).

#### 5. Responsibilities of the study partners

For the assignment to be conducted, the consultant will have as main partners, the OSS (main commissioner) and the AFD (technical and financial partner). They will provide the available documentation and an indicative (non-exhaustive) list of contacts for the purposes of the study. They will provide the necessary letters and documents requested by the institutions. The commissioners will have to monitor his/her performance and approve the deliverables/reports.



## 6. Proposals and submission of bids

The bids will consist of:

- **A technical bid** including:
  - A presentation of his/her understanding of the terms of reference and proposal for required adjustments if necessary;
  - A description of the methodological approach to be adopted to conduct the assignment. This should specify the list of the main technical, scientific and research structures as well as the different communities of researchers identified as part of the study and describe how to ensure their involvement in the process.
  - The chronogram of the service progress;
  - The updated and detailed CV of the consultant [\[OSS CV Template\]](#) including information demonstrating the consultant relevant qualifications, experiences and skills for the assignment;
  - Proof of all references (similar services and experience in comparable assignments) mentioned in the CV. In the absence of proof of a reference, the latter will not be taken into account for the evaluation.
- **A financial bid** which must indicate the total amount of the services.

**Bids must be sent to the OSS no later than January 31, 2020:**

- by Email, no later than midnight, to: [procurement@oss.org.tn](mailto:procurement@oss.org.tn), including: "**Recruitment of an individual consultant to carry out a national study/summary on the challenges and solutions related to the valuation of unconventional water and fossil water (Relevant country) [AC/OSS/WaterStressNA-AFD\_NatStudy-LY/090121-36]**" or
- By hand to hand, no later than 3:00 p.m. Tunis time, to: Sahara and Sahel Observatory (OSS) Boulevard du Leader Yasser Arafat, PB 31, 1080, Tunis (Tunisia).

Technical and financial bids must be presented separately. In case of hand to hand deposit, the technical bid and the financial bid must be placed in two separate envelopes, closed and sealed. These two envelopes will be placed in a third closed and sealed outer envelope, indicating the reference and subject of the call for tenders.

## 7. Bid evaluation and comparison criteria

### • Technical bids

The evaluation and comparison of technical bids will take place separately and independently of any financial consideration. It will be scored out of **100 points based on the headings below** (for information purposes only):

- a. *Qualification of the tenderer: 15points*
- b. *Professional references and experience of the tenderer : 50points*
- c. *Methodological note: 35points*

For the applicant to be eligible, his/her technical bid must obtain a minimum score of 70 out of 100.

- **Financial bids**

The financial evaluation will only relate to bids from pre-qualified tenderers after the technical evaluation.

**The scores of the financial bids (Fs) will be calculated as follows:**

**F<sub>s</sub> = 100 x F<sub>m</sub>/F:**

- **F<sub>s</sub>:** Bidder's financial score
- **F<sub>m</sub>:** Lowest financial proposal of the technically accepted bids
- **F:** Tenderer's financial proposal

- **Final evaluation**

Proposals will be classified according to their overall score (OS) according to the following formula:

$$\text{OS} = [\text{TS} \times (70\%)] + [\text{FS} \times (30\%)]$$

- **OS:** Overall Score
- **TS:** Technical Score
- **FS:** Financial Score

The choice of the tenderer will be based on the tender having obtained the highest overall score (OS).

## Annex 1: « Water stress and climate change in North Africa »

### Synthetic framing note

#### 1. Context of the initiative

North Africa with its naturally arid or semi-arid climate, is already living under the climate change impacts such as exacerbated water stress, declining agricultural yields as well as the increase of extreme events frequency and degree. According to a recent report from the Network of Mediterranean Experts on Climate and Environmental Change (MedeCC), the area is experiencing an increase in temperatures at a 20% rate higher than global averages, which could reach, if no further action is undertaken, + 2.2°C by 2040 and up to + 3.8°C in some regions by 2100.

The AFD Group (French Development Agency) gives a strategic priority to the resilience of economies and territories in the North African region with the ambition of continuing and strengthening its operations that aim at preserving water resources and developing unconventional resources, so that the area can cope with a situation of water stress that is likely to worsen due to the combined impacts of human activities and climate change.

The current water stress that is most likely to worsen, could increase the tensions between uses and the conventional renewable resources. In this context, it seems particularly appropriate to reflect upon the potential contribution of unconventional water resources (in particular the reuse of treated wastewater for agriculture, desalination or demineralization of water and trans-boundary fossil water) and describe the conditions and best practices associated, as well as the possible and particularly environmental risks. The regional approach appears to be very complementary to programs that historically benefited from AFD funding in the North African countries, particularly in Morocco and Tunisia.

All these reasons have led the AFD and the Sahara and Sahel Observatory (OSS), an intergovernmental organization with an African vocation established in Tunis and reputed for its expertise in water resources and climate change in arid and semi-arid areas, to jointly build the “Water Stress and Climate Change in North Africa” initiative.

The initiative comes within the framework of the Support Facility for Public Policy and Citizen Dialogue funded by the AFD and for which a research and partnership agreement was signed on November 5 with the OSS in Tunis for an 18-month duration.

## 2. Purpose and objectives of the initiative

The "**Water stress and climate change in North Africa**" initiative will be implemented by the Sahara and Sahel Observatory (OSS) and carried out in close collaboration with the key operators involved in water resources in the different countries of the region (Algeria, Egypt, Libya, Morocco, Tunisia).

This regional initiative proposes to fuel for an 18-month period the public policy dialogue in the region (Algeria, Egypt, Libya, Morocco and Tunisia) and to encourage the knowledge sharing at a regional scale on the challenges and solutions allowing to face water stress, which is likely to worsen with the climate change context. The initiative will allow the creation of spaces for dialogue on the issue with the production of summary documents by country and at the regional level and the release of research documents in the AFD's collections. A high-level exchange workshop will also be convened in Tunis in June 2021. It will mainly target and involve decision-makers from the relevant countries as well as high level decision-making officials working within cross-cutting and sector ministries, as well as the scientific community, civil society and the private sector. Focal points will be appointed at the start of the initiative in each country.

The operational objectives proposed by the initiative are as follows:

- Collect existing and available information at different levels (national strategies, research documents, database, etc.) from key stakeholders in each country and region to summarize information on the expected evolution of groundwater and surface water resources of the countries of the region by 2050 in the context of climate change and make decision-makers aware on the inequalities between conventional and renewable resources and uses;
- Based on existing studies or work in progress, recall the need to strengthen demand management mechanisms based on examples of good practice;
- Analyse the potential contributions (and the associated good practice conditions) in this context, depending on the geographical areas and their bio-climate specificities:
  - Unconventional water resources, in particular and primarily the reuse of treated wastewater for agriculture, resources resulting from demineralization practices (brackish water) and, under certain conditions, resources resulting from seawater desalination;
  - Fossil water resources<sup>12</sup> for the relevant countries.
- Beyond questioning the potential "quantitative" contribution of these resources to cope with a situation of exacerbated scarcity, the aim is to share best practices and the associated issues, possible risks (environmental impacts of desalination) and innovative solutions (desalination using renewable energies for example). In particular, examples from the two shores of the Mediterranean can be presented.
- Identify the gaps in scientific information and/or reliable data on which additional work could be carried out subsequently, at the level of certain territories, to support the public policy dialogue.

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<sup>12</sup> In the region, the fossil waters are mainly those of the NWSAS aquifers (North Western Sahara Aquifer System between Algeria, Libya and Tunisia), Nubian Sandstone (Libya, Egypt, Sudan and Chad), and Djefara (Libya and Tunisia).

The initiative will start by targeting and closely involving decision-makers from the relevant countries: high level decision-making officials working within ministries on water resources management, ministries of agriculture, environment, finance.

### 3. Content of the initiative

The initiative will be based on 3 main components:

**Component 1:** Production of country summaries and a regional summary on the challenges and solutions related to the valuation of unconventional water and fossil water from available data. Development of recommendations for carrying out studies and additional work to fill gaps in scientific information and/or existing or reliable data.

**Component 2:** Organization of a regional peer-to-peer exchange workshop on the issue in Tunis in June 2021 in order to present the results of the work to decision-makers and provide information on the prospects provided by the mobilization of these specific water resources and share the experiences of innovative solutions/best practices (public policy level and programs) implemented on both shores of the Mediterranean.

**Component 3:** Communication and "media": Production of dissemination tools and promotion of the results of the initiative; organization of an event or webinar during international meetings scheduled for 2021(COP26), etc.

### 4. The stakeholders of the initiative

The implementation of this initiative will involve the mobilization of several types of operators split into three categories:

- **Control operators:** structures responsible for implementing the initiative: the OSS on the one hand supported by national consultants recruited at the start of the initiative, and the AFD on the other hand (through the North Africa Regional Department supported by AFD Agencies in each country and operational departments at headquarters).

- **Operators of influence:** operators targeted by the initiative in order to feed and supplement the knowledge available and to stimulate dialogue/brainwork/exchanges/change. The main target operators:

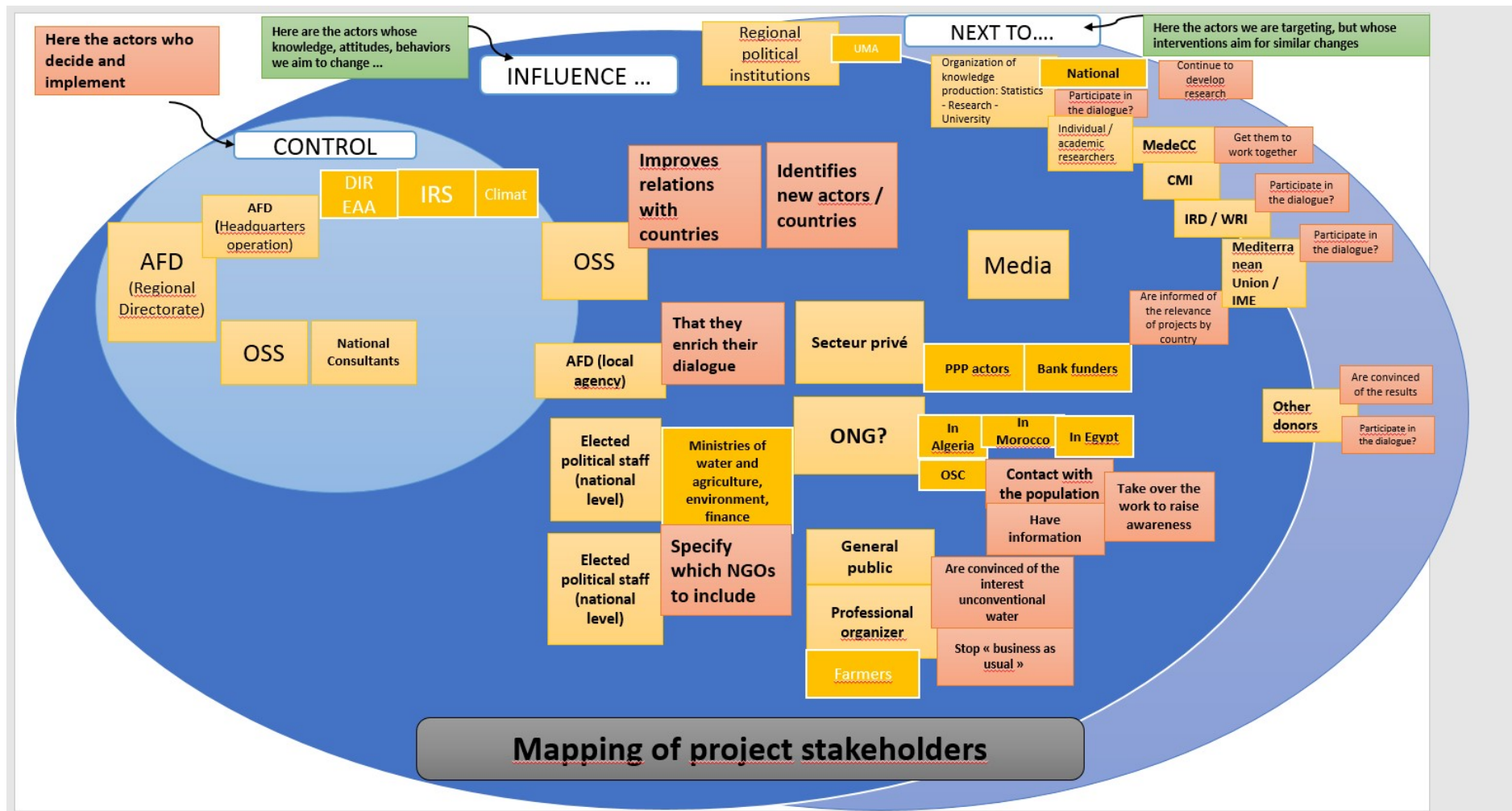
o High-level decision-makers and technical staff from cross-cutting sector ministries (sector ministries - Water, Agriculture, Environment, Finance, etc.) and representatives of regional institutions (AMU for example);

o NGOs and the private sector, socio-professional organizations (e.g. farmer umbrella organizations), the general public, the media;

o The AFD and the OSS as technical support structures for the main groups of operators herein above.

- **Support operators:** operators who are not directly targeted by the initiative who will be associated with certain key stages for the role they play and their position on the topic, and whose interventions aim for change. This group includes: national and regional structures for the production of knowledge and statistics on unconventional water, researchers, regional organizations such as (MedeCC, CMI, IME, AMU, IRD, COSTEA, WRI, etc.), other Technical and Financial Partners, etc.

The figure below presents the map of the main operators identified in the context of this study.



Map of the main operators identified as part of this study

## 5. Governance of the Initiative

In order to monitor the progress of the work planned by the initiative and the validation of the main deliverables, a Steering Committee is set up by the OSS, responsible for the implementation of the initiative and by the AFD, Technical and Financial Partner, who will chair it. It will be made up of the following entities:

- AFD (representatives of agencies, DR and NAT department);
- The Sahara and Sahel Observatory (OSS);
- High-level representatives of the 5 target countries: Ministries of Water Resources, Agriculture, Environment and Finance, Foreign Affairs;
- Sub-regional organizations;
- Technical and Financial Partners working on the topic;
- The scientific community at regional and international levels.

The Steering Committee will meet at each key stage, to evaluate the initiative progress and validate the different deliverables.

At the country level, key stakeholders in the country will be involved in data collection, exchange and dialogue workshops will be organized at the OSS initiative to foster the work completion and validation.

## 6. Timeline for the initiative implementation

The initiative implementation will be spread over an 18-month total period and organized according to the timetable below.

Table : Initiative implementation timeline

Components	Objectives	Expected deliverables	Activities	Sub-activities / Tasks	2020		2021																
		Components			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
<b>Preparation and signing of the research agreement</b>																							
<b>Component 1: Study/summary of challenges and solutions (related to the valuation of unconventional water and fossil water)</b>	Strengthen demand management mechanisms and feed public policy dialogue through the analysis of the potential contributions of unconventional water resources and fossil water resources	Thorough study/summary and associated paper briefing (for external release)	Carrying out national studies	Preparation of the ToRs for the recruitment of national consultants																			
				Inception report																			
				Call for applications in the 5 countries																			
				Selection of consultants and service contracts																			
				Carrying out national studies																			
				Monitoring of studies and validation of reports																			
			Preparation of the regional report																				
			Mid-term technical consultation workshop																				
				Design and printing of the regional study and its summary																			



Components	Objectives	Expected deliverables	Activities	Sub-activities / Tasks	2020				2021															
		Components			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D				
			<i>Regional workshop</i>	<i>Preparation of the regional workshop</i>																				
			Development of a policy brief and policy paper (release in the AFD collections)	Development of a policy brief and policy paper (release in the AFD collections)																				
				<i>Interim Report</i>																				
				<i>Final report</i>																				
			<b>Exchanges with the scientific community (PM)</b>																					
<b>Sub-total component 1</b>																								
<b>Component 2: Organization of a regional peer-to-peer exchange workshop in Tunis in 2021</b>	Communicate the results of the work to decision-makers and provide information on the prospects provided by the mobilization of these specific water resources in	- Organization of 2 days of workshops with representatives of North African countries (70-80 participants) - Summary document	Organization of the workshop, Reporting, Communication and media	<i>Preparation, supervision and communication (Concept note, invitation, com. and media concept, reporting, etc.)</i>																				
				<i>Logistics and communication and media tools/materials)</i>																				

Components	Objectives	Expected deliverables	Activities	Sub-activities / Tasks	2020				2021												
		Components			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
	their geographies, and share experiences of innovative solutions / best practices (public policy level and programs) implemented in both shores of the Mediterranean.	(Workshop report and main recommendations)		<i>Regional workshop(end of June 2021)</i>																	
				<i>Reporting and recommendations/Key messages</i>																	
<b>Sub-total component 2</b>																					
<b>Component 3: Communication and « media »</b>	Produce media for disseminating national studies and the regional study adapted to different audiences and to different events (Video and printing)	Providing different formats of the results of studies and their recommendations	Editing & Production of documents in hard and soft copies	Providing the results of the study and its recommendations in support of advocacy for decision-makers (maps and interactive simulation instruments, policy brief, computer graphics ...)																	
				Production of a short video on alternative resources																	
				Production of tools to disseminate and promote the results of the study and the project (Posters, Flyers, etc.), in particular international meetings and																	

Components	Objectives	Expected deliverables	Activities	Sub-activities / Tasks	2020				2021												
		Components			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
				digital communication campaigns																	
				Side event during an international meeting (COP26)																	

## Annex 2: Indicative list of the available documentation and data useful for the study

**PN. The list of contacts is indicative and must be completed in connection with the authorities of each country and key contacts, at the start of the works**

### 1. References to existing scientific data and tools on the region (accessible hypertext links)

Climate data web portal <https://climateinformation.org/>. This portal was built with and validated by the WMO, WCRP and GCF. This portal is the one to be considered for the works.

- [WRI/Aqueduct](https://www.wri.org/aqueduct) portal for the evolution of water resources: Map of water stress and the evolution of this stress under the impact of climate change <https://www.wri.org/aqueduct>
- SMHI climate information web portal («Cordex Middle East North Africa» or «Cordex Africa» data) : <https://climateinformation.org/dap/>
- Mediterranean Water Institute web portal: <https://ime-eau.org/>
- Resources web portal [Plan Bleu documentary: https://planbleu.org/](https://planbleu.org/)
- Country files from the German Centre: [GERICS factsheets](#): Gives climate projections on various parameters
- [World Bank Climate Portal \(2019\)](#) : Data by country, watershed, possibility of selecting a point, 100km\*100km. Downloadable data
- Water in the Sahara and Sahel Observatory Regions (September 2020 edition); Document open via the: [www.oss-online.org/wikoss/moneau/fr/site](http://www.oss-online.org/wikoss/moneau/fr/site)
- CEDARE (2012) : Monitoring and evaluation in the field of water in North Africa (MEWINA)
- CREM-GIZ (2018) : Inventory of good practices in the water sector (Algeria, Morocco, Tunisia) ; OSS

### 2. Research papers

- "Climate change vulnerability, water resources and social implications in North Africa (source : MedeCC)"
- <https://www.afd.fr/fr/ressources/prevenir-la-degradation-et-la-surexploitation-des-eaux-souterraines>
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### 3. Country climate commitments

- Nationally determined contributions (NDCs) and latest national communications from targeted countries developed under the UNCCAC.

### 4. Scientific partners and regional and sub-regional structures

Data and information useful for this study can be obtained from the structures below:

- MedeCC, a network of scientific experts in the Mediterranean created in 2015 (600 scientists from 35 countries including Morocco, Tunisia, Libya and Egypt and Algeria)

which conducts several research programs on the impacts of climate change in the region;

- CMI. Contact **Blanca Moreno-Dodson**, Manager - Center for Mediterranean Integration Marseille, France. [www.cmimarseille.org](http://www.cmimarseille.org)
- [Plan Bleu](#). Contact : Céline Dubreuil
- Union for the Mediterranean
- Mediterranean Institute for Water.
- Arab Maghreb Union
- COSTEA, active on the reuse of treated wastewater and efficient irrigation.

Key international scientific partners such as IRD and WRI could be consulted, when collecting and researching existing information and to take part in peer-to-peer discussions and exchanges.