

REPORT

A Rapid Study of the Water Knowledge across the MENA Region in support of launching the MENA RésEAU

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Report prepared by:



Centre for
Sustainable
Solutions in
Practical
Hydrogeology

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Abbreviations used

Abbreviation	Explanation
ASR	Aquifer Storage and Recovery
BCM	Billion cubic meters
DRR	Disaster Risk Reduction
IWRM	Integrated Water Resources Management
MENA	Middle East and North Africa – in this report this refers to countries that are part of the SDC RésEAU.
NRW	Non-Revenue Water
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal

1. INTRODUCTION

The RésEAU MENA links experts from Egypt, Iraq, Jordan, Lebanon, Morocco, Occupied Palestinian Territories, Syria, Tunisia, Turkey, and Yemen. Through such networking, experts benefit from access to updated knowledge in their water related work, through creating inter connections, as well as through information exchange and knowledge sharing.

The purpose of this short and concise report is to provide the basis for the launch of the MENA-ResEau, which is to be complementary to other regional ResEau's and the global RésEau. The MENA-ResEau is intended to build on the Swiss Cooperation Programme for MENA (2019-2022), whose objective in the water & sanitation domain is to support "targeted populations across the region (that) are vulnerable to water scarcity, water borne diseases, water-related conflict and water-mismanagement." The three Outcomes mentioned there, focus on life-saving access to water, systems and services, and advocacy and evidence based dialogue; they have also been taken into consideration.

This report has been prepared by two consultants appointed by SDC-MENA ResEau, and is the outcome of consultations with key experts and partners in the region, a survey and a literature review. This report should be seen as a live document that will be further enhanced through continued regional and national discussions.

2. CURRENT REGIONAL WATER CONCERNS

2.1 The state of knowledge and management

There is a considerable amount of in depth analysis and literature on the water issues of the MENA region, and it is not the intention of repeating them here, except to selectively indicate the prime issues. Background information on the MENA water issues is presented in ANNEX C – Additional descriptive information. The following summary has been extracted from a review of the most relevant literature that is likely to be of concern to the MENA-ResEau network.

- The MENA region is a global hotspot of unsustainable water use, especially of groundwater. In some countries, more than half of current water withdrawals exceed what is naturally available¹;
- There is a sizable population (ca 10 million) of the very vulnerable including refugees, exacerbated by conflicts, that are highly prone to shortage of water and all related resources;

¹ <https://www.worldbank.org/en/topic/water/publication/beyond-scarcity-water-security-in-the-middle-east-and-north-africa>

- In the urban areas, 82% of wastewater is not recycled², presenting a massive opportunity to meet water demands by treating waste water, toward which efforts are now accelerating;
- The region has the greatest expected economic losses from climate-related water scarcity, estimated at 6–14 percent of GDP by 2050; these may be further exacerbated as a result of the COVID pandemic³;
- Total water productivity in the MENA region is only about half the world’s average⁴;
- Despite its scarcity, the region has the world’s lowest water tariffs and the highest proportion of GDP (2 percent) spent on public water subsidies;
- Flood and drought risks are increasing and are likely to harm the vulnerable poor disproportionately⁵;
- Some 60 percent of surface water resources in the region are transboundary, and all countries share at least one aquifer, highlighting the importance of cooperative management of shared water resources;

Positive innovations are already taking place in the region, some examples follow:

- Morocco’s nation-wide efforts on groundwater management;
- Jordan’s efforts to harness private sector innovation, financing for recycling wastewater, and to enhance supply through desalination in the Aqaba-Amman desalination conveyance⁶;
- Egypt’s renewed focus on strengthening local accountability for water supply and sanitation services – particularly in under-served rural areas, as well as the 19 desalination plants (Sinai-Matrouh-Red Sea).

The real challenge is to generalize and accelerate these positive innovations throughout the Region. This requires a “new water consciousness” amongst citizens, which recognizes that moving beyond scarcity is everyone’s responsibility.

3. THE WATER RELATED KNOWLEDGE GAPS

While there is a rich literature about the water challenges, for the purposes of this rapid study a complementary survey and some in-depth interviews were conducted with regional experts (see ANNEX A – questionnaire circulated and results obtained). The main findings from these are presented in the following bullets.

² <https://www.arabwatercouncil.org/images/Arab-Water-Report/3rd-Arab-SOW-Report-E.pdf>

³ <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/862571468196731247/high-and-dry-climate-change-water-and-the-economy>

⁴ <https://www.worldbank.org/en/topic/water/publication/beyond-scarcity-water-security-in-the-middle-east-and-north-africa>

⁵ <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/862571468196731247/high-and-dry-climate-change-water-and-the-economy>

⁶ <https://www.globalwaterintel.com/news/2020/41/jordan-to-fast-track-crucial-aqaba-amman-project>

Arguably among the most prominent gaps is the lack of incentives that signal extreme water scarcity in the governance structures of the region. There is insufficient effort in transferring the science to practice and there is a lack of knowledge on how to transfer technology into the required investments. As far as regional cooperation on water issues is concerned, it has been suggested that the political situation of the region seems to act as a barrier. There is also a recognised gap which arises from barriers in taking observed data on the water conditions into the decision making process.

Summarising the information that has been collected for the rapid study, such as the questionnaire survey (ANNEX A – questionnaire circulated and results obtained), the following gaps can be noted:

- Lack of a water knowledge hub that would share knowledge and experiences inter and cross sectoral and with multiple stakeholders;
- Lack of effective engagement of water stakeholders, their integration at local level, their traditional knowledge and gender considerations;
- Insufficient advancement of science into policy, toward implementing the integrated water resources management (IWRM) and promoting cooperation in transboundary water;
- Insufficient measures that mainstream good practises and climate resilience into water policies and plans;
- Lack of measures that relate to groundwater resources management, desalination technology and its application, treated wastewater and its re use.

3.1 Current projections of water resources

Among the many studies that have been carried out on the projection of water scarcity in the MENA region, a recent analysis forecasting conditions to the year 2050 is of interest⁷.

Although the analysis was conducted using bulk national water resources availability and forecast impact of climate change up to 2050, the analysis finds the following:

*"Results show that total demand in the region will increase to 393 km³/ yr. in 2050, while total water shortage will grow from 42 BCM per annum to 199 km³/yr. in 2050 for the average climate change projection, an increase of 157 km³/yr. This increase in shortage is the combined impact of an increase in water demand by 50 % with a decrease in water supply by 12 %. Uncertainty, based on the output of the nine GCMs applied, reveals that expected water shortage ranges from 85 km³/ yr. to 283 km³/yr. in 2050. The analysis shows that 22 % of the water shortage can be attributed to climate change and **78 % to changes in socio-economic factors.**"* [emphasis added]

⁷ Droogers, Peter & Immerzeel, W.W. & Terink, W. & Hoogeveen, Jippe & Bierkens, M.F.P. & Beek, L. & Debele, B.. (2012). Water resources trends in Middle East and North Africa towards 2050. Hydrology and Earth System Sciences. 16. 3101-3114. 10.5194/hess-16-3101-2012.

Although the above analysis includes several countries that are not involved in the ResEau (e.g., Bahrain, Djibouti, Oman, Qatar, Saudi Arabia), nevertheless the results are very instructive and render the major challenges of MENA region. The finding that the impact of climate change may be outstripped by socio economic factors is an issue that will concern the ResEau in a significant way and emphasises the need for much improved governance measures.

3.2 Current networks on water and climate in the region

The water networks in the MENA region are particularly suited to produce knowledge in specific water issues. Collaborations through networks connecting different actors and stakeholders to develop knowledge and information can be pivotal in achieving a paradigm shift to water security. However, the process of joint knowledge production in networks has rarely been applied and examined. We found out that the processes of joint knowledge production are diverse, complex, and highly dependent on the interests and roles of actors. We found that collaboration with the following initiatives/networks, among others, can be enablers for joint knowledge production:

- Capacity-building for enhanced knowledge through the Arab Integrated Water Resources Management Network (AWARENET)⁸

AWARENET contacts global institutions and organizations involved in the water sector and strives to: improve its members' capabilities; offer opportunities for mutual consultation; coordinate research and construct regional projects; and foster information-sharing and good practice in applying IWRM principles to sustainable development goals.

- Acceleration of Aquifer Storage and Recovery in the MENA Region (ASR)⁹

This project aims at improving water security in the Middle East and North Africa (MENA) by accelerating the practice of aquifer storage and recovery (ASR). Under this project, new methods for identifying high potential ASR sites, based on remote sensing and geospatial hydrologic analysis, are applied and demonstrated across beneficiary countries of Jordan, Palestine and Lebanon.

- The Climate Risk Nexus Initiative¹⁰

The Climate Risk Nexus Initiative by the League of Arab States (LAS) in collaboration with UNDP, AWC, UNISDR, WFP, UNEDP-FI and WMO. The initiative aims to enact decisions and policies that better manage the growing complexity of risks and support the resilience of people.

⁸ <https://awarenet.info/>

⁹ https://www.usgs.gov/centers/pa-water/science/accelerating-aquifer-storage-recovery-middle-east-and-north-africa-region?qt-science_center_objects=0#qt-science_center_objects

¹⁰ https://www.arabwatercouncil.org/index.php?option=com_content&view=article&id=467:the-climate-risk-nexus-initiative&catid=160&Itemid=576&lang=en

It will also help develop capacities of regional and local partners to address gaps that exist to achieving more risk-informed development and help to strengthen the resilience of people.

- SDG-Climate Nexus Facility¹¹

The Facility is considered a multi-phased program that aims at supporting countries in integrating climate measures into broader SDG affiliated policies and plans while developing national capacities in accessing climate finance towards building resilience to risks and enhancing adaptive capacities in the Arab region to climate risks and natural hazards.

- Re-Water Project in MENA¹²

In 2018, the International Water Management Institute (IWMI) and its partners embarked on a 4-year project that will help expand the safe reuse of water in the Middle East and North Africa (MENA). The project will address barriers to reuse in the region and promote safe reuse practices

- SDG-Climate Facility¹³

The facility aims to enhance the capacity of regional and national institutions to effectively integrate climate change into development and crisis prevention/recovery actions, including support to scale-up climate finance for innovative local solutions with co-benefits across SDGs.

4. COMMON REGIONAL TOPICS FOR GAINING MUTUAL BENEFITS

4.1 Issues common to participating countries

While there are many common aspects to water management – the MENA region is nevertheless not uniform in terms of socio economics and national priorities. As the region is undergoing economic growth and is frontline for confronting challenges, there are opportunities that exist for addressing topics that allow mutual benefits for the participating countries. Since water is seen as a cross-cutting theme and is a prerequisite for achieving many SDGs, water security should be the main focus while striving to provide water and sanitation for all, especially the vulnerable, is an important factor for political stability and climate adaptation.

Among the areas where new knowledge may be needed, as identified by the responders to the questionnaire surveys, the following were mentioned.

- Inclusion of youth and women in the water sector

¹¹ <https://www.arabstates.undp.org/content/rbas/en/home/presscenter/articles/2021/sdgs-climate-security-nexus-in-the-arab-states---a-special-sessi.html>

¹² <https://rewater-mena.iwmi.org/>

¹³ <https://www.arabstates.undp.org/content/rbas/en/home/about-us/regional-hub/our-regional-programme0/sdg-climate-facility--climate-action-for-human-security.html>

- Water use efficiency (e.g. reducing the high levels of non-revenue water)
- Shifting from intermittent water supply into continuous water supply.
- Access to financing
- Technical and human resources capacities development

4.2 Maximising mutual benefits through knowledge sharing

The following are the areas of common concerns that could be addressed for mutual benefits.

- Enhanced inter relationships among the water food and energy sectors to address the difficult trade-off and unintended negative consequences;
- Reliance on transboundary waters such that potential risks resources planning can be addressed through transparent and equitable relationships;
- Governance innovations that will lead to water use efficiency, coupled with state-of-the-art water recycling and related policies that allow re allocation of water to high value uses;
- Innovations in integrated water management that improves quality, reliability and sustainability of resources used for urban areas and agriculture;
- Increased institutional coordination at the nexus of water, energy and food production sectors to jointly strengthen water management efforts
- Improved role of the private sector for financing of infrastructure, as well as partnerships for addressing the operational constraints of water utilities
- The education and engagement with civil society on water conservation in particular also youth.

5. WIDER SCOPE OF THE MENA ResEau PORTFOLIO

The suggested scope of the wider ResEau portfolio could be structured on the themes of WASH, Climate Change/DRR, IWRM and management of shared water resources. Each of these themes are constrained or enhanced by common drivers, i.e., governance, data for informed decisions, partnerships, and financing. These themes and drivers are summarised below.

Theme 1	<p>Promoting WASH (Water, Sanitation & Hygiene) and human well-being</p> <p>In the MENA region, WASH is lacking in areas under conflict and intermittent water supply is prevalent in most MENA countries with implications on human well-being, human rights to water and sanitation resolution (UN resolution 64/292) and vulnerability of water resources. This concerning fact is also intensified by conflict, fragile contexts, weak governance and financing, coupled with the aging infrastructure leading to high levels of non-revenue water and social consequences.</p>
Theme 2	<p>Addressing Climate Change and water-related hazards</p> <p>Climate change impacts affect the MENA region substantially, and will continue to exacerbate so in the future. Climate change puts a great pressure on</p>

securing water resources, leaving negative consequences for livelihoods and infrastructure, especially for the poor, informal settlers, and other vulnerable groups¹⁴, including those without access to safe water and sanitation, and those with water based livelihoods such as farmer¹⁵.

In the MENA region, climate change extremes such as flood and drought will put intense pressure on already scarce water resources.

Theme 3 **Improving Integrated Water Resources Management**

Promoting IWRM could be a vital contribution of ResEau MENA towards meeting the challenges ahead. It would underwrite the Arab Ministerial Water Council's Arab Strategy for Water Security in the Arab Region that prioritized enhancing IWRM implementation. The Blue Peace Central Asia¹⁶ is a good example to learn from it.

On the social aspect, creating new water culture should be pursued to be integrated part of water security, as many MENA countries today are also cultural heritage living closely with water from the past till today. Climate resilient development, exemplified by the regeneration of public space and some practices of reliance and water sensitive design, are coming to place water a key driver for innovation and creativity.

Theme 4 **Managing of shared water resources**

Drawing on the good experience of Blue Peace this theme would promote dialogue and enhance cooperation.

ResEau MENA could play an important role in this theme as follows:

- Supporting dialogue and trust building in MENA region;
- Facilitating countries to conduct a joint analysis of the current and forecast future water balance;
- Joint initiatives by way of a knowledge-based, sharing experiences and cooperative process;
- Strengthening cooperation in shared water through networking, exchange of information and experiences among riparian countries
- Supporting efforts to raise awareness on the importance of cooperative water resource management. This opens up scope for stakeholder inclusion like women, youth and policy/decision makers.

The above themes are enhanced or constrained by attention to, or lack of attention to the following drivers:

Driver 1 **Water Governance**

¹⁴ https://stage.unescwa.org/sites/default/files/event/materials/riccar_main_report_2017_0.pdf

¹⁵ <https://reliefweb.int/report/world/climate-change-adaptation-arab-states-best-practices-and-lessons-learned>

¹⁶ <https://www.eda.admin.ch/deza/en/home/countries/central-asia.html/content/dezaprojects/SDC/en/2014/7F09162/phase1?oldPagePath=/content/deza/en/home/laender/asie-centrale.html>

Good water governance requires commitments and synergetic actions with coherent policies, effective institutions, strategies and enabling environments, including promotion of integrated water resources management.

Identifying knowledge gaps on how core governance functions¹⁷ (policy and strategy, coordination, planning and preparedness, financing , regulation, management arrangements, and capacity development) can help ResEau MENA stakeholders develop strategies to enhance the resilience and adaptation to water governance, thus coping with and preparing climate extremes and water related risks. ResEau MENA could foster policy dialogue and greater co-ordination across water-related policy areas in the MENA region.

Driver 2 **Digital transformation and the role of data for informed decisions**

Water data is the "life blood" of any institution in the MNEA region at all levels. Digital water flows between systems, databases, processes, and different stakeholders, it carries with it the capacity to make the water management smarter and more effective.

The data and information can mobilize the engagement for digital transformation in the water sector thus improving the performance of water systems and policy making. The MENA region is in dire need for sound data to inform decision-making; find out where public institutions and water stakeholders are failing and to help them take the right decisions with real time data that can steer policies and direct finance to where the needs are greatest.

ResEau MENA could aim to create a knowledge hub to foster regional and multidisciplinary partnership and networking among stakeholders to fast-track progress toward the achievement of SDG 6, further characterize and to strengthen the resilience of MENA countries.

Driver 3 **Partnership and collaboration**

The systemic 'silo' of the water sector and its fragmented institutions has been steadily giving way to boosting partnerships and collaborations. Water stakeholders have no choice if they are to succeed in addressing the mounting challenges and outlooks of fragile contexts in the region. Key areas of partnership and collaboration involve key water stakeholders at different levels including utilities and local actors.

About 60% of the available surface water and groundwater resources are shared between neighbouring MENA countries and across the region's borders. Thus, this calls for regional cooperation. In most cases, however, shared resources are not governed by clear treaties to ensure their effective implementation. Groundwater is the second major conventional water resource in the region, contributing to more than half of total water withdrawals in 10 MENA countries. Moreover, groundwater resources in most countries are over abstracted and threatened by pollution from agriculture,

¹⁷ Core governance functions are the key processes performed, in various forms and to varying extents and quality, for the organised development and management of water resources and services

wastewater, and other industrial activities. Surprisingly, there is no clear correlation between dependence on groundwater resources and the implementation of aquifer management instruments.

Driver 4 **Financing**

Protracted conflicts in the MENA region have left tens of millions of vulnerable communities in need of humanitarian and development assistance to have access to basic water and sanitation services.

The gap of the financial commitment in water-related sectors together with its scale of investment is insufficient to promote water security in the face of climate change. It further constrains the local capability for water-related project implementation, construction, and system advancement.

6. Recommendations and ideas for launching the MENA RésEAU

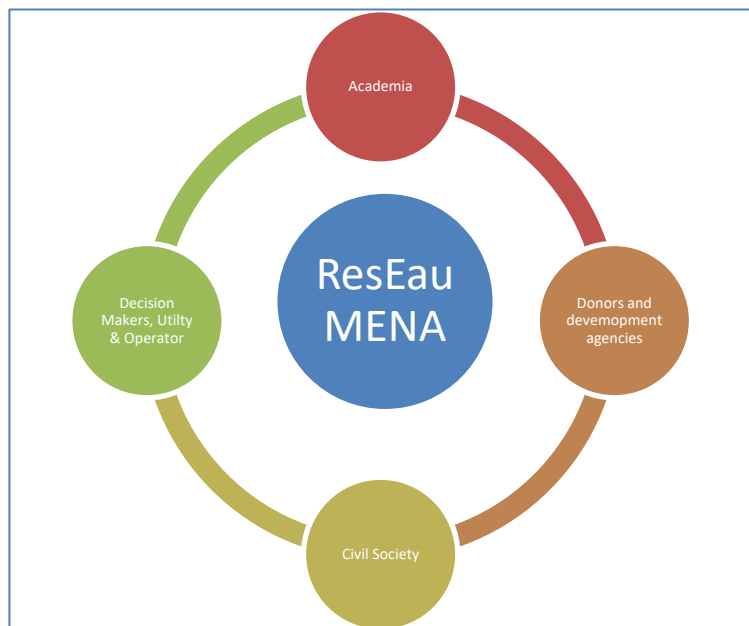
For the launching of the MENA ResEau, it is important to identify the stakeholders and the main actors that would be involved and the key themes that they would tackle. The suggested stakeholder groups that could be involved are discussed below, following which a long list of themes to be tackled are provided, with some ideas of the timing and approach for the workplan of MENA ResEau.

6.1 Multi-stakeholder Participation of the Main actors

It is suggested that multi-stakeholders participation would be the pivot of ResEau MENA cooperation. It is essential that key water stakeholders are involved in the process of decision making, planning and managing water following the concept of integrated water resources management (IWRM).

Stakeholders, who are also the main actors, may be grouped as follows:

- (1) Decision maker or policy maker, who is responsible for policies, managing service of water including water and wastewater utility operator, also service provider, implementer,.
- (2) Donors and development agencies
- (3) Researcher in water-related field, who actively cooperating with the country;
- (4) Civil Society including women and youth led organisations.



This proposed grouping would act as a catalyst for enlarging the vision of water management and provides opportunities for discussions and the development of common strategies and/or researchers that take into account all aspects of water in MENA countries.

6.2 Key themes to be tackled by the MENA ResEau

The key themes that could be tackled by the MENA ResEau has been derived from a consideration of the areas of gaps where knowledge is needed, among others. The following is a long list that can be added to as ResEau starts its activities:

- The extent of national water resources available balanced against the needs in the foreseeable future
- The impact of climate change on national water resources
- Measures that are urgently needed for adaptation to climate change.
- The extent and resource availability in transboundary aquifers
- Water, energy and food nexus assessment at different levels.
- The development-humanitarian-peace nexus
- Holistic assessment of water security in the MENA countries.
- Support to conflict affected and vulnerable people – water & sanitation
- Investments in water and sanitation infrastructure for vulnerable people
- Improved governance and service provision for vulnerable people
- Shared aquifers in the region and linkages between GW and surface when it comes to transboundary water management
- Policy dialogues: regional cooperation over shared water resources (surface and ground water)
- Policy dialogue: regional institutions engaging in technical cooperation and support
- Blue Peace initiative – replicating SDC successes.

The above long list should be prioritised as part of the launching activity of the MENA ResEau, based on the level of commitment and availability of resources among the implementing partners.

6.3 Potential members of the MENA ResEau

The list of the existing water related knowledge networks in the region is quite large of which the following are the most prominent. Most of them are already included in the present network of the ResEau. It is expected that ResEau would form a new and important stimulus in more closely engaging with them and enhancing knowledge sharing.

Decision maker including water and wastewater utilities, and basin organisations	Donors and Development agencies	Academia and research centers	Civil Society and Networks
MoEW	World Bank	AUB Issam Faris Institute	WANA
ACUWA	UNICEF	Turkish Water Institute	AWARENET, the MENA Integrated

			Water Resources Management Network
League of Arab States	CEDARE	ACSAD	Middle East Water Forum MEWF
Arab Water Council	GIZ		APSU for Water
ONEP	USAID	International Water Management Institute IWMI	INWARDAM
	AFD	Water Research and Technologies Centre	ASFARI foundation
	UNICEF	LARI	
	AFED	CNRS	
	UN-ESCWA		
	Union for Mediterranean		

A detailed list of stakeholders is provided in the ANNEX B.

6.4 Suggested ideas about a workplan for ResEau

Based on this rapid study, the consultants have made the following suggestions for a work plan that the ResEau Network might consider. These ideas link with the Domain 4 of the Swiss Cooperation Programme of the Middle East (2019-2022) and also the Swiss Global Programme on Water (2021- 2024). Four areas of interest have been identified from the questionnaire survey that was conducted for this study (see ANNEX A – questionnaire circulated and results obtained). The four that have been tentatively prioritised here have each received a high score.

- Blue Peace initiative (69.6% indicated as 1st choice) – links to the Strategic Component 3: Water & Peace in the Swiss Global Programme.
- Policy dialogues: regional institutions engaging in technical cooperation and support (47.8% indicated this as their 1st choice) – links to Strategic Component 2
- Policy dialogues: regional cooperation over shared water resources (34.8% indicated this as their 1st choice) – links to the Strategic Component 3
- Improved governance and service provision for vulnerable people (26.8% indicated this as their 1st choice) – links to Strategic Component 1

The suggested activities for the ResEau Network for each of the above ideas could be the following:

Blue Peace initiative	Develop a new programme under this initiative for one of the major transboundary aquifers in the MENA region, as a complement to the ongoing similar programmes that address river basins.
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	The transboundary aquifers in the western part of the MENA, such as the North Sahara Aquifer System could be a potential for this activity, involving at the same time experts dealing with other transboundary aquifers e.g., Egypt, Libya, Jordan, and Syria – all of which also have similar aquifers.
Policy dialogues: regional institutions engaging in technical cooperation and support	There are several regional institutions such as the Arab Water Council, and others for which a programme of policy dialogue could be developed for sharing knowledge and experiences.
Policy dialogues: regional cooperation over shared water resources	This initiative would complement the one suggested for the Blue Peace above – but would focus on the more practical aspects such as the adoption of joint instruments over water related investments. Training courses on this topic could be developed and delivered through ‘distance teaching’ through webinars and e-discussions.
Improved governance and service provision for vulnerable people	As noted in this rapid study, there is an urgent need to improve the WASH conditions in a sustainable manner for the more vulnerable and the conflict affected people, especially the refugees. The ResEau network could develop guidelines for improved delivery of such services. A key area that would benefit is the engagement of NGO’s in supporting these provisions.

Suggested scope of activities for Reseau MENA Knowledge Hub in line with the above-suggested activities:

1. Create the knowledge Hub of Reseau MENA with an aim to improve the quality and quantity of water data in the MENA region.
2. Enable data, reports and strategies and best practices accessibility and visibility, comparable and usable data series, and open-access data.
3. Enhance development and use of scientific research methods to correctly analyze and interpret the data, resulting in better scientific information.

4. Enable the accessibility, visibility and open access of scientific information for the world to learn from each other.
5. Assist in disseminating and developing new interpretation methods of scientific information into a format usable for policy making.
6. Demonstrate to all stakeholders the results to disseminate information, to increase public awareness of the risks facing society in relation to water.

6.5 Next Steps to launch the MENA ResEau

Although the scope of this assignment was to identify the MENA water issues, the water related knowledge gaps, the benefits of knowledge exchange and the potential key participants to join the network, we conclude the report with some suggested next steps, as follows:

Consider commencing the launch of the MENA ResEau, with a policy dialogue on regional cooperation over shared water – this would be related to the Strategic Component 3: Water and Peace, and consistent with the Blue Peace.

Step 1 (could be completed in 3 months, say Oct 2021) - arrange and organise a zoom **scoping meeting** with all the MENA ResEau Partners, present the ideas to them and ask for participation and contributions.

Step 2 – (could be carried out in Dec 2021) as a follow up of the scoping session – **design and prepare webinar** on “Improved regional cooperation through conjunctive use of surface and groundwater – a Blue Peace initiative”. The presentations and discussions in this webinar would lead to the design of a programme of capacity building and training under MENA ResEau dedicated to the young professionals in the region with a strong participation by women.

Step 3 - (could start in Jan 2022) initiate and implement a capacity building programme through ‘distance learning’ methods made of a cycle of 5 lectures, on line exercises, and if possible site visits to on-going activities in the field (locations and projects to be selected – from example from Jordan, Morocco).

ANNEX A – questionnaire circulated and results obtained

QUESTIONNAIRES AND SCOPE

State of the art knowledge on the management of water in the MENA region

1. What is the current **status of knowledge**/information/data on hydrology and hydrogeology, climate, and natural hazards?
2. What are the **major knowledge gaps**, weaknesses, and shortcomings related to water-management in the region?
3. What are the **current projections** (i.e. scenarios) of changes in hydrology and hydrogeology, climate, and natural hazards?
4. What are the **major issues related to sanitation and water use and management** at different levels (local, national, regional)?
5. What are the **key common topics** to be discussed within the RésEAU across the region?

Actors

1. Who are the key actors within the region and what role do they currently play? (Mapping of key actors and situate SDC role among those actors)
2. Which efforts, mechanisms, structures, initiatives trying or meant to promote regional cooperation already exist (including Blue Peace)? What are their strengths and weaknesses?
3. What are the existing water knowledge networks in the MENA region and what challenges are they facing? How could the RésEAU MENA complement them?
4. What mechanisms are in place to ensure cooperation between actors, including development and humanitarian actors in protracted crises, and across sectors?
5. What are the major hindering factors and what are the more supportive factors of cooperation? (e.g., policies, legislations, institutions, norms, expertise, capacities, finance, agendas, structures, behaviour change)
6. What are suggestions to promote water regional cooperation? What are opportunities and how can Switzerland contribute?

Survey to support the launch of the MENA Sub-RésEAU

24
Responses

22:11
Average time to complete

Active
Status

1. Name

24
Responses

Latest Responses

"Sahar ABIDI"

"Eric MINO"

"Dr Jarrah AlZubi"

2. Age

- Under the age of 35 1
- Between the age of 35 and 55 12
- Above the age of 55 11



3. Are you

- Female 6
- Male 18
- Prefer not to say 0



4. E-Mail

24
Responses

Latest Responses

"sahar.abidi@uj.rnu.tn"

"e.mino@semide.org"

"jarzubi@hotmail.com"

5. Organisation

24

Responses

Latest Responses

"Silvo-Pastoral Institute of Tabarka/University of Jendouba"

"SEMIDE / EMWIS"

"DEWA"

6. Position in organization

24

Responses

Latest Responses

"Associate professor"

"Director"

"Sr Manager"

7. Area of expertise

24

Responses

Latest Responses

"Water resources"

"water resources management"

"Water Resources Management and Development, Governance and I.

8. Country of work

24

Responses

Latest Responses

"Tunisia"

"Based in France, working on all MENA countries (responses made f..

"UAE"

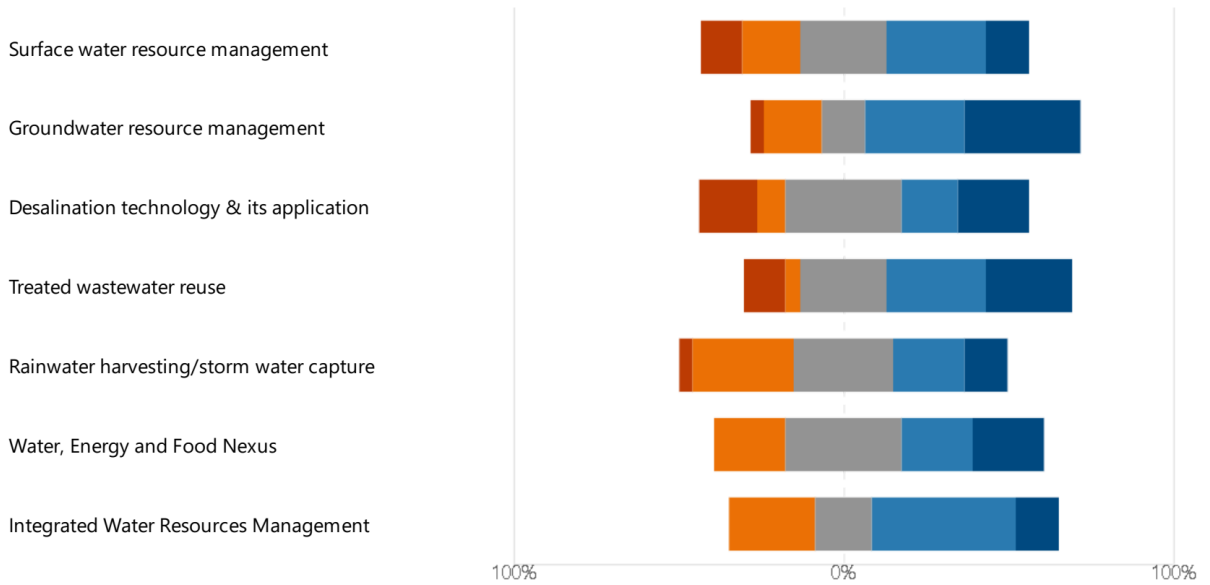
9. In responding to this survey, I confirm that my contribution may be used for the required analysis

● Yes	23
● No	1



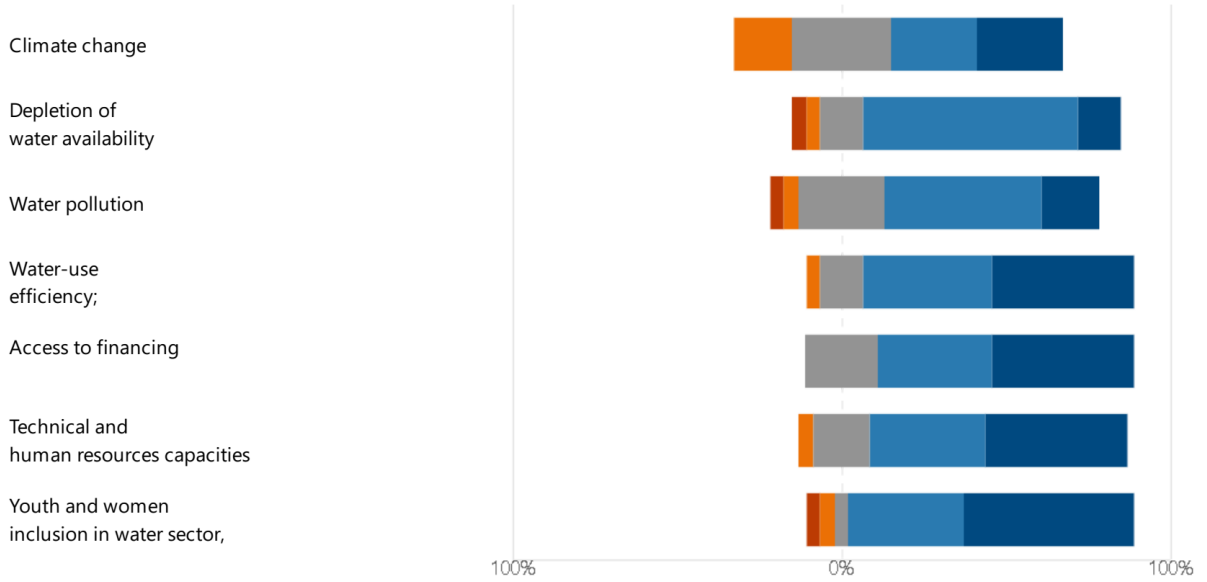
10. Referring to your country of work, please indicate the extent of knowledge gaps in the following topics. Please indicate the significance from 1 to 5 (1 is insignificant and 5 is a very significant gap).

1 2 3 4 5



11. Referring to the country / region of MENA that you work in, please indicate in which of the following areas additional or new knowledge is required
[*the scoring is 5 - major knowledge gap to be filled (significant capacity building), and 1 as minor knowledge gap that can be filled with modest technical assistance]

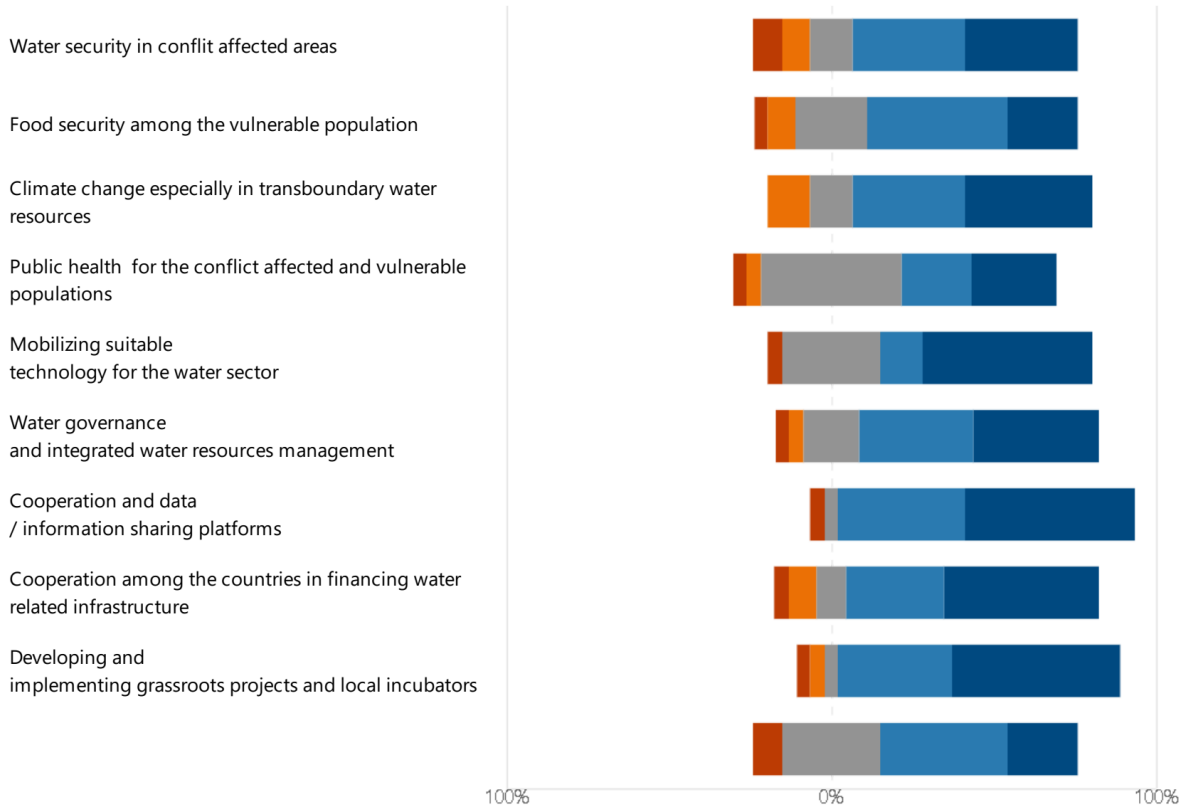
1 2 3 4 5



12. Referring to the common issues to the participating countries in the MENA Sub-RésEAU, please score which areas of mutual knowledge exchange would be the most beneficial

[*Being 5 – most beneficial to 1 – not relevant / beneficial]

1 2 3 4 5



13. Please list the existing mechanisms and structures that are promoting regional cooperation, and their strengths, from your knowledge and experience

23 Responses

Latest Responses

"The university of research, the researcher, "

"Union for the Mediterranean (policy level coordination), SEMIDE/EM...

"Water -Energy exchange and trading is very important to balance t...

14. Please list networks and organizations that should be participants of the knowledge sharing network

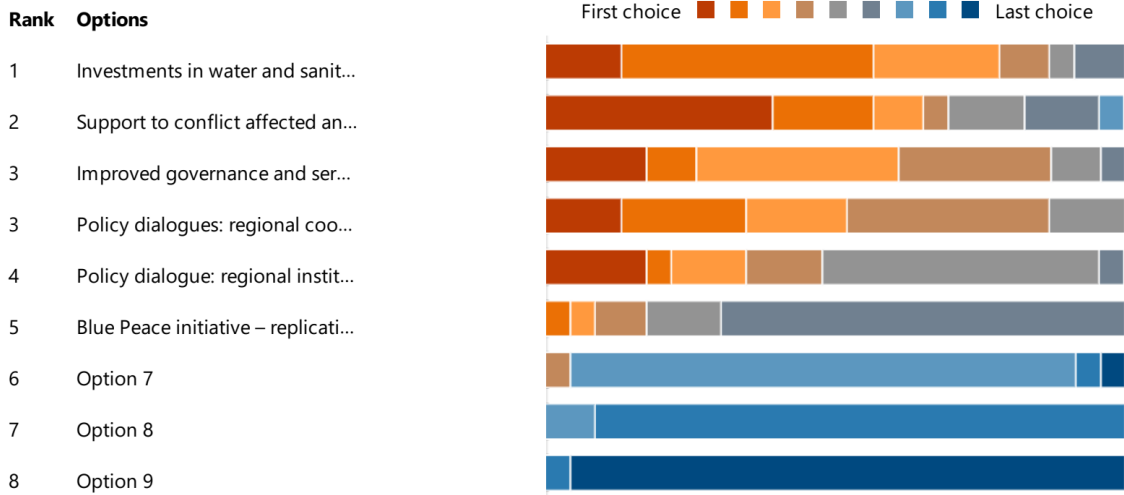
(Note a number of core organisations are already members, but we are seeking more to reach wide audience)

23
Responses

Latest Responses

"University of Jendouba, Silvo-Pastoral Institute of Tabarka, Enginee...
"FAO UfM European Commission - WES programme MedWet SEMID...
"DEWA , ICBA, more universities "

15. Please provide ideas, for key themes to be tackled by the MENA Sub-RésEAU in addition to those listed below



16. Thank you for your helpful contribution, please add any other comment, and please indicate if you may wish to be involved in MENA ResEau

12
Responses

Latest Responses

"Access to climate finance for small projets (i.e. below 10 M€)"
"private partnership of water production (IWP) depending on renew..."

ANNEX B – List of stakeholders and contact details

Name		Country / Countries	Contact details
ACSAD	Arab Center for the Studies of Arid Zones and Dry Lands	Regional-Syria	Dr.Ihab jaid (ihjnad@yahoo.com)
ACUWA	Arab Countries Water Utilities Association	Regional-Jordan	khaldon khashman <khaldon_khashman@acwua.org>
AFD	Agence Française de Développement	Jordan	(Number: 962795693310)
AFED	Arab Forum for Environment and Development	Regional-Lebanon	Najeeb Saab, nsaab@afedonline.org
APSU for Water		Iraq	Mrs.Intesar (intesar_eng2005@yahoo.com)
Arab Water Council		Egypt	Khaled Abu Zeid is also part of the council. He can advise on who best to contact in the Council or in the research institutes for further information.
AUB Issam Faris Institute	American University of Beirut	Lebanon	Nadim Farajalla <nf06@aub.edu.lb>
AWARENET	Arab Integrated Water Resources Management Network	Lebanon	Carol Chouchani Cherfane, chouchanicherfane@un.org
CEDARE	Center for Environment and Development for the Arab Region and Europe	Regional-Egypt	Khaled Abu Zeid, kabuzeit@cedare.int
CNRS	NATIONAL CENTER FOR REMOTE SENSING	Lebanon	Chadi Abdallah chadi@cnrs.edu.lb
GIZ	Gesellschaft für Internationale Zusammenarbeit	Jordan	Sameer Abdel Jabbar (00962795519381), sameer.abdel-jabbar@giz.de
INWARDAM	Inter-Islamic Network on Water Resources Development and Management	Regional-Jordan	Marwan Raggad <mar_raggad@yahoo.com>
IWMI	International Water Management Institute	Regional - Cairo	Dr. Amgad Almahdi, a.elmahdi@cgiar.org
LARI	Lebanese Agricultural Research Institute	Lebanon	Dr. Michel Efrem, lari@lari.gov.lb
LAS	League of Arab States	Regional	Dr. Nada Elagizy, nagizy@las.int
MEWF	Middle East Water Forum	Regional - Amman	Dr. Hazim Elnaser, hazim.elnaser@mewf.de

MoEW	Ministry Of Energy and Water in Lebanon	Lebanon (Minister advisor)	Suzy Hoayek, suzy.hoayek@gmail.com
ONEP	Office national de l'électricité et de l'eau potable Maroc	Morocco (former minister in charge of water)	Mrs. Charafat Afilal (charafat@gmail.com)
Turkish Water Institute		Turkey	Tuğba Evrim MADEN <tugba.maden@SUEN.GOV.TR>
UFM	Union for the Mediterranean	Regional	Mr. Almotaz Abadi, almotaz.abadi@ufmsecretariat.org
UN-ESCWA	United Nations Economic and Social Commission for West Asia	Lebanon	Ziyad Al khayat (kyayat@un.org)
UNICEF	The United Nations Children's Fund	Regional-Jordan	Benjamin Smith, besmith@unicef.org
UNICEF		Lebanon (Water sector coordinator)	Olivier Thonet, othonet@unicef.org
USAID	U.S. Agency for International Development	Jordan	Louis Qaqish 00962795408770, lqaqish@usaid.gov
WANA	The West Asia - North Africa (WANA) Institute	Regional-Jordan	Dr Omar Rifai omar.rifai@wana.jo or Shereen Shaheen shereen.shaheen@wana.jo
Water Research and Technologies Center		Tunisia	Dr.Latifa 0021698459366

ANNEX C – Additional descriptive information

On the Regional Issues

The Middle East and North Africa (MENA) is the most water scarce region in the world, and water security is under mounting pressure from multiple directions. The region is struggling under the COVID-19 pandemic, which has created additional strain on water security. MENA is already facing water security challenge under fragile and conflict contexts, a challenge deeply affecting both its society and economy. The impact of the pandemic, part of which is an increase in water demand, brings into sharp relief the many problems faced by countries in the region. These include more interruptions to water supplies, large inequality of access to water, poor water quality and deteriorating water infrastructure.

The MENA region is a prime region where such shifts in the status-quo are required. The MENA is a drastically diverse region in terms of socio-economic and political conditions; however, it is one where water scarcity accrues, making it the driest region in the world and a unique hotspot for climate change impacts. There are three growing pressures threatening the water security of the MENA region. The first is increasing demands due to population growth, urbanization,

and influx of displaced people. The MENA population has more than tripled since 1970, increasing from 128 million to 436 million in 2020¹⁸. This is exacerbated by an influx of displaced people from surrounding countries. Second is climate change, bringing with it greater climate variability, and more frequent and severe droughts and floods. This multiplies the stress created by chronic water scarcity. The third pressure relates to conflict and fragility¹⁹ in the region increasing the unreliability of water sources, further multiplying the risks from water scarcity.

All three pressures have a fundamental impact on the vulnerability of water resources, socio-economic development and the way water is managed and financed. And the potential exists for the problem of water scarcity to flower into a major water crisis. If water infrastructure becomes seriously deteriorated, or institutions are weakened to the point where water utilities are unable to deliver basic water services and or manage water-related hazards, there is the growing possibility of riots, migration, and loss of life.

MENA countries cover 10% of the world's area and are home to 6% of the world's population but receive less than 2% of the world's renewable water supply. Two-thirds of the MENA region's water supplies²⁰ (163.2 BCM) originate from outside the region and it reaches to more than 95% of water in the case of Egypt and Iraq. Consequently, MENA nations need to import more than half of their food – they are among the greatest importers of cereal in the world.

Water in the MENA region is highly interlinked with economic growth, conflict, migration, employment, and human rights; all of which are shaped by the management and access to water resources.

The interlinkage of the current humanitarian engagement with inclusive development-oriented and peace-building interventions in the MENA is also becoming more significant due to the protracted nature of crises which require both quick humanitarian responses combined with longer-term approaches.

Solving these complex challenges of water security in MENA requires a new paradigm with cross-sector collaboration. The multi-sectoral and cross-cutting nature of water security calls for policy coherence and integration among water actors. Understanding the barriers for knowledge gaps and policy coherence, and what incentives exist or can be created, can encourage integrated actions to meet the challenges with innovative, sustainable, and scalable solutions.

Key challenges include an insufficient allocation of public budgetary resources to sustainable water management to address the current and future needs. There are other options available to finance the development of sustainable water management. These include the application of

¹⁸ <https://www.prb.org/resources/population-trends-and-challenges-in-the-middle-east-and-north-africa/>

¹⁹ <https://academic.oup.com/ia/article-abstract/96/5/1347/5901381?redirectedFrom=fulltext>

²⁰ <https://www.arabwatercouncil.org/images/Arab-Water-Report/3rd%20Arab%20State%20of%20the%20Water%20Report%202015%20English.pdf>

the user/ beneficiary pays principle, and the polluter pays principle, but these approaches are not applied consistently across the region.

There is also not enough attention being paid in many countries to engaging private sector investors or engaging with partners overseas. The main barrier for attracting funding from international financial partners is the low capacity to improve the quality of project proposals. In most countries, any increase in financial resources for water-related projects will require policy reforms and/or significant efforts towards implementation.

The outbreak of COVID-19 has added an additional layer of complexity for the region in terms of addressing water and food security. With the increasing demand for water to help combat the spread and transmission of the virus, along with a higher use of water for agriculture as countries ramp up efforts towards food security, strains on an already scarce resource are emerging. These could lead to higher water tariffs.

At the same time, recent trade restrictions, particularly on cereal exports, are also a significant problem for the MENA and many countries in this region are net importers. The need to rethink water for food security in an increasingly water-scarce region through prioritizing climate adaptation and resilience is crucial.

Keys to adaptation and resilience

The MENA region has to deal with resource scarcity, conflict, and migration; all of which are closely intertwined. To unlock innovative and regional solutions, the region must pave the way towards adaptation and resilience through close cooperation.

With the enormous uncertainty posed by COVID-19 and the growing disruption from climate change (which includes increasing hydrological variability and its impacts on agricultural productivity), the region needs to urgently consider new strategies for water and food security. These need to be built on empirical evidence. This includes drawing on lessons from the 2008 food crisis to avoid potential hikes in food prices. These new strategies also need to identify measures which unlock the region's potential to do more with less water.

In this context, the MENA region has to reshape its regional vision for water security and sustainable development. There needs to be greater emphasis on 'South-South' cooperation, data-sharing and technology transfers. Alliances among MENA countries need to be strengthened. These need to be centred on reforms for regional water and food resilience, while building regional growth, peace, and stability. With shared resources and common challenges, solving the climate crisis in the MENA can only be achieved through close collaboration for the design of solutions, which are conflict sensitive, politically aware, and entrenched in the water-energy-food nexus.

Becoming PROACTIVE

With so many challenges to meet, we propose that MENA Leaders focus on being PROACTIVE over the coming decade. PROACTIVE encapsulates the ideas of Priorities, Resilience, Opportunities, Adaptive solutions, Coherence, Technology, Innovation, Vision, and Early recovery. The MENA region needs to move forward in all these areas if it is to ensure water and food security for all.

By aligning water security and climate adaptation with national Priorities, countries can get on track on delivering the Sustainability Development Goals (SDGs) they committed to while scaling up on Resilient and Adaptive solutions.

MENA region also need to identify opportunities to accelerate sustainability transitions, entrenched in improved and innovative regional partnerships.

The MENA's Vision should also be built on a holistic framework with policy Coherence across sectors at different levels. Horizontal coherence ensures synergy within and among different policy domains while minimizing inconsistencies and conflicting goals. Vertical coherence ensures the same approach but occurs across different tiers of government: international, national, and local. This will be crucial when considering trade-offs of resource management and balancing interests of competitive sectors actors.

Finally, while planning for an Early recovery the region's vision should be rooted in unlocking Technology and Innovation as a central pillar in the coming decade.