

# 2024

## 2024 Progress Report on the Implementation of Integrated Water Resources Management in the Arab Region

Midterm Status of Sustainable Development Goal Indicator 6.5.1



Shared Prosperity Dignified Life





### 2024 PROGRESS REPORT ON THE IMPLEMENTATION OF INTEGRATED WATER RESOURCES MANAGEMENT IN THE ARAB REGION

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### Lead authors

From ESCWA: Ziad Khayat, Sara Hess, Dima Kharbotli, Tracy Zaarour and Sana Farajalla.

#### **Contributing authors**

From UNEP-DHI Partnership – Centre on Water and Environment: Paul Glennie, Lisbet Hansen and Isis Oliver.

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# Key messages

### At the global level, as of 2023,

progress towards Integrated Water Resources Management (IWRM) implementation stands at

# 57 per cent



### While the Arab region average of **56** per cent

is on par with global progress, it is marked by great disparity between the high-income countries and the least developed and conflictand crisis-affected countries of the region.

Closing this gap is crucial to achieving Sustainable Development Goal 6, not only in the region but also globally.



It is recommended that the Arab region reverse the trend of decelerating progress

by prioritizing IWRM on the water policy agenda

at the regional (transboundary), national and subnational levels.

### As most countries in the region are still in the process of drafting or finalizing their national adaptation plans,



there is still ample opportunity to ensure that the water sector and IWRM are taken into account in terms of national planning for climate change.



The Arab region's overall **performance with regard to water financing remains the lowest** compared to the other three IWRM dimensions.

### The lack of adequate financing

in many parts of the Arab region represents a considerable challenge to the satisfactory implementation of IWRM.



Efforts must be made to **increase national and local government budgets** for IWRM implementation.

Projects implemented in the Arab region with support from global climate finance mechanisms present an important water financing avenue.

### Executive summary

### The setting

As the impacts of climate change on the Arab region intensify and socioeconomic and political challenges – including conflict – persist, efforts to secure access to safe and reliable water supplies as an essential resource to human life, environmental conservation and sustainable development are of primary importance. In this context, integrated water resources management (IWRM), defined as the "process that promotes coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems",<sup>1</sup> must be the focus of well-strategized national and transboundary endeavours in the increasingly waterscarce Arab region.

Sustainable Development Goal (SDG) 6, which aims to "ensure availability and sustainable management of water and sanitation for all", is the cornerstone of global efforts to promote progress around IWRM and SDG target 6.5: "By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate."<sup>2</sup> There are two indicators that track progress on SDG target 6.5:

- 1. **6.5.1** degree of integrated water resources management implementation (%).
- 2. **6.5.2** proportion of transboundary basin area with an operational arrangement for water cooperation.

This report concentrates on progress towards the first indicator.

Prepared cooperatively between the United Nations Economic and Social Commission for Western Asia (ESCWA) and UNEP-DHI Partnership – Centre on Water and Environment, this report serves as the third progress report on IWRM achievement in the Arab region, highlighting challenges and opportunities to advance IWRM implementation. It is based on data from 19 out of 22 Arab countries that completed a new SDG indicator 6.5.1 survey in 2023, as well as two Arab countries that carried over their scores from the prior data collection exercise in 2020.

The findings from this analysis will be used to inform preparations for the 2026 United Nations Water Conference, to be held in the United Arab Emirates. This will be the next milestone event to evaluate regional and global IWRM implementation.

The SDG indicator 6.5.1 survey includes 33 questions across four IWRM dimensions: enabling environment, institutions and participation, management instruments, and financing. Each question is scored on a scale of 0 to 100, with implementation levels being defined from "very low" to "very high". The scores for all the questions are averaged to arrive at the average score for each IWRM dimension and the overall country indicator score. The survey questions also provide space for written commentary on "status and progress" and the "way forward" to allow for additional contextual analysis. The indicator scores are categorized as follows:

IWRM level (scores (percentage)) General interpretation		Resilience to pressures	
Very low (0–10)	Little to no sustainable water management arrangements.		
Low (11–30)	Arrangements being developed.	Low	
Medium-low (31–50) Arrangements generally approved and institutionalized, but limited implementation.			
Medium-high (51–70) Implementation started, but not always effective.		Medium	
High (71-90)         Some sustainable water management objectives met (close to target)			
Very high (91–100)	Global target. Sustainable water resources management.	High	

### IWRM implementation levels, score thresholds and general interpretation (SDG indicator 6.5.1)

Source: UNEP, Progress on implementation of Integrated Water Resources Management: Mid-term status of SDG indicator 6.5.1 and acceleration needs, with a special focus on climate change, 2024.

Given the diverse IWRM implementation contexts and vast regional inequalities, in the report for the Arab region, the results are also analysed across four subregions grouping countries with similar socioeconomic, political and geographic contexts: the Maghreb, the Mashreq, the Southern countries, and the Gulf Cooperation Council (GCC).<sup>3</sup>

### Progress on overall IWRM implementation in the Arab region: key findings

At the global level, as of 2023, progress towards IWRM implementation stands at 57 per cent. While the Arab region average (56 per cent) is on par with global progress, it is marked by great disparity between the high-income countries and the least developed and conflict- and crisis-impacted countries of the region. Closing this gap is crucial to achieving SDG 6, not only in the region but also globally. It is likewise key to achieving the goals laid out in the International Decade for Action, "Water for Sustainable Development", 2018–2028.

Overall, countries in the Arab region have scored a slight increase in IWRM implementation (3 points) compared to the 2020 scores (53 per cent) and an 8-point increase compared to the 2017 scores (48 per cent). This might indicate that progress towards IWRM implementation has decelerated in the Arab region over the last several years. Eight countries with medium-low to low IWRM implementation (five from the Southern subregion and three from the Mashreq subregion) are unlikely to meet the global target in 2030 unless progress is significantly accelerated. As a result of conflict, the State of Palestine dropped from being able to meet the global target to being unlikely to meet the global target.

Given the centrality of IWRM for water security and the achievement of the SDGs, it is recommended that the Arab region reverse the trend of decelerating progress by prioritizing IWRM on the water policy agenda at the regional (transboundary), national and subnational levels. To this end, as most countries in the region are still in the process of drafting or finalizing their national adaptation plans (NAPs), there is still ample opportunity to ensure that the water sector and IWRM are taken into account in terms of national planning for climate change. Furthermore, IWRM implementation in the Arab region benefits from the High-Level Joint Water-Agriculture Technical Committee formed under the auspices of the Arab Ministerial Water Council and the Arab Organization for Agricultural Development. Collectively, these entities can continue to enhance cross-sectoral collaboration and coordination which may lead to better IWRM outcomes. The updated action plan for the Arab Water Security Strategy (2030) from the Arab Ministerial Water Council also continues to focus on IWRM as a tool for improving water security in the Arab region.<sup>4</sup>



### Degree of IWRM implementation in 2023 and progress from 2017 to 2023

#### Source: Authors.

**Note:** The progress towards the target is calculated by comparing the 2023 country value to the baseline value in 2017. For Libya, the value for 2023 is not available; the 2020 value is used instead. For the State of Palestine and the Syrian Arab Republic, the value for 2017 is not available; the 2020 value is used instead. Egypt submitted its 2020 report after the final 2021 IWRM report was issued, which accounts for the minor variations in the country's 2020 scores, as published in the previous report versus this report.

#### **Degree of IWRM implementation in 2023**

2017	2020	2023	2023 status (score)	Towards 2030				
0	1	1	Very high (91–100)	Five countries are likely to meet the global target if progress is				
3	4	4	High (71–90)	maintained (Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates).				
4	7	8	Medium-high (51–70)	Eight countries would potentially be able to reach the global target, but efforts need to be focused and sustained (Algeria, Bahrain, Egypt, Jordan, Mauritania, Morocco, Syrian Arab Republic, Tunisia).				
9	6	6	Medium-low (31–50)	Fight countries are unlikely to meet the global target unless progress is				
2	3	2	Low (11–30)	significantly accelerated. They should aim to set national targets based on the country context (Comoros, Djibouti, Iraq, Lebanon, Somalia, State				
1	0	0	Very low (0–10)	of Palestine, Sudan, Yemen).				

Source: Authors.

### Progress across the four IWRM dimensions

The Arab region's scores for each of the four IWRM dimensions are close to the world averages in 2023. The highest implementation scores are in the medium-high level for enabling environment (60), followed by institutions and participation (57) and management instruments (56). The lowest scores are in the financing dimension and are maintained from previous rounds of reporting on IWRM implementation at medium-low levels (48). Most countries fall within the medium-low and medium-high range across the four dimensions.

The following comparison of the 2023 scores with the 2017 scores indicates that, on average, the Arab region has moved to medium-high levels of implementation for enabling environment, institutions and participation, and management instruments. However, as a regional average, progress is unlikely to be sufficient to meet the 2030 target. The financing dimension, for which the region maintains scores in the medium-low range, is significantly off-track. In addition to enhancing the mobilization of domestic financial resources, countries of the region need to pursue innovative approaches to financing, including enhanced private sector engagement and the use of global climate funds, to support the resilience of the water sector.

Dimension 1: enabling environment, which can be established by developing and implementing laws, policies and plans. This is the dimension for which the greatest improvements were reported in the scores for 2023 compared to those for 2017 (a 30 per cent increase, to a score of 60 in 2023). This progress is mainly driven by GCC countries. The average implementation rates on the seven elements (questions) of the enabling environment (polices, laws and plans) were at medium-high and above levels. Nevertheless, scores related to subnational regulations and transboundary agreements continue to be at the lower end of the range. There are longstanding hurdles in building policy and legal structures to support transboundary water collaboration, such as a lack of political will to share necessary hydrological data across borders and to reach agreements on water allocation and management. Translating national policies and regulations from the national to the basin or local levels is hindered by delays in finalizing water decrees and by-laws. The Southern subregion has maintained the lowest average score (37) among the other Arab subregions, which marks a decrease compared to the 2020 reported values (43).

**Dimension 2: institutions and participation.** The Arab region's overall performance in establishing institutions and engaging stakeholders for IWRM implementation scores a medium-high level at 57. While this indicates some improvement in comparison to the 2017 score (52), little progress has been achieved since 2020 (55), with scores in the Arab region slightly below the average global rate of achievement (61). Disparities are noted among subregions, with the Southern subregion attaining an average score of 35 while the GCC subregion scored 81. The Southern subregion score remains unchanged since the first round of reporting, which means that the institutional and stakeholder component of IWRM should be a priority action area for this region.

Cross-sectoral coordination was the component of the institutions and participation dimension of IWRM for which the highest improvements were recorded (21 per cent). Nevertheless, the mere existence of cross-sectoral institutional mechanisms does not guarantee that they are adequately operationalized. Many countries have indicated that cross-sectoral coordination must continue to improve.

The inclusion of vulnerable groups is particularly low on average for the Arab region (38), as is gender mainstreaming (61). Global implementation and definitional frameworks have been put in place for gender mainstreaming across sectors, while vulnerable group integration was only incorporated into the SDG indicator 6.5.1 questionnaires in 2020. As a result, in most of the subregions, gender mainstreaming scored better (almost double for the Southern and Maghreb subgroups) when compared to the inclusion of vulnerable groups.

**Dimension 3: management instruments.** The average score for this dimension in the Arab region indicates a medium-high (56) degree of implementation. On average, the region has adequate management tools and instruments to implement IWRM. Nevertheless, there are great disparities in management capacities among countries. Some are implementing state-of-the-art monitoring tools and technologies, such as high-tech sensors and buoys that collect data on an extensive range of biological and chemical water parameters across large areas, while for other countries, basic technologies and tools are applied. Eight out of 21 of the countries score medium-low and low levels, with scores as low as 30 per cent.

Disparities between national and subnational implementation levels have been widening across

reporting periods (the gap changed from 6 per cent between national and subnational scores in 2017 to 13 per cent in 2023). This indicates that more effort is needed to translate the gains achieved at the national level to the local or basin levels.

**Dimension 4: financing.** The average score for this dimension (48) in the Arab region indicates a medium-low level of implementation comparable to global implementation levels (49) and shows that financing water management and development is a global challenge. Despite a notable increase (20 per cent) since 2017, the Arab region's overall performance with regard to water financing remains the lowest compared to the other three IWRM dimensions.

There are great disparities in Arab countries' potential to finance their water development and management activities, with question scores ranging from as low as 0 to as high as 100, and with almost half of the countries (10 out of 21) still scoring very low, low or medium-low levels. The lack of adequate financing in many parts of the Arab region represents a considerable challenge to the satisfactory implementation of IWRM. Only 11 countries (52 per cent) in the region score medium-high levels of implementation.

While efforts must be made to increase national and local government budgets for IWRM implementation, projects implemented in the Arab region with support from global climate finance mechanisms present an important water financing avenue. Public subsidies and incentives for private sector engagement, such as guarantees and tax rebates, are other avenues through which water financing is pursued in the Arab region.

### Progress and recommendations on Arab regional priorities

In 2021, the report on IWRM implementation in the Arab region focused on two regional priorities: groundwater and transboundary water resources. Since the last round of data collection, there has been steady progress in both of these areas:

- With respect to groundwater, the average score for aquifer management has progressed from medium-low (49) to medium-high (52). States cited the introduction of new tools, initiatives and policies for groundwater management. Least developed countries (LDCs) and conflict-affected countries, primarily in the Southern subregion, continue to struggle in this area due in part to a lack of monitoring equipment and/or resources to manage and maintain monitoring equipment.
- IWRM implementation with respect to transboundary water resources also improved slightly, with the average score moving from medium-low (48) to medium-high (53) overall and improvements across all components, albeit minor with respect to financing. Progress is most marked with respect to data-sharing.

Several new regional priorities are highlighted in the 2024 report.

Climate change mainstreaming in IWRM. Country responses are indicative of important progress in this area in response to the ever-intensifying impacts of climate change on the Arab region, as evidenced by more frequent and severe natural disasters such as droughts and flooding. In almost all countries in the region, the issue of climate change was referred to as an important factor shaping national water resources management regulations, strategies and plans. Priority climate action should focus on water-related adaptation to climate change impacts with increased efforts to move from policy towards action and with increased political and financial support for adaptation measures in the water sector. Climate adaptation requires both a "horizontal" approach (coordination across ministries and sectors) and a "vertical" approach with commitment from the country's highest level of leadership down emphasizing the importance of addressing climate impacts.

**Use of non-conventional water resources.** While the use of non-conventional water resources such as treated wastewater, desalination and rooftop rainwater harvesting does not appear in a dedicated question on the survey, they were mentioned by many countries in different contexts as a potential avenue for addressing growing water scarcity. Efforts should be made not only to provide appropriate financial and technical support to the development of these resources but also to create policies that prioritize the use of non-conventional resources (SDG target 6.3). Additionally, capacity development and community engagement will be needed to alleviate the stigma around the safe use of resources such as treated wastewater.

### Supporting IWRM in LDCs and conflict-affected

**contexts.** All of the Arab countries that scored either medium-low or low on the SDG indicator 6.5.1 survey are classified as being least developed, conflict-affected and/or fragile countries (table 10 in the main report). Conflict has many implications for a country's capacity to implement objectives related to SDG 6. Throughout its survey responses, the State of Palestine emphasized how the administrative and military control of the State by Israel hinders the development of water resource infrastructure and the management of transboundary water resources. Efforts must be made to ensure that cooperation around water resources is promoted and maintained even in contexts of conflict, in which water is considered a resource that is essential to life and a human right and is therefore protected by international humanitarian law.

**Climate finance to support IWRM.** Given that financing was the lowest-scoring dimension, it is surprising that only one country in the Arab region - Somalia - mentioned improving access to climate finance as a priority in annex B of the SDG indicator 6.5.1 survey, which asked countries to identify their key priorities and targets for IWRM implementation.<sup>5</sup> According to their nationally determined contributions (NDCs) and other reports submitted to the United Nations Framework Convention on Climate Change (UNFCCC), Arab States require at least \$127.46 billion for adaptation in the water sector. In the last decade, the Arab region received only \$6.9 billion in water-related international public climate finance. Most of the financing received was in the form of non-concessional debt. More climate financing is needed in general and in the form of grants and concessional debt in particular.

### Strategic actions to accelerate IWRM implementation in the Arab region

While 2023 marked a year of progress towards attaining SDG indicator 6.5.1 targets in comparison to the last round of data collection in 2020, progress has slowed when compared to the gains realized between 2017 and 2020. One factor interfering with progress is severe and enduring conflict in several countries in the Arab region, which has resulted in a divergence of resources away from the water sector, damage to critical water infrastructure (sometimes intentionally as an act of war) and political turmoil.

The previous edition of this report, issued in 2021, highlighted the need for improved inclusion of women and other vulnerable groups in IWRM. The 2023 survey results (table 11 in the main report) indicate some progress with respect to gender mainstreaming, increasing from 56 in 2017 to 61 in 2023. However, the participation of vulnerable groups has improved only slightly, from 36 in 2020 to 38 in 2023, indicating the need for continued efforts in this area.

The 2021 recommendations were also directed towards improved cross-sectoral coordination. In this area, improvements have been made in the Arab region overall (from 60 in 2017 to 70 in 2023) and in every subregion.

Looking towards the 2030 global target of at least 91 per cent IWRM implementation, it is clear that this goal cannot be reached at the regional level unless concerted efforts are directed towards the lowest-scoring countries in the region, which remain mired in situations of low-level development and, in many cases, conflict. The gap between the highest-scoring subregion (GCC) and the lowest-scoring subregion (Southern countries) widened from 33 points in 2017 to 49 points in 2023.

In addition to prioritizing support to the Southern subgroup across all IWRM dimensions, the SDG indicator 6.5.1 survey results and analysis indicate the need for additional efforts on several recurrent themes: translating IWRM laws, policies and management tools from the national level to the subnational and regional (transboundary) levels; prioritizing IWRM within the climate action agenda; and increasing financial flows for IWRM implementation. Several key recommendations to accelerate solution-seeking around these key challenges are described below.

#### **Prioritizing support to the Southern subgroup across all IWRM dimensions.** To close the IWRM

across all twkin dimensions. To close the TWRM achievement gap, development financing entities in the GCC should take a more active role in supporting IWRM implementation in the Southern subregion. The Kuwait Fund for Arab Economic Development, the Abu Dhabi Fund for Development, the Saudi Fund for Development and the Islamic Development Bank support a variety of water projects in the Arab region and should continue to expand this support to the most vulnerable countries. United Nations entities, together with government counterparts, should coordinate foreign aid-funded IWRM projects at the national and regional level to ensure that projects align with national interests and are sustainable over the long term. Technical support should also be provided for the development of bankable project proposals. The lack of project costing and bankable project pipelines is a major hurdle that stands in the way of Southern subregion countries' access to much-needed technical and financial support for the water sector. Finally, efforts need be made to ensure access to grant financing for heavily indebted poor countries (HIPCs) in the region and to promote IWRM prioritization to countries already benefiting from debt relief.

Translating IWRM laws, policies and management tools from the national level to the subnational and regional (transboundary) levels. While policy and legal structures to support IWRM at the transboundary level are few in the region, United Nations entities and other international governmental organizations should expand and fortify their roles as convening bodies, and bring all relevant stakeholders to the table, first to promote transboundary cooperation and then to provide space and support to cultivate the legal and regulatory tools to make this a reality. As the gap between national and subnational efforts at establishing institutions and stakeholder engagement widens, efforts should be made to include basin-level water user associations, with a focus on the most vulnerable stakeholders, in national IWRM consultations. Developing transboundary-level water projects may help to increase overall access to climate finance for the Arab region while also accomplishing important IWRM objectives across several dimensions.

### Prioritizing IWRM within the climate action agenda.

Many countries in the Arab region are still in the process of drafting their NAPs, indicating an opportunity for incorporating the water sector into their national climate action strategy. As non-conventional resources grow in importance, research and development to increase the use of renewable energy in the desalination process while reducing brine discharge and air pollution from the process is essential to limit the water sector's mid- to long-term contribution to climate change. Most of the funding for IWRM comes from national budgets, but as the water sector gains importance on the climate action agenda, there are ripe opportunities to access financing from the Green Climate Fund or the Adaptation Fund, among other sources. Ensuring the inclusion of the water sector in newly drafted or revised NAPs is an important start in this area. The United Nations and other international governmental organizations should also seek to prioritize technical assistance in this area. The Arab Initiative for Mobilizing Climate Finance for Water and the ESCWA Climate/SDGs Debt Swap initiative provide further opportunities.

### Increasing financial flows for IWRM implementation.

It is important to recognize the essential interlinkage between the IWRM dimensions when it comes to access to finance for the water sector. A lack of management capacity and poor regulatory framework will result in poor cost recovery, which creates a weak incentive for investment in the water sector, particularly from the private sector. Only three countries mentioned the need to improve national budget allocations to the water sector in response to annex B question 1 (key priorities for advancing IWRM overall).<sup>6</sup> This indicates that water-related technical staff should be more attuned to the financing needs for the sector. Conversely, officials from ministries of finance and central banks should also be more informed on the needs of the water sector. Fragile and conflict-affected countries, along with LDCs, are the Arab countries that struggle the most to access IWRM-related finance. One way to address this challenge is to promote the inclusion of the water sector in climate, peace and security projects, which is a topic of growing prevalence in the Arab region.

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# Abbreviations and acronyms

AMWC	Arab Ministerial Water Council
AOAD	Arab Organization for Agricultural Development
CCAC	Climate and Clean Air Coalition
DPPA	United Nations Department of Political and Peacebuilding Affairs
DRM	disaster risk management
ESCWA	United Nations Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
GCC	Gulf Cooperation Council
GDP	gross domestic product
GWP	Global Water Partnership
НІРС	heavily indebted poor country
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority on Development
IMF	International Monetary Fund
IWRM	integrated water resources management
LDC	least developed country
NAP	national adaptation plan
NDC	nationally determined contribution
NEWSP	National Early Warning System Platform
NGO	non-governmental organization
NRC	Norwegian Refugee Council
ОСНА	United Nations Office for the Coordination of Humanitarian Affairs
RICCAR	Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio- Economic Vulnerability in the Arab Region
SDG	Sustainable Development Goal
SIDS	small island developing State
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNOWAS	United Nations Office for West Africa and the Sahel
USAID	United States Agency for International Development
WASH	water, sanitation and hygiene
WHO	World Health Organization

# The setting

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### A. Integrated water resources management in a polycrisis context

As the impacts of climate change on the Arab region intensify and socioeconomic and political challenges – including conflict – persist, efforts to secure access to safe and reliable water supplies as an essential resource to human life, environmental conservation and sustainable development are of primary importance. In this context, integrated water resources management (IWRM), defined as the "process that promotes coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems",<sup>7</sup> must be the focus of well-strategized national and transboundary endeavours in the increasingly waterscarce Arab region.

Sustainable Development Goal (SDG) 6, which aims to "ensure availability and sustainable management of water and sanitation for all", is the cornerstone of global efforts to promote progress around IWRM and SDG target 6.5: "By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate."<sup>8</sup> There are two indicators that track progress on SDG target 6.5:

- 6.5.1 degree of integrated water resources management implementation (%).
- 2. 6.5.2 proportion of transboundary basin area with an operational arrangement for water cooperation.

This report will concentrate on progress towards the first indicator.

At the global level, as of 2023, progress towards IWRM implementation stands at 57 per cent. While the Arab region average is 56 per cent, it is marked by great disparity between the high-income countries and the least developed and conflict- and crisis-impacted countries of the region. Closing this gap, which will be discussed in more detail in later chapters of this report, will be crucial to achieving SDG 6, not only in the region but also globally. It is likewise



Agricultural land and reservoir in Mafreq, Jordan

key to achieving the goals laid out in the International Decade for Action, "Water for Sustainable Development", 2018–2028.<sup>9</sup>

In its 2024 Water Development Report, the United Nations Economic and Social Commission for Western Asia (ESCWA) calls for strengthening the application of IWRM principles in the Arab region through "coherent governance frameworks, strong implementation of regulatory tools, and sufficient financing."<sup>10</sup> ESCWA also highlights the need for promoting women's role in the water sector.

Discussions around climate, peace and security in the Arab region are trending towards a focus on building cooperation around access to water resources as a tool for conflict prevention. A 2023 study by the United Nations Department of Political and Peacebuilding Affairs (DPPA), the United Nations Office for West Africa and the Sahel (UNOWAS) and the United Nations Resident Coordinator's Office in Mauritania found that in the near future, water scarcity is likely to be a main driver of conflict in Mauritania.<sup>11</sup> A 2023 study by ESCWA also highlighted competition for scarce water resources as a trigger for isolated incidents of violence between farmers and pastoralists, calling for water diplomacy and improved water management to prevent similar challenges in the future.<sup>12</sup>

IWRM is a central component of the Arab Ministerial Water Council's Arab Strategy for Water Security in the Arab Region to Meet the Challenges and Future Needs for Sustainable Development 2010–2030.<sup>13</sup> The strategy was updated in 2019 to address the increasing complexity and rate at which the water situation is degrading across the Arab region. Traditional tools and approaches are no longer sufficient and hence modern technologies for water and climate change impact assessments are given greater importance while reconfirming the centrality of IWRM.

In order to examine and report on progress to this end, this report will analyse IWRM implementation efforts and achievement in the Arab region since the previous regional progress reports in 2021<sup>14</sup> and 2019.<sup>15</sup> It will detail the overall status and progress of IWRM achievement, indicate regional IWRM priorities and provide recommendations for accelerating IWRM progress.

### B. Data collection and survey methodology

The year 2023 marked the third round of data collection for SDG indicator 6.5.1 status and progress, following prior surveys in 2017 and 2020. The United Nations Environment Programme (UNEP) coordinated the data drive for the 33-question survey covering four dimensions of IWRM:
(1) enabling environment (laws, policies and plans); (2)
institutions and participation; (3) management instruments;
and (4) financing.<sup>16</sup>





In the Arab region, 11 out of 22 countries have participated in all three rounds of data collection (map 1). This total increases to 13 when including Yemen, which requested that the 2020 scores be carried forward to 2023 without modification, and the Sudan, which made a similar request due to its ongoing conflict. The survey participation rate across the three data drives is lower in the Arab region (59 per cent) than the global average (72 per cent), as 138 out of 191 countries globally have participated in all three reporting exercises.

The Syrian Arab Republic completed the last two rounds of the SDG indicator 6.5.1 survey in 2020 and 2023. Bahrain,

Egypt, Mauritania and Saudi Arabia completed the survey in 2017 and 2023 but did not take part in the data collection process in 2020. Libya completed the 2017 and 2020 surveys but did participate in 2023 in light of disruptions caused by a devasting flood that same year. Djibouti participated in the SDG indicator 6.5.1 survey exercise for the first time in 2023. Overall, participation for the Arab region in 2023 is laudable, as 19 out of 22 Arab States completed a new SDG indicator 6.5.1 survey despite the tremendous challenges many countries in the region face in terms of political and economic crises, conflict, climate change and natural disasters.

### C. Stakeholder consultation process

Following the SDG 6.5.1 Monitoring Guide,<sup>17</sup> countries were strongly encouraged to involve all relevant stakeholders in the survey completion process, including – but not limited to – national water agencies, basin/aquifer agencies, civil society, the private sector, academia, gender experts and transboundary experts. Stakeholder consultations were encouraged to facilitate consensus-building around the survey responses, which can be considered somewhat subjective, as well as to create opportunities for potential collaboration on national and transboundary IWRM initiatives arising from the discussions surrounding the reporting exercise.

Six countries from the Arab region were among the 67 countries globally that opted to participate in the SDG 6 IWRM Support Programme (map 2).<sup>18</sup> Djibouti, which, as previously mentioned, completed the SDG indicator

6.5.1 reporting exercise for the first time, was included among the participating States. Overall, eight countries in the Arab region were evaluated to have a high level of stakeholder engagement in the process, signalling that diverse stakeholder groups took part in discussions and negotiations around the survey responses (box 1).<sup>19</sup> Three countries had a medium level of engagement, meaning that stakeholders had provided some input; four countries had a low level of engagement, indicating that stakeholders were given the opportunity to contribute without necessarily engaging in the process. Two countries, the Sudan and Yemen, carried forward their scores from the prior survey and no additional stakeholder consultation took place. Three countries did not complete the stakeholder engagement table that was included in the survey (annex C) to gather information on the stakeholder consultation process.<sup>20</sup>



### Map 2. Stakeholder consultation for reporting on SDG indicator 6.5.1, 2023



### Figure 1. Number of stakeholder types involved in consultations as reported by the countries, 2020 and 2023

100%



Source: Authors.

In the Arab region, the number of stakeholder types involved in the 2023 data collection round declined in comparison to the 2020 reporting exercise (figure 1). In 2020, 42 per cent of countries reported engaging with 10 or more stakeholder types and 16 per cent reported engaging with 1 to 3 stakeholder types. In 2023, only 29 per cent of countries involved 10 or more stakeholder types in their IWRM reporting consultations, while 28 per cent involved only 1 to 3 stakeholder types. Going forward, it is recommended to increase stakeholder consultations through self-funded workshops and online consultations, as well as to begin the process as early as possible in order to facilitate involving a greater variety of stakeholders. Furthermore, SDG 6 Overall Focal Points should be made aware of the data collection process and have an opportunity to participate.



### Box 1

### Stakeholder consultation process in Tunisia

Tunisia was one of the countries in the Arab region that organized a multi-stakeholder consultation to assess SDG indicator 6.5.1. This process allowed consensus-building on country scores and text responses to the survey questions while also promoting broader awareness, understanding and actionable discussions on IWRM.

The consultation process was completed through a hybrid format, with virtual and in-person workshops, bilateral exchanges and other methods to gather input. Forty-six participants, representing governmental and research institutions, the private sector and international organizations, were convened, exceeding the global average of 40 stakeholders per country (UNEP, 2024). Gender balance was also ensured, as 48 per cent of the participants were men and 52 per cent were women, slightly differing from the global average of 55 per cent and 45 per cent, respectively (UNEP, 2024). Thus, this approach adhered to the best practices outlined by the SDG 6.5.1 Stakeholder Consultation Manual.

The consultation began with an online workshop by Global Water Partnership – Mediterranean, in partnership with the General Directorate of Water Resources and Environment of the Ministry of Agriculture, Water Resources and Fisheries, introducing the Ministry's members to the SDG indicator 6.5.1 online survey tool. This tool, only used by 17 countries in 2023 (UNEP, 2024), facilitates the data collection process. Attendees were then requested to complete an online questionnaire to serve as a working basis for the national consultation with all 46 stakeholders. The latter were divided into four working groups to evaluate each pillar of IWRM progress, assign the 2023 scores and define the 2030 national targets, revealing key discussion points.

Participants debated the implementation of national legislation and strategies, highlighting socioeconomic obstacles, the need to adopt a basin-level approach and the expected benefits of the new Water Code. The limited progress in decentralizing water governance was noted due to poor inter-institutional coordination. Concerns and disagreements about wastewater treatment and industrial discharge were also raised, as current efforts fall short of Water Strategy 2050 goals. Finally, stakeholders agreed on the impact of global crises on funding opportunities for IWRM.

Following the consultative workshop, the draft report was shared with participants to gather any missing information. To ensure comprehensive inputs from all water-related departments for the final SDG indicator 6.5.1 report, national focal points and the Global Water Partnership – Mediterranean facilitator conducted bilateral discussions with the Ministry of Environment, the National Institute for Agricultural Research and the financial department of the Ministry of Agriculture, Hydraulic Resources & Fishery to incorporate their feedback.

The consultation process led not only to the completion of the SDG indicator 6.5.1 survey but also to important secondary outcomes. For instance, it prompted the formation of an inter-ministerial IWRM Committee in Tunisia with a three-year mandate to coordinate efforts in evaluating and enhancing IWRM implementation, following the 2023 national <u>IWRM Action Plan</u>. The committee would be tasked with setting up specific performance indicators, which would be discussed during the next stakeholder meeting. Recommendations also included expanding stakeholder engagement to involve non-governmental organizations (NGOs), vulnerable populations, community groups, independent experts and private sector representatives.

Source: SDG 6.5.1 Stakeholder Consultation Report 2023 (Tunisia).

### D. How to interpret the SDG indicator 6.5.1 survey results

As previously mentioned, data are collected across four dimensions (enabling environment, institutions and participation, management instruments, and financing). Each question in the survey is scored on a scale of 0 to 100, with implementation levels being defined from "very low" to "very high" (table 1). All question scores are averaged to arrive at the overall indicator score for each dimension and the overall country score. The survey questions also provide space for written commentary on "progress and status" and the "way forward" to allow for additional contextual analysis.

The global target for 2030 is an IWRM implementation level of "very high", which is a score of 91–100 per cent. As previously mentioned, the average score of IWRM implementation for the Arab region was 56 per cent in 2023, a ranking of "medium-high". Survey outcomes are discussed in more detail in the following chapter.

IWRM level (scores (percentage)) General interpretation		Resilience to pressures	
Very low (0-10)Little to no sustainable water management arrangements.		Low	
Low (11–30)     Arrangements being developed.			
Medium-low (31–50) Arrangements generally approved and institutionalized, but limited implementation.			
Medium-high (51–70) Implementation started, but not always effective.		Medium	
High (71-90)Some sustainable water management objectives met (close to target).			
Very high (91–100)         Global target. Sustainable water resources management.		ווצוח [	

### Table 1. IWRM implementation levels, score thresholds and general interpretation (SDG indicator 6.5.1)

**Source:** UNEP, Progress on implementation of Integrated Water Resources Management: Mid-term status of SDG indicator 6.5.1 and acceleration needs, with a special focus on climate change, 2024.



#### Map 3. Four subregions of the Arab region

Source: Authors.

The methodology for calculating progress was updated in 2024. In 2021, progress levels were based on the ratio of the actual rate of progress to the required rate of progress to reach a target of 100 per cent and were categorized as "limited or no progress", "moderate progress but acceleration needed" and "substantial progress or on track". In 2024, progress was calculated by dividing the actual rate of progress (CAGRa) by the required rate of progress (CAGRr) to reach a target of 91 per cent implementation. Scores are assigned across five categories: "limited or marginal/limited progress" (CAGRr/CAGRa < 0.25); "some progress but need to significantly accelerate efforts" (0.25  $\leq$  CAGRr/CAGRa < 0.75); "fair progress, but moderate acceleration needed" (0.75  $\leq$  CAGRr/CAGRa < 0.95 or if

CAGRr/CAGRa  $\geq$  0.95 and the current year value is < 51); "good or likely to be on track to meet the global target" (CAGRr/CAGRa  $\leq$  0.95 and the current year value is  $\geq$  51); and "close to target or target met but need to sustain efforts" (if SDG indicator 6.5.1 score is  $\geq$  71).<sup>21</sup> In the case of Djibouti, no trends could be reported, as it was the first time the country participated in the data drive.

For the first time in 2023, the survey also included a section of questions on key priorities and targets that asked countries to project their IWRM implementation score for 2030 based on "business-as-usual" practices as well as to set a national target for 2030 that may differ from the global target in some cases. Given diverse IWRM implementation contexts and vast regional inequalities, in the report for the Arab region, the results are analysed across four subregions grouping countries with similar socioeconomic, political and geographic contexts: the Maghreb, the Mashreq, the Southern countries, and the Gulf Cooperation Council (GCC) (map 3).<sup>22</sup>

### E. Structure of the report

The following chapter will provide a description of regional, subregional and country status and progress on IWRM implementation as well as the constraints, priorities and targets identified by countries in the Arab region. Subsequently, in chapter 3, the four dimensions of IWRM implementation will be analysed with main highlights from the Arab region shared for each dimension. Chapter 4 will provide a brief update on progress towards the regional priorities that were identified in the 2021 Status Report on the Implementation of Integrated Water Resources Management in the Arab Region. It will also highlight new regional priorities for IWRM, identified in the 2023 surveys, including climate change mainstreaming, use of non-conventional water resources and climate finance to support IWRM. Chapter 5 will conclude and provide recommendations for accelerating the full implementation of IWRM in the Arab region.

### Overall status and progress of IWRM implementation

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### Key findings and recommendations

- The average implementation of IWRM in the Arab region is 56 out of 100 (medium-high implementation), which is similar to the global average. However, there are significant disparities between countries, with scores ranging from 24 (low level) to 95 (very high level). At the subregional level, the GCC subregion has the highest average IWRM implementation score of 81 (up from 72 in 2020 and 62 in 2017), followed by the Maghreb with a score of 60 (up from 58 in 2020 and 52 in 2017), the Mashreq with a score of 52 (up from 50 in 2020 and 40 in 2017), and the Southern subregion with a score of 32 (up from 28 in 2020 and 29 in 2017).
- Overall, the countries of the Arab region have scored a slight increase in IWRM implementation (3 points) compared to the 2020 scores and an 8-point increase compared to the 2017 scores. This might indicate that progress towards IWRM implementation has decelerated in the Arab region over the last several years. Eight countries with medium-low to low IWRM implementation (five from the Southern subregion and three from the Mashreq subregion) are unlikely to meet the global target in 2030 unless progress is significantly accelerated. As a result of conflict, the State of Palestine dropped from being able to meet the global target to being unlikely to meet the global target.
- The considerable inequality in IWRM implementation levels between countries highlights opportunities for intercountry knowledge exchange around best practices as well as the need to direct more resources and capacity development to the lowest-scoring countries, which are located in the Southern subregion.
- Given the centrality of IWRM for water security and the achievement of the SDGs, it is recommended that the Arab region reverse the trend of decelerating progress by prioritizing IWRM on the water policy agenda at the national and subnational levels.

The 2030 global target for IWRM implementation has been set to an average score of 91 out of 100 for SDG indicator 6.5.1. The 2023 questionnaire requested countries to identify both their expected level of implementation for 2030 if they continued with "business-as-usual" practices and their more aspirational national target for IWRM implementation (annex B question 2).<sup>23</sup> The countries with the greatest deviation between their set national targets compared to the global target (91) include: from the Mashreq subregion, Lebanon (71); from the Maghreb subregion, Algeria (76); and from the Southern subregion, the Comoros (42) and Somalia (67). All GCC countries have set their national targets to the global target or higher.

### A. Regional and country status and progress

Out of the 22 Arab countries, 15 increased their level of IWRM implementation compared to 2017 (map 4). Five out of the 15 are now considered to have come close to the target. Seven countries have achieved "fair" to "good" progress. Three countries, mainly in the Maghreb subregion, have achieved "some" progress. Six countries have achieved "limited" progress.

These figures reiterate the great disparities among countries, not only in terms of scores achieved but also in terms of the rate of progress. Special efforts and investments must be made to bridge these gaps between countries that have taken great strides towards enhancing IWRM implementation and those countries that are still struggling to mobilize resources for IWRM implementation. The latter grouping is most often exposed to a polycrisis, thus highlighting the challenge of prioritizing IWRM objectives and SDG achievement in emergency situations despite the clear need to do so over the medium to long term.

The number of countries that have reported very low to medium-low levels of IWRM implementation (red, orange and yellow) decreased from 12 out of 19 (63 per cent) in 2017 to 8 out of 21 (38 per cent) in 2023 (map 4). The number of countries with medium-high to very high levels of IWRM implementation (green, light blue and blue) increased from 7 out of 19 (37 per cent) to 13 out of 21 (62 per cent).

2017	2020	2023	2023 status (score)	Towards 2030			
0	1	1	Very high (91–100)	Five countries are likely to meet the global target if progress is			
3	4	4	High (71–90)	maintained (Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates).			
4	7	8	Medium-high (51–70)	Eight countries would potentially be able to reach the global target, but efforts need to be focused and sustained (Algeria, Bahrain, Egypt, Jordan, Mauritania, Morocco, Syrian Arab Republic, Tunisia).			
9	6	6	Medium-low (31–50)	Eight countries are unlikely to meet the global targets unless progress is			
2	3	2	Low (11–30)	significantly accelerated. They should aim to set national targets based on the country context (Comoros, Djibouti, Iraq, Lebanon, Somalia, State			
1	0	0	Very low (0–10)	of Palestine, Sudan, Yemen)			

#### Table 2. Degree of IWRM implementation in 2023

Source: Authors.

**Note:** Colour coding displayed in this table will be applied to all relevant tables.



### Map 4. Degree of IWRM implementation in 2023 and progress from 2017 to 2023

#### Source: Authors.

**Note:** The progress towards the target is calculated by comparing the 2023 country value to the baseline value in 2017. For Libya, the 2023 value is not available; the 2020 value is used instead. For the State of Palestine and the Syrian Arab Republic, the 2017 value is not available; the 2020 value is used instead. Egypt submitted its 2020 report after the final 2021 IWRM report was issued, which accounts for the minor variations in the 2020 scores for Egypt, as published in the previous report versus this report.

### **B.** Subregional implementation of IWRM

At the subregional level, the GCC subregion scores the highest (81), with all of its implementation dimensions at the high level (table 3). The Maghreb subregion is the second-best performer with an average score of 60; its score for management instruments (55) lags behind that for other dimensions. The Mashreq countries are in third place with an average score of 52; the mediumlow score for the financing dimension (39) is responsible for bringing down the overall score. The Southern Arab countries are lagging behind the other subregions, with an average implementation level of 32; the average score for the financing dimension is the lowest (15) among all four dimensions reported for all subregions. It is important to note that the widening gap between the highest-performing subregion (GCC) and the lowest-performing subregion (Southern) increased from 33 in 2017 to 45 in 2023.

In order to support ongoing progress, in the **GCC subregion**, the GCC Supreme Council can foster dialogue and knowledge-sharing to provide the support needed to meet the targets. For the other subregions, cooperation bodies are lacking. This accentuates the role ESCWA or the Arab Ministerial Water Council can play in supporting knowledge exchange and facilitating access to finance. For the Maghreb subregion, progress needs to accelerate to meet the IWRM targets and must focus on the operationalization of management instruments and tools to advance work on the institutional and policy frameworks through monitoring, data and information-sharing, and improved integrated decision-making. Experience from Algeria could inform lessons learned at the subregional level, as the country is pioneering progress on the operationalization of management instruments in the Maghreb subgroup. One example of best practices from Algeria is the establishment of committees that monitor the efficacy of public water service delivery, as well as a hydraulic solidarity programme that aims to enforce sustainable and equitable water allocation and distribution among users across the country and under which water is conveyed from areas of hydraulic surplus to regions of water paucity.

In the **Mashreq subregion**, the IWRM dimension that is holding back improvements the most remains the lack of financial resource mobilization. Approaches to remediate these deficiencies include optimizing tariff structures to more closely align water service pricing to consumers with actual costs while ensuring affordable access to all; leveraging regional and international funds; promoting private sector engagement; and using innovative financial tools to invest in water.<sup>24</sup> Innovative financial instruments must also be considered, including green and blue bonds, blended finance and debt swaps, such as those supported by the ESCWA Climate/SDGs Debt Swap – Donor Nexus Initiative.<sup>25</sup>

In the **Southern subregion**, the financing dimension of IWRM was the lowest reported score across all dimensions and subregions. In addition to international support, regional cross-country collaboration in the form of more water finance provided from wealthier and more advanced Arab countries to the least developed in the region is needed. This is already practised to some extent through regional funds such as the Kuwait Fund, but more funding that is directed towards the water sector in the LDCs is needed. At present, the least developed countries in the region, which are primarily located in the Southern subregion, received only 6.5 per cent of all climate finance for the water sector in the Arab region over the last decade.<sup>26</sup>



**Euphrates River, Iraq.** 

### Table 3. IWRM implementation average scores in 2023 by Arab subregion across the four IWRM dimensions and overall progress in 2017–2023

Dimension	GCC	Maghreb	Mashreq	Southern	Arab region
Enabling environment	82	61	59	37	60
Institutions and participation	81	62	54	35	57
Management instruments	79	55	52	35	56
Financing	84	61	39	15	48

#### Average SDG indicator 6.5.1 score

2023	81	60	52	32	56
2017	62	52	40	29	48
2020	72	58	50	28	54
Percentage of change in SDG indicator 6.5.1 score between 2017 and 2023	33	17	28	6	20

Source: Authors.

### C. Constraints and priorities identified by countries

The main priorities were extracted from the responses collected from annex B question 1<sup>27</sup> on the SDG indicator 6.5.1 survey, as well as an analysis of free-text responses provided to each question. A total of 10 of the 21 countries that participated in the data collection process responded with a written response identifying IWRM priorities. The common priorities across the region include:

**Climate change.** While only two countries specifically mentioned climate change in response to annex B question 1, climate change was a repeated theme mentioned by almost all countries throughout many of the narrative responses to other questions on the survey. The issue of climate change was referred to as an important factor shaping national water resources management regulations, strategies and plans.

The water sector was identified as a key adaptation priority in many countries, as expressly stated in their NDCs and NAPs (Lebanon, Iraq, Bahrain, Tunisia and the United Arab Emirates). Furthermore, in many countries, water and climate are addressed in separate policy programmes when they should be integrated.

**Intersectoral coordination.** Four countries mentioned the need for better institutional and intersectoral coordination in response to annex B question 1. The lack of coordination among institutions responsible for

water resources management (intrasectoral coordination) is an important concern, particularly for countries in the Southern subregion. The lack of coordination was identified for institutions responsible for groundwater and surface water in Djibouti and those that are in charge of sanitation and water supply in the Comoros. Furthermore, many countries in other subregions have acknowledged the importance of enhancing coordination for improved water management. One of the approaches considered to enhance institutional coordination includes decentralization to facilitate the engagement of concerned players at the local level. Coordination through decentralized approaches is being considered through River Basin Management Plans in Lebanon, with the identification of major challenges and their associated needed interventions based on the IWRM approach.<sup>28</sup> It is also being envisaged through pilot IWRM schemes implemented at the basin level in Oman.<sup>29</sup> In Morocco, an interministerial committee was set up to pursue cross-sectoral policy coherence across the various disciplines concerned with water governance.<sup>30</sup>

**Financing.** While only three countries mentioned the need to improve budget allocations and access to finance for IWRM in response to annex B question 1, mobilizing financing opportunities is crucial for accelerating progress within the water sector across the Arab region and for achieving water security.<sup>31</sup> Nevertheless, most countries of the Arab region are facing public debt that is expanding

at an alarming rate, which is likely to limit available finance for the water sector. A possible approach to address this concern is the use of innovative financial instruments, including green and blue bonds, blended finance and debt swaps, such as those supported by the ESCWA Climate/ SDGs Debt Swap – Donor Nexus Initiative. The deficiency in financing is noted in the Southern country subgroup but was also highlighted as a priority concern in rich countries such as Qatar.<sup>32</sup> Morocco also highlighted the need for improved financial resource mobilization to follow up on the implementation of IWRM.<sup>33</sup>

Follow-up and monitoring of IWRM strategies. Three countries in the Arab region cited the need to improve monitoring and evaluation of IWRM implementation as a core priority. Water strategies often do not have clear goals and monitoring indicators, which complicates follow-up on progress in implementing IWRM-related strategies and plans and hinders the evaluation of their outcomes. Some countries, such as Morrocco, have flagged these concerns and highlighted the need for indicators and financial resources to follow up on the outcomes of IWRM implementation. Oman specifically indicated the need for pilot studies on the use of smart meters to improve monitoring.

**Capacity-building.** Three countries mentioned the need for capacity-building in the water sector. Among the most pressing challenges facing the Arab region's water-related progress is the shortage of skilled professionals in the water and sanitation sector. In 2021, a survey revealed that two thirds of Arab countries were operating with fewer than half the required trained professionals in sanitation services.<sup>34</sup> Water professionals need training in new data collection methods and analysis, as well as in geospatial tools, among other skills, to improve water resources management and the delivery of water services.

Attracting young professionals and researchers into the water and sanitation sector through technical and vocational training and grants should be emphasized. Mauritania, Morocco and Lebanon have identified the importance of improved capacity-building for achieving more effective water management outcomes.



Water treatment systems in a public school in Jordan.

### Dimensions of IWRM

3

This chapter uses the SDG indicator 6.5.1 survey responses to analyse progress in the Arab region across the four key IWRM dimensions: (1) enabling environment (policies, laws and plans); (2) institutions and participation; (3) management instruments; and (4) financing for IWRM.

The Arab region's scores for each of the four IWRM dimensions are close to the world averages in 2023 (figure 2). The highest implementation scores are in the medium-high level for enabling environment (policies, laws and plans) (60), followed by institutions and participation (57) and management instruments (56). The lowest scores are in the financing dimension and are maintained from previous rounds of reporting on IWRM implementation at medium-low levels (48). Most countries fall within the medium-low and mediumhigh range across the four dimensions (figure 3).

A comparison of the 2023 scores with the 2017 scores indicates that, on average, the Arab region has moved to the medium-high levels of implementation on the enabling

environment, institutions and participation, and management instruments dimensions. However, as a regional average, progress is unlikely to be sufficient to meet the 2030 target. The financing dimension, on which the region maintains scores in the medium-low range, is significantly off-track. In addition to enhancing the mobilization of domestic financial resources, countries of the region need to pursue innovative financing approaches, including enhanced private sector engagement and the use of global climate funds to support the resilience of the water sector.

The intercountry disparities across the region are widening, with scoring responses on individual questions ranging from 10 to 100. This sheds light on the longstanding inequalities between individual countries but also draws attention to the importance of knowledge exchange and regional collaboration and support in the form of development aid flows from higher-income to lower-income countries in the region and active participation in regional bodies such as the Arab Ministerial Water Council.





Source: Authors.

Figure 3. Number of countries per implementation level across the four dimensions of IWRM in the Arab region



Source: Authors.

### A. Enabling environment (policies, laws and plans)

### Key findings and recommendations

- Out of the 21 countries that have completed the IWRM questionnaire, 13 are deemed to have the capacity to adequately implement IWRM-related policies, laws and plans under long-term programmes (medium-high implementation and above).
- The enabling environment (policies, laws and plans) constitutes the IWRM dimension for which the greatest improvements were reported in 2023 compared to the 2017 scores (14-point increase). This progress is mainly driven by GCC countries.
- The average implementation rates on the seven elements (questions) concerning the enabling environment (polices, laws and plans) were at medium-high and above levels. Nevertheless, scores related to subnational regulations and transboundary agreements are maintained at the lower end of the range. There are longstanding hurdles in building policy and legal structures to support transboundary water collaboration such as a lack of political will to share necessary hydrological data across borders and to reach agreements on water allocation and management. Translating national policies and regulations from the national to the basin or local levels is hindered by delays in finalizing water decrees and by-laws.
- The Southern subregion has maintained the lowest average score (37) among the other Arab subregions, which marks a decrease compared to the 2020 reported values (43). This is due in part to the fact that Djibouti reported for the first time with a low score (24).
- The gap among subgroupings of the Arab region seems to be widening, as scores for the GCC subregion have reached double those achieved by the Southern countries. Efforts are strongly needed to support intercountry and interregional exchange of knowledge and resources across the Arab region to ensure more progress with respect to IWRM policies, laws and plans.

### Map 5. IWRM implementation status, by country, of enabling environment (policies, laws and plans) and progress made between 2017 and 2023





### Figure 4. Dimension 1 implementation status, by country, of enabling environment elements (policies, laws and plans), 2023

Source: Authors.

The enabling environment dimension refers to the creation of policies, laws and plans to support the implementation of IWRM. The enabling environment is understood to operate at the national, subnational and regional levels. Effective policies, laws and plans support a regulatory and political environment in which the water sector is prioritized and there is fruitful collaboration among stakeholders with respect to IWRM implementation.

The average score for this dimension in the Arab region indicates a medium-high (60) degree of implementation, which means that, on the average, the region has adequate capacity to implement IWRM under long-term programmes. However, this interpretation should not mask the great disparities among various countries located in the different parts of the region (map 5). Country scores range from low (27) to high (90) with one third of the countries still scoring medium-low to low levels.

On average, the Arab region made good progress on implementing IWRM enabling environment elements between 2017 and 2023. The trend has been positive for most of the seven components (each covered by one question in the survey) of this IWRM dimension.

Around two thirds of Arab countries (14 out of 21) have the capacity to adequately implement IWRM elements related to laws, policies and plans under long-term programmes (equally distributed between medium-high and high implementation levels). Nevertheless, there is a gap between national-level improvements on policies, laws and plans and those reported at the local and/or basin level, as evidenced by the difference between the average scores at the national level (64) and the subnational levels (57) (table 4). This gap has been maintained through the various data collection rounds over the years, showing that knowledge-sharing and exchange of experience between central governments and local entities responsible for water management still needs attention. Most Arab countries have already put IWRM policies, plans and laws in place at the national level. Countries are currently focusing on updating their policies and strategies, implementing their plans, and improving monitoring and follow-up of their outcomes. Furthermore, many countries have national climate change plans and strategies that mainstream climate change across all sectors. For example, the National Climate Change Strategy of Egypt is designed to consolidate all aspects of climate change into one document to be a basic reference that ensures the integration of the climate change dimension into general planning of all sectors in the country, including the water sector. In Morocco, the National Water Plan 2020–2050 and the National Programme for Drinking Water Supply and Irrigation 2020–2027 include efforts to conduct vulnerability assessments of the water and agricultural sectors and monitor droughts and floods. Also, in most countries, water was highlighted as a priority adaptation intervention area in their respective NDCs.

Some of the challenges that countries are facing with respect to polices, laws and plans include difficulties in planning under disrupted hydrological cycles, and delays in the finalization of water decrees and by-laws that further hinder planning processes. Also, while there have been some advances, cross-sectoral coordination to mainstream climate into water plans and strategies remains inadequate.

Several projects and ideas were reported by different countries as ways forward, including: the finalization of decrees and by-laws for existing strategies and policies; consecrating water and energy interlinkages in related policies and plans;<sup>35</sup> listing water as a national security priority (in Iraq, for example); leveraging knowledge and tools acquired from global climate support systems to advance IWRM implementation; introducing external auditing of water service providers; piloting IWRM at the basin level for lessons learned and replication at the national level; and adopting advanced technologies for climate risk monitoring.



Water reuse near Ouarzazate, Morocco.

The average score for transboundary arrangements and provincial laws (55) is lower than the Arab region average for the enabling environment dimension (60). This may be attributed to the insufficient translation of national policies and laws into subnational regulations and a lack of institutional mechanisms and cooperation for the management of transboundary and provincial water.

The Permanent Joint Technical Commission for Nile Waters between Egypt and the Sudan is one exceptional example of ongoing transboundary water resource management that dates back to 1959. The commission holds four meetings annually, alternating between Egypt and the Sudan. It also undertakes a variety of IWRM activities, including monitoring the hydrometeorological stations in Egypt and the Sudan to estimate evaporation and overseeing the withdrawal of both countries' shares of Nile waters. A recent milestone for transboundary water cooperation arising from the region was achieved through the accession of Iraq to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (otherwise known as the United Nations Water Convention) in 2023.

At the country level, Jordan and the Syrian Arab Republic are the only two non-GCC countries that have achieved high scores on the enabling environment dimension. In Jordan, this was driven by a National Water Strategy 2023–2040 supplemented by subnational-level laws and by-laws. The Syrian Arab Republic put a National Water Policy into place based on sustainability principles with associated provisions adapted to the subnational context. Nine countries continue to lag behind on subnational policies, plans and regulations, scoring low and medium-low levels: Algeria, the Comoros, Djibouti, Egypt, Iraq, Lebanon, Somalia, the Sudan and Tunisia.

The transboundary components remain at medium-low levels for the GCC countries due to a lack of established agreements, arrangements or treaties governing transboundary water-sharing. Also, the low dependency on transboundary water resources for countries such as Kuwait, Qatar and the United Arab Emirates does not provide an incentive for advancement under this component. However, this should not mask progress on transboundary scores since the last reporting round resulting from the continued collaboration between Saudi Arabia and Jordan on the transboundary Al-Sag/Al-Disi aguifer and between Saudi Arabia and Bahrain through the Saudi-Bahraini Coordination Council. Also, the GCC Supreme Council has established the high-level permanent joint committee that fosters continuous communication among neighbouring GCC countries concerning transboundary aquifer management.

The four Arab subregions evaluated achieved varying degrees of progress in terms of the enabling environment dimension, with the GCC subregion achieving the most progress, a 70 per cent increase compared to 2017 scores,

followed by the Mashreq subregion with a 31 per cent increase. The pre-existing disparities are further widening among various subregions.

The least progress on IWRM implementation scores is noted for the Southern countries (table 4), which have maintained their scores on the enabling environment dimension at the medium-low levels since 2017. However, levels of transboundary cooperation were disproportionately higher than the average enabling environment scores for the Southern countries. This can mainly be attributed to efforts by Djibouti and the Sudan. The former has established clusters for transboundary water cooperation as part of the Drought Resilience and Sustainability Initiative of the Intergovernmental Authority on Development (IGAD), and the latter is part of many transboundary water cooperation mechanisms and arrangements.<sup>36</sup>

### Table 4. 2023 scores on the seven enabling environment elements in the Arab subregions and per cent progress

Enabling environment	GCC	Maghreb	Mashreq	Southern	Arab region
National level					
Policies	88	65	68	42	67
Laws	87	65	60	38	63
Plans	85	58	65	38	63
National average	87	63	64	39	64
Other levels					
Subnational policies	90	60	55	36	58
Basin/aquifer plans	85	53	57	35	60
Transboundary agreements	45	73	53	53	55
Subnational regulations	87	57	54	20	52
Subnational average	77	60	55	35	57
Dimension 1 average	82	61	59	37	60

Source: Authors.

### B. Institutions and participation

### Key findings and recommendations

- The Arab region's overall performance in establishing institutions and engaging stakeholders for IWRM implementation scores a medium-high level at 57. While this indicates some improvement in comparison to the 2017 score (52), little progress has been achieved since 2020 (55), with scores for the Arab region slightly below the average global rate of achievement (61).
- At the national level, cross-sectoral coordination was the component of the institutions and participation dimension of IWRM for which the highest improvements were recorded (21 per cent). Nevertheless, the mere existence of cross-sectoral institutional mechanisms does not guarantee that they are adequately operationalized. Many countries have indicated that cross-sectoral coordination must continue to improve.
- Disparities are noted among subregions, with the Southern subregion attaining an average score of 35 while the GCC subregion scored 81. The Southern subregion score remains unchanged since the first round of reporting, which means that the institution and participation component of IWRM should be a priority action area for these countries.
- There is a clear need to prioritize the inclusion of vulnerable stakeholders in consultation processes as scores in this category are medium-low (38) despite the prevalence of vulnerable populations in the Arab region, including women, children, older persons and those displaced by conflict.




Source: Authors.

### Figure 5. Dimension 2 implementation status, by country, of institutions and participation elements, 2023



#### Source: Authors.

The institutions and participation dimension refers to a coordinated and participatory institutional framework put in place for achieving sustainable water resources management. The implementation of this dimension is measured at the national and subnational or transboundary levels. A supportive institutional framework that encourages effective stakeholder engagement recognizes the roles of the various players with their clear mandates and with the recognition of possible trade-offs and synergies. The average score for this dimension in the Arab region designated a medium-high (57) degree of implementation, which may indicate that the region has adequate capacity to implement IWRM under long-term projects. However, this interpretation should not mask the great disparities among various countries located in the different parts of the Arab region (map 6 and figure 5). Country scores range from as low as 20 to as high as 100, with one third of the countries still scoring medium-low to low levels. The average score for this dimension (57) in the Arab region is slightly lower than the global average (61).

Out of the 21 countries for which trends were possible to calculate, and as illustrated in map 6, only four countries score high to very-high on this dimension – Qatar, the United Arab Emirates, Oman and Kuwait – and hence have the capacities to adequately establish institutions and engage stakeholders for IWRM implementation by 2030.

Around one third (7 out of 21) of the countries are likely to be on track to implement the institutions and participation dimension of IWRM while a little less than half (10 out of 21, including those with some and limited progress) need to significantly accelerate efforts. There is a gap between national-level improvements on IWRM institutional and stakeholder engagement and improvements reported at the local and/or basin level, as evidenced by the difference between the average of scores at the national level (63) and the other levels (51). This gap has been widening throughout the IWRM reporting rounds, showing difficulties in translating gains at the national level to the local or basin levels.

The inclusion of vulnerable groups is particularly low on average for the Arab region (38), as is gender mainstreaming (61). Global implementation and definitional frameworks are in place for gender mainstreaming across sectors while vulnerable group integration was only incorporated in the SDG indicator 6.5.1 questionnaires in 2020. As a result, in most of the subregions, "gender mainstreaming" scored better (almost double for the Southern and Maghreb subregions) when compared to "vulnerable groups". Some countries clearly identified the need to improve in this area, such as Mauritania in its stakeholder consultation report, which lists the need to reinforce the inclusion of vulnerable groups in water resource planning committees.

To varying degrees, most Arab countries have established institutional arrangements for IWRM implementation that recognize the importance of cross-sectoral coordination mechanisms, which in most cases account for some form of public participation in water resources planning, management and project implementation. Nevertheless, effective IWRM implementation across the Arab region is impeded to some extent by fragmented and unclear roles and responsibilities, with significant gaps and overlapping mandates at all levels.<sup>37</sup> These are compounded by a shortage in skills and capacities in the water and sanitation sector.<sup>38</sup> Furthermore, in some cases, cross-sectoral coordination has stalled since the previous rounds of reporting as coordination mechanisms have not been sufficiently operationalized. For example, in its stakeholder consultation report, Tunisia mentioned that the involvement of a large number of IWRM actors and lack of interinstitutional and intersectoral coordination is a challenge.

Several initiatives to advance institutional arrangements and stakeholder participation for improved IWRM

implementation include the establishment of dedicated national IWRM agencies and the institutionalization of IWRM departments or committees; the clarification of institutional roles and mandates in charge of leading IWRM; and the mobilization of cross-sectoral coordination platforms. Many countries are advancing decentralization based on several approaches, including through strengthening subnational IWRM authorities in the Comoros; clarification of the subnational institutions' mandates in Somalia; enhancing financial and administrative autonomy of local water service providers in Lebanon and Egypt; and improving institutional capacities in Saudi Arabia and Oman. Efforts to consolidate institutions' undertakings in the absence of adequate capacity development cannot generate the potential scope of benefits from their implementation. In response to this shortage, many countries are integrating IWRM and sustainability principles in capacity development training programmes addressing water officials in concerned ministries. For example, in Saudi Arabia, public employees are being enrolled in IWRM-focused university programmes.

The scores for the Maghreb subregion show marked improvement on this dimension (11 per cent), with the greatest national-level improvements reported from strengthening institutional capacities and public participation. IWRM capacity development, however, has shown declines, as despite some IWRM training activities taking place in most Maghreb countries, they often lack comprehensive capacity-building strategies and plans. Also, important declines were noted on subnational elements, notably on gender equity and vulnerable group considerations. To address these challenges, Morocco has launched the National Debate on Water, the Environment and Sustainable Development (box 2).

The Mashreq subregion is the one that reported the most improvement (22 per cent) in this dimension. Most of the progress was reported on subnational elements, with gender mainstreaming scoring the greatest improvements (106 per cent). This is driven by the expansion of gender mainstreaming applications in Egypt on increasing the number of activities and the assignment of a gender focal point at the Ministry of Energy and Water in Lebanon. Public participation in water resources policy, planning and management at the local level constitutes the element with the second highest rate of progress. This is primarily due to regular consultation undertaken in Iraq with water user associations and the envisaged formalization of public participation through the operationalization of the National Water Council and/or the River Basin Management Plans in Lebanon. However, the score on private sector participation has regressed from 2017 to 2023, and hence many countries in the subregion are focusing their efforts on engaging the private sector under various schemes, including through facilitating private investments in water-saving equipment in Egypt and forging public-private partnerships, in particular to upgrade water conveyance systems in Iraq and Jordan.

### Gender mainstreaming and integrated water resources management

Gender mainstreaming is an integral part of IWRM that transcends the creation of plans and programmes centred around women. Rather, it involves addressing deep-rooted gender inequalities by challenging stereotypes and implementing structural changes within institutions and societies.<sup>a</sup> The successful integration of gender in IWRM hinges on seven key enablers: (1) strong advocacy and high-level commitment; (2) robust legislative and policy frameworks; (3) human capital and financial resources; (4) effective institutional support; (5) active participation and parity of women; (6) comprehensive monitoring systems; and (7) multi-stakeholder and intersectoral coordination mechanisms.<sup>b</sup> These factors collectively ensure the transition from policy declarations into tangible actions in water resource management. As countries in the Arab region work to embed these principles within their water management strategies, the focus increasingly shifts from policymaking to practical implementation, moving beyond symbolic roles for women in water governance.

Morocco serves as an example for the role of institutional and legal frameworks in gender integration in IWRM. With specific gender provisions in water laws, the National Water Plan, and the Strategy for the Institutionalization of Gender Mainstreaming, Morocco ensures women's active participation in water councils and decision-making. This institutionalized approach facilitates meaningful gender inclusion at all levels of governance.

Algeria has successfully moved beyond policy formulation by embedding gender roles within broader national strategies, such as the National Strategy for the Integration and Promotion of Women. This has allowed women to actively partake in intersectoral commissions for national water plans, thus contributing to water management strategies. The commitment of Egypt to gender integration has been evident in its national water plans since 1997. Women's participation in water user associations and decision-making processes reflects a practical application of these policies. Hence, gradual and sustained actions have led to changes in practices. The Sudan serves as a model for gender integration within IWRM, where women have transitioned from symbolic participation to substantive roles in planning, technical work and leadership. Women in the Sudan are not only planners and technical staff but also lead the implementation of water management projects. Future plans include capacity-building initiatives to further equip women with the necessary skills and knowledge, ensuring their continued and effective contribution to IWRM. Iraq has made strides in gender integration through the establishment of a department for women's empowerment within the Ministry of Water Resources. Women's involvement in decision-making and planning, supported by targeted training programmes, marks a key step towards translating gender policies into practice.

Nevertheless, the journey to gender parity and successful gender mainstreaming is not without challenges. Countries with progressive gender policies still struggle with the underrepresentation of women in leadership roles.

Bahrain has made progress with respect to women's involvement in water management through its Gender Action Plan, linked to climate resilience projects. However, while the country has moved beyond symbolic roles, gaps remain in leadership and political positions. The full potential of gender integration, especially in higher-level decision-making, has yet to be realized. Saudi Arabia has taken important steps forward by integrating gender mainstreaming objectives into the Saudi Water Act, granting women the right to participate in all water management activities. Despite this, barriers to leadership persist, with ongoing efforts aimed at enhancing gender mainstreaming. Oman emphasizes gender equality and non-discrimination in its Vision 2040, with women participating in councils and committees related to water management. Still, access to leadership roles remains limited, highlighting the need to extend gender integration beyond operational levels to strategic leadership. Qatar supports gender equality through laws and regulations, with women holding administrative roles in ministries related to water management. Yet, their involvement in leadership positions within IWRM remains unclear. Similarly, the United Arab Emirates shows a strong commitment to gender participation across sectors, but specific references to water resources are lacking. This suggests that while the country has made progress in general gender integration, translating these efforts into the water sector, notably in leadership roles, might still be in its early stages.

Other countries in the region continue to struggle with deeper systemic barriers beyond barriers to leadership. These challenges include entrenched traditional norms, fragmented coordination among stakeholders and a lack of specific legislative frameworks. Weak institutions and constrained financial resources further hinder the effective implementation of gender mainstreaming efforts. Thus, these obstacles reveal the complexity of gender mainstreaming in water governance.

Source: UNEP-DHI, GWP and UN-Women, Mainstreaming gender equality in water resources management: Global status and 7 pathways to progress, 2025. <sup>a</sup> IWRM Action Hub, n.d.

<sup>b</sup> Global Water Partnership and UNEP-DHI Centre on Water and Environment, 2021.

The Southern subregion maintained the lowest scores on this dimension, with no reported progress since 2017. This should not, however, conceal the considerable gains achieved on cross-sectoral coordination and capacity development at the national level, calculated at 60 and 71 per cent rates of improvement, respectively. For cross-sectoral coordination, Somalia is leading the subregion (80) through its water sector coordination facility that integrates various stakeholders' perspectives in the prioritization of water allocations across sectors. These gains were undermined by regression reported across all subnational components of the dimension, resulting in stalling overall scores for the second dimension at "medium-low" levels (35) since the first round of reporting.

Improvements in "other levels" were highest for gender mainstreaming. Progress was driven by the institutionalization of gender mainstreaming in the water sector in Morocco, as well as by public participation through civil society engagement in consultation processes in Mauritania and regional basin councils in Morocco and Tunisia.

At the country level, Somalia has reported an increase in its scores on cross-sectoral coordination from 20 in 2017 to 80 in 2023 because of its water sector coordination facility (2021) that supports collective decision-making towards long-term water development. Iraq has improved its scores on public participation by engaging government and private sector representatives in water policy formulation, and Mauritania is systematically consulting with civil society representatives in water management at the local level (from 40 in 2017 to 100 in 2023). Bahrain has drastically improved its scores on privatization (from 0 in 2017 to 80 in 2023) through the formulation of policies for private sector engagement on water development and service provision.

### Table 5. 2023 scores for the 11 institutions and stakeholders' participation elements in the Arab subregions

Institutions and participation	GCC	Maghreb	Mashreq	Southern	Arab region				
National level									
Institutions (national)	95	80	57	44	69				
Cross-sector coordination	92	68	63	56	70				
Public participation (national)	74	80	60	40	63				
Private sector participation	90	68	38	28	55				
Developing IWRM capacity	66	50	58	48	56				
National average	84	69	55	43	63				
Other levels					<u>`</u>				
Basin/aquifer organizations	67	45	55	16	44				
Public participation (local)	70	75	57	40	59				
Vulnerable groups participation	80	33	42	20	38				
Gender mainstreaming in water resources management	88	60	57	40	61				
Transboundary water resources management organizations	67	60	58	27	54				
Institutions (subnational)	80	53	48	15	47				
Subnational average	76	55	53	27	51				
Dimension 2 average	81	62	54	35	57				

Source: Authors.

### Key findings and recommendations

- The level of development and implementation of IWRM management instruments across the Arab region scored medium-high levels (56), very close to the world average (55).
- At the national level, disaster risk reduction was the component of the management instruments dimension of IWRM implementation that recorded the most significant improvements (16 per cent) compared to 2017 levels. This may be a reflection of the increased incidence and frequency of climateinduced hydrometeorological disasters and thus an increase in the various tools that countries are deploying to enhance disaster preparedness.
- Disparities between national and subnational implementation levels have been widening across reporting periods (the gap changed from 6 per cent between national and subnational scores in 2017 to 13 per cent in 2023). This indicates that more efforts need to be made to translate the gains achieved at the national level to the local or basin levels.
- Disparities are also noted among subregions, whereby the GCC subregion scores high levels of implementation (79) while the Southern subregion's scores are within the medium-low range (35). Nevertheless, it is worth noting that disparities between the highest- and lowest-scoring subregions have been on the decline (from 62 percentage points in 2017 to 56 percentage points in 2023). Therefore, efforts need to be made and maintained to support knowledge exchange concerning IWRM management instruments across subregions.
- From 2017 to 2020, four countries made substantial progress, three showed moderate progress and eight had limited or no progress. The overall trend may be positive, but it should not conceal the realities that several countries need to work on improving their implementation rates. Furthermore, the IWRM implementation of basin and aquifer management instruments needs to be accelerated to meet the 2030 objectives.



### Map 7. IWRM implementation status, by country, of management instruments and progress made between 2017 and 2023



### Figure 6. Dimension 3 implementation status, by country, of management instrument elements, 2023

Source: Authors.

The performance in the management instruments dimension is measured through nine elements that provide a framework for implementing IWRM. These include, at the national level: (a) water availability monitoring; (b) sustainable and efficient water use management; (c) water pollution control; (d) waterrelated ecosystems management; and (e) management of water-related disaster risks. They also include, at other levels: (a) basin management; (b) aquifer management; (c) data- and information-sharing within countries; and (d) transboundary data- and information-sharing. Success in this dimension requires the provision of data and information as well as the inclusion of specific laws, policies and institutional arrangements to all relevant stakeholders to allow for informed decision-making.

As shown in table 6, the average score for this dimension in the Arab region is a medium-high (56) degree of implementation, which indicates that, on average, the region has adequate management tools and instruments to implement IWRM. Nevertheless, there are considerable disparities in management capacities among countries. Some are implementing state-of-the-art tools and technologies, such as high-tech sensors and buoy systems that collect data on an extensive range of biological and chemical water parameters, achieving scores as high as 88 (Kuwait and Qatar). In other cases, basic technologies and tools are applied, resulting in scores as low as 30 (Lebanon), with 38 per cent (8 out 21) of the countries scoring medium-low and low levels.

As indicated in map 7 and figure 6, out of the 21 countries that reported in both 2017 and 2023, five

countries were close to the target for this dimension. Two countries scored "good" progress and hence are likely to be on track for this dimension. Six countries achieved "fair" progress, with moderate acceleration needed to reach the goal for this IWRM dimension, and two countries achieved "some" progress, which means they need to significantly accelerate efforts. Six countries only achieved "limited" progress.

Around two thirds of countries are likely to meet the targets if they maintain the gains achieved with sustained efforts to reach the dimension targets. Nevertheless, there is a gap between the level of implementing management instruments at the national and regional levels, as evidenced by the difference between the average of scores at the national level (59) and the other levels (52) (table 6). This gap has more than doubled from 6 per cent in 2017 to 13 per cent in 2023, showing that considerable challenges remain in translating gains in management instruments for IWRM from national-level implementation to local or basin levels.

While most countries have developed management instruments for the sustainable use of water resources with varying degrees of geographical coverage and implementation frequency, challenges remain in data availability, accessibility and sharing, compounded by the lack of national and regional water data platforms as well as gaps in the use of remote sensing for disaster risk management. Also, most interventions for water-related disasters are currently focused on immediate response measures in lieu of long-term preparedness strategies.

### Water-related disaster management tools in Lebanon

In order to respond to climate change-related disasters, Lebanon has developed a significant technical capacity to assess environmental risks. For instance, the National Center for Remote Sensing develops hazard maps for landslides, floods and coastal vulnerabilities. The Lebanese Meteorological Department also enhances disaster alertness through global initiatives such as the Common Alerting Protocol. Nonetheless, discrepancies arise between the country's assessment abilities and its implementation and development of drought risk reduction and disaster risk management (DRM) strategies.

These shortcomings are illustrated by the country's fluctuating effectiveness scores for water-related disaster management tools. Currently valued at 40 out of 100, the score has decreased from 60 in 2017 but improved from 20 in 2020, thus indicating inconstant progress and the absence of long-term strategic planning. This inconsistency reflects institutional gaps, weak governance and limited financial resources.

Despite the establishment of a DRM Unit in 2009 and a National Coordination Committee on Disaster Risk Reduction in 2013, the DRM framework in Lebanon remains fragmented. It lacks cohesive mitigation and adaptation strategies, including climate-proofing of infrastructure.

While there is evidence of efforts to integrate flood and drought mitigation measures into national policies via legislation, the practical aspects of DRM (drought and flash flood risk reduction, protection, mitigation and adaptation; climate-proofing of water infrastructure; capacity-building programmes; and climate insurance schemes) show varied progress. The Lebanese Agricultural Research Institute plays an important role in preparing the agricultural sector for climate risks. It broadcasts notifications to farmers about the necessary actions to protect agriculture in times of extreme weather events. Additionally, infrastructure projects, aimed at mitigating the effects of climate hazards, have been introduced in the Bekaa region. These projects include the development of hill lakes<sup>a</sup> and the construction of water harvesting and soil conservation structures in watershed-covered areas.<sup>b</sup> Supported by international partnerships, these initiatives have been effective locally but are geographically limited in scope.

It is worth noting that plans spanning a broader geographical region have been developed but have not yet been implemented. For example, ESCWA and the Food and Agriculture Organization of the United Nations (FAO) have designed a comprehensive plan for Nahr el Kabir basin in Akkar, which focuses on increasing watershed resilience to climate change.<sup>c</sup> This plan involves traditional water storage systems and strategies to combat land degradation and drought.

In an attempt to build disaster-resilient infrastructures across Lebanon, the Drought Action Plan funded by the United States Agency for International Development (USAID) was launched in 2022. This comprehensive plan aims to enhance drought resilience through preparedness, mitigation and response strategies. The latter involves national cooperation centred around early warning systems, sustainable water practices and rapid response mechanisms. However, its development has been delayed due to the economic crises in Lebanon. The National Early Warning System Platform (NEWSP), an integral part of the project, was only implemented in April 2024.<sup>d</sup> More recently, the National Water Sector Strategy (2024–2035) emphasized the importance of developing a stormwater management plan. With the vulnerability of Lebanon to changing precipitation patterns and more frequent storms, this plan aims to address the subsequent increased risks of flooding, erosion and water pollution through enhanced collaboration between ministries.<sup>e</sup> While these initiatives represent important steps forward, they are not sufficient to create a comprehensive and climate-sensitive national strategy for disaster risk management.

Overall, while there are relatively robust disaster assessment and detection systems in place, a fully operational climatesensitive national strategy for disaster risk management that supports mitigation, preparation, response and recovery remains elusive due in large part to the country's protracted economic crises and institutional and political instability.

<sup>&</sup>lt;sup>a</sup> SDG 6.5.1 (2023). Available at <u>https://iwrmdataportal.unepdhi.org/IWRMDataJsonService/Service1.svc/DownloadReportingRound/lebanon/2023</u>. <sup>b</sup> Seoud, 2013.

E/ESCWA/CL1.CCS/2022/RICCAR/Technical report.14.

<sup>&</sup>lt;sup>d</sup> National Early Warning System Platform, 2024.

<sup>&</sup>lt;sup>e</sup> Lebanese Ministry of Energy and Water, 2024.

Several projects and ideas were reported by different countries as ways forward, including: the modernization of monitoring technologies for real-time data collection and data-sharing through extensive networks supported by mobile devices; hydrogeological modelling generating forecasts for better planning; aquifer contracts for the preservation of groundwater resources; financial tools for better valuation of water resources; water-related disaster preparedness and response plans; innovative water development approaches such as fog harvesting; and combating seawater intrusion through managed aquifer recharge.

At the country level, Saudi Arabia has scored large improvements (from 40 in 2017 to 100 in 2023) on transboundary data and information-sharing as a result of the transboundary water agreement with Jordan and the Higher Committee of Water Resources in the GCC Council, noting that the agreement with Jordan was signed in 2015 but was only accounted for in this latest round of IWRM reporting. In the United Arab Emirates, national water management plans are focused on a water-energy-food nexus approach. Lebanon has reported the lowest scores for management instruments at the national level. In response to this challenge, the country is working to establish a centralized data management and integrated hydrological information system incorporating "open source" technological tools and the modelling of river basins and aquifers. Bahrain

is institutionalizing management tools developed in the context of Green Climate Fund projects to improve climate resilience in the water sector.

At the subregional level, the GCC is the only subregion to score high on the management instruments dimension. The subregion is deploying a variety of management tools at the national level for the sustainable and efficient use of water resources, such as: plans for more efficient distribution of resources among the consuming sectors in Oman; water tariff restructuring, particularly for groundwater use in Saudi Arabia and Bahrain; a real-time monitoring system of polluting materials, which is recognized among international best practices, in the United Arab Emirates; and linking remote stations to a central hydrometric monitoring network for faster disaster response in Oman. The importance of water ecosystems is being recognized, resulting in massive afforestation plans in Saudi Arabia and Bahrain as well as wetlands protection programmes. Furthermore, GCC countries are in the process of developing risk management plans and climate resilience strategies (Water Security Strategy 2036, United Arab Emirates and Saudi Arabia). Also, mechanisms such as the Saudi-Bahraini Coordination Council and the Water Resources Committee of the General Secretariat of the GCC would provide a platform for effective transboundary datasharing once fully operational.

Management instruments	GCC	Maghreb	Mashreq	Southern	Arab region				
National level									
Monitoring availability	85	68	60	40	64				
Sustainable and efficient use management	83	63	57	50	64				
Pollution control	85	60	48	28	56				
Ecosystems and biodiversity	85	48	42	32	53				
Disaster risk reduction	77	58	62	28	57				
National average	83	59	54	36	59				
Other levels									
Basin management	73	45	42	30	44				
Aquifer management	78	50	47	28	52				
Data- and information-sharing (within country)	77	48	63	36	58				
Transboundary data- and information-sharing	64	60	45	47	54				
Subnational average	74	50	49	34	52				
Dimension 3 average	79	55	52	35	56				

### Table 6. 2023 scores for the nine elements of management instruments in the Arab subregions

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Source: Authors.



North Delta, Egypt.

The Southern subregion is the subregion that has exhibited the most progress since 2017 and has moved from low to medium-low levels of achievement. However, the overall score remains the lowest compared to other subregions. In the absence of IWRM strategies, some countries, such as the Sudan, are prioritizing work on enhanced irrigation efficiency. In Somalia, there is a lack of financial and technical capacities for adequate water resources monitoring and pollution control, as well as for disaster risk prevention. However, national contingency plans with hydrometeorological services are under development in many countries. The Comoros has emphasized work on pollution, ecosystem and disaster management (box 4). At the subnational level, the deployment of management instruments at the aquifer level is the most challenging issue due to a lack of equipment and means of data transmission.

### Box 4

### Improved water management instruments in the Comoros

Due to its geography as a small island State, the Comoros is vulnerable to natural disasters, exacerbated by its growing population and climate hazards. Nonetheless, the country made significant improvements with regard to pollution, ecosystem and disaster management, showcased by an increase from 0 to 40 points between 2021 and 2023 in the management instruments dimension of SDG indicator 6.5.1 reporting. While a score of 40 still indicates the need for ongoing improvement, the country's advances are notable in a context of constrained resources as both a least developed country (LDC) and a small island developing State (SIDS).

In terms of pollution control, the Government of the Comoros joined the Climate and Clean Air Coalition (CCAC) in 2023, indicating a shift towards more dynamic and integrated environmental governance, including improved environmental impact assessment methodologies.<sup>a</sup>

With respect to ecosystem management, in 2016, the Government of the Comoros adopted a national biodiversity strategic action plan, which outlines the country's vision to ensure biodiversity conservation and sustainability through 2030. It also sets specific water conservation targets to be achieved by 2030. They include: (1) ensuring that at least 17 per cent of terrestrial and inland water areas and 10 per cent of marine and coastal areas are protected; (2) restoring at least 50 per cent of degraded ecosystems; and (3) reducing pollution to non-harmful levels to ecosystem functions and components.<sup>b</sup>

In 2021, the Government of the Comoros updated its contingency plan for natural disaster risk management.<sup>c</sup> The revised plan, developed under the General Directorate of Civil Security, outlines approaches to manage the risks posed by climate change and aims to better prepare the country for events that directly impact water security, such as floods and droughts. The Government is also involved in multisectoral initiatives to bolster community resilience to climate change.<sup>d</sup>

Finally, the Green Climate Fund project "Ensuring climate resilient water supplies in the Comoros Islands" is a cornerstone of the country's adaption strategy.<sup>e</sup> Launched in 2019 and running until 2027, the project is designed to safeguard water resources for 450,000 residents by improving infrastructure and management practices. This venture not only intends to secure drinking water but also supports agricultural activities essential for local livelihoods.<sup>f</sup> Furthermore, "Réseau national des aires protégées des Comores" is another programme aimed at integrating the protection of biodiversity within disaster risk management frameworks.<sup>g</sup> This initiative has been in place since 2021 through the collaboration between Dahari, a Comoran NGO, and the Comoros National Parks Agency. The partnership leverages local knowledge and scientific expertise to engage communities in reforestation activities to improve ecosystem resilience against natural disasters. The programme emphasizes participatory practices, allowing local stakeholders to select and plant trees that benefit both their needs and the environment, supported by training opportunities to strengthen sustainable management skills.<sup>h</sup>

Overall, the Comoros has shown notable progress in environmental management with improvements in pollution control, ecosystem management and disaster preparedness due to a variety of policies and programmes implemented in partnership with international donors, as well as national government and local organizations.

- <sup>a</sup> Climate and Clean Air Coalition, 2023.
- <sup>b</sup> Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at https://iwrmdataportal.unepdhi.org/IWRMDataJsonService/Service1.svc/DownloadReportingRound/Comoros/2023.
- ۶ Ibid.
- d Ibid.
- <sup>e</sup> Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at
- https://iwrmdataportal.unepdhi.org/IWRMDataJsonService/Service1.svc/DownloadReportingRound/Comoros/2023. <sup>f</sup> UNDP, 2024.
- <sup>g</sup> Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at <u>https://iwrmdataportal.unepdhi.org/IWRMDataJsonService/Service1.svc/DownloadReportingRound/Comoros/2023</u>.
  <sup>h</sup> Dahari, 2023.

The scores for the Maghreb subregion remain at the medium-high level despite slight improvements compared to 2017 implementation levels. The challenges faced are mainly for data assessment and interpretation, as many countries lack clear water quality standards in their Water Code and regulations. Also, important improvements since 2017 were noted with regard to disaster preparedness through flood resilience plans and strategies in Tunisia and Algeria. Improvements on ecosystems and biodiversity are under way through the integration of ecosystem-based management approaches, including efforts for wetland preservation in Algeria and the recognition of a minimum ecological flow requirement<sup>39</sup> across seasons in Morocco for the preservation of aquatic and terrestrial ecosystems.

The medium-high score achieved by the Mashreq subregion hides considerable intra-subregional disparities, with monitoring capacities ranging from real-time data collection (in Egypt and Iraq, which both scored 80) to basic capacities and limited coverage (in Lebanon and Palestine, which scored 30 and 40, respectively). The lowest national-level scores were for biodiversity and ecosystems. Nature-based solutions present a promising avenue for the preservation of vulnerable ecosystems, including the marshlands of Iraq. The deployment of management instruments at the aquifer level is complicated by difficulties in delineating groundwater aquifers in Lebanon and Palestine and by the insufficient engagement of riparian States in the transboundary management mechanisms.



### D. Financing water resources management and development

### Key findings and recommendations

- The Arab region's overall performance in financing IWRM implementation remains the dimension with the lowest average scores (48, medium-low). Despite a notable 21 per cent increase from the 2017 scores, financing for IWRM is still lacking. The region needs to improve access to innovative and blended finance schemes, develop capacities for the preparation of bankabale projects, enhance private sector engagement, encourage collaboration with multilateral and bilateral donors, and work on coupling water objectives with climate resilience targets to broaden the scope of potential funding resources.
- The Arab region average (48) for financing is nearly on par with the global average score (49) for this dimension. Nevertheless, despite the universality of water financing challenges, solutions need to take into consideration the specificities and conditions of the Arab region, such as the heavily indebted public finances of Arab countries and the prevalence of conflict and crises, which limit access to traditional finance instruments.
- Disparities between national and subnational implementation levels have been widening across reporting periods, with a 30 per cent difference reported in 2023 versus 25 per cent in 2017. This indicates that more efforts are needed for the mobilization of water financing at the local or basin levels.
- Disparities are also noted among subregions, with the Southern subregion attaining an average score of 15, while the GCC achieved scores as high as 84. Water financing is the IWRM dimension for which the largest disparity among subregions is noted: the percentage point difference between the highest- and lowest-performing subregions reached 65 percentage points for the financing dimension versus 45 percentage points for the enabling environment, 46 percentage points for institutions and participation, and 44 percentage points for management instruments.
- Only four countries are likely to meet the targets. Five countries have achieved "good" progress and are likely to be on track to meet the dimension target. Three countries have achieved "fair" progress, and nine countries were found to have achieved "some" to "limited" progress and thus need to significantly accelerate their progress in order to meet the established goals. This means that almost half of the countries in the Arab region need to deploy significant resources and increase capacities to accelerate IWRM finance.
- In general, most IWRM financing across the Arab region is done from national budgets, which
  indicates that countries with limited fiscal space may face the most severe challenges in this
  dimension. Furthermore, revenue raising from service provision remains below the needed
  levels at low (12) and medium-low (40) levels of implementation in the Southern and Mashreq
  subregions, respectively. Therefore, countries with limited resources need to consolidate other
  relevant IWRM dimensions, notably the legal and regulatory set-up as well as institutional
  frameworks and management tools, in order to encourage the engagement of the private sector,
  and cooperation with multilateral and bilateral donors, and to improve cost recovery.



### Map 8. IWRM implementation status, by country, of financing and progress made between 2017 and 2023

Source: Authors.

### Figure 7. Dimension 4 implementation status, by country, of financing water resources management elements, 2023



#### Source: Authors.

The financing dimension of IWRM implementation reflects the extent to which financial resources available for water resource development and management are appropriate or sufficient. As highlighted in the updated Arab Strategy for Water Security, the Arab region priority interventions through which IWRM implementation is to be pursued are related to the financing dimension, including by conducting water accounting and economic valuation as well as by improving water use efficiency and cost recovery.

The average score for this dimension (48) in the Arab region indicates a medium-low level of implementation comparable to global implementation levels (49) and shows that financing water management and development is a global challenge. Despite a notable 21 per cent increase since 2017, the Arab region's overall performance with regard to water financing remains the lowest compared to the other three dimensions of IWRM. There are great disparities in Arab countries' potential to finance their water development and management activities (table 7), with scores ranging from as low as 4 to as high as 100, and with almost half of the countries (10 out of 21) still scoring very low, low to medium-low levels. The lack of adequate financing in many parts of the Arab region represents a considerable challenge to the satisfactory implementation of IWRM. Only 11 countries (52 per cent) in the region score medium-high levels of implementation (map 8 and figure 7).

There is a gap across the Arab region between national (medium-high, 56), and subnational (medium-low, 43) levels of achievement on financing water resources management and development. The greatest difference is noted for the Mashreq subregion, which has scored a medium-high level of implementation at the national level (51), with mediumlow levels (35) reported at the subnational levels.



Wastewater treatment plant in Zahle, Lebanon.

Most of the financing allocated for infrastructure and IWRM is from central and local government budgets. These are deployed as part of the national water strategies in Algeria and Bahrain or under national development programmes with broader socioeconomic objectives, such as the "decent life" project in Egypt, which aims to improve the quality of life of Egyptian citizens, including through bringing water and sewage services to the poorest homes. Projects implemented in the Arab region with support from global climate finance mechanisms, namely the Green Climate Fund and the Adaptation Fund, present an important water financing avenue in Bahrain, Iraq, Jordan and Lebanon, among other countries, as many of these initiatives address climate resilience in the water sector. Public subsidies and incentives for private sector engagement, such as guarantees and tax rebates, are other avenues through which water financing is pursued in the Arab region.

Many countries lack a clear assessment of the budgetary needs for water management and development, further complicated by the lack of accurate differentiation between water infrastructure and IWRM financing requirements. Furthermore, in countries where development assistance aid from international donors is an important source of water financing, outcomes often target single-purpose objectives that are deployed according to the donor's priority intervention areas. This results in water projects that are not aligned with the recipient country's development priorities, have a limited scope of action, and are deployed in a fragmented and unsustainable manner.

Countries facing protracted political and economic instability experience the deterioration and/or loss of their water infrastructure. Cost recovery remains an important impediment and represents a pillar of the Arab Strategy for Water Security. Cost recovery was also highlighted as an Arab regional intervention priority towards the achievement of global water commitments (Water Action Decade preparatory meeting). The lack of adequate designated financing is exacerbated by increasing costs of adaptation in the water sector resulting from climate change impacts.<sup>40</sup>

Several initiatives are being undertaken by countries to improve water sector financing, including through the development of comprehensive investment programmes, the maximizing of international partnerships, and bilateral or multilateral agreements in support of infrastructure projects. Most countries are taking steps towards improved cost recovery, such as the revision of economic water valuation in Algeria, the prioritization of pricing and cost recovery in national water policies in Morocco, and the separation of revenue collection from service provision implemented by Egypt. The implementation of crosssubsidies in Qatar also managed to transfer funds from revenue-generating sectors, notably energy, to the water sector, which further consolidates interlinkages between water and energy. Other countries, such as Bahrain and Iraq, are tapping into climate finance mechanisms to support climate-resilient water projects. Some are considering the expansion of revenue collection to cover indirect water values, such as the ecosystem and environmental services.

At the country level, Somalia presents an example of how grants by international donors for both water infrastructure and IWRM have succeeded in supporting the move from very low (4) to low (22) levels of implementation in 2017 and 2023, respectively. The country is currently working on advancing other IWRM dimensions to harness the full range of potential gains from these grants. Egypt saw an improvement in the revenue-raising element from a low level of implementation (20) in 2017 to medium-low levels (50) in 2023. This progress is due to an improvement in cost recovery after a government-owned holding company was assigned this task. The Holding Company for Water and Wastewater finances its water supply and wastewater services through a cost-sharing arrangement with locallevel water service delivery institutions and transfers increasing shares of operation and maintenance costs to water user associations.<sup>41</sup> Algeria has invested significantly in water infrastructure, with funding that exceeded \$40 billion over the period 2000-2020.

Financing	GCC	Maghreb	Mashreq	Southern	Arab region
National level					
National budget for water resources infrastructure (investment and recurrent costs)	90	60	53	16	56
National budget for IWRM elements (investments and recurrent costs)	88	65	48	16	55
Average	89	63	51	16	56
Other levels					
Subnational or basin budgets for water resources infrastructure (investment and recurrent costs)	93	53	38	12	43
Revenues raised for IWRM elements	64	60	40	12	43
Financing for transboundary cooperation	73	93	20	30	47
Subnational or basin budgets for IWRM elements	97	45	37	8	41
Average	79	61	34	14	43
Dimension 4 average	84	61	39	15	48

### Table 7. Scores for the nine elements of the financing dimension in the Arab subregions

Source: Authors.

The GCC subregion maintained its superior rank compared to other parts of the Arab region, standing 22 points ahead primarily due to government financing for the water sector. There are, however, large disparities among countries in terms of scores and rates of progress. Oman and Saudi Arabia have more than doubled their scores from 24 and 46 in 2017 to 60 and 95 in 2023, respectively. Budgets allocated for water are deployed as part of the five-year development plans in Oman and towards the achievement of Saudi Vision 2030 in Saudi Arabia. Two distinct levels of implementation could be identified across the GCC, namely medium-high for Bahrain and Oman and very high for Kuwait, Qatar, Saudi Arabia and the United Arab Emirates. The subnational scores are markedly lower. This is driven by the low status in Oman (20), as revenues raised are not invested in IWRM activities. It is further driven by the low level achieved by Bahrain on transboundary financing (20) despite the establishment of the Saudi-Bahraini Coordination Council, which has not yet implemented the transboundary component.

The Mashreq subregion has achieved the most significant progress in the financing dimension (49 per cent), and scores medium-high and medium-low on the national and subnational levels, respectively. The countries with the lowest scores are those facing protracted economic and political instability, notably Iraq, Lebanon and the State of Palestine. The scores were particularly low (20) on transboundary financing, as most progress on cooperation mechanisms in Iraq, Lebanon, Palestine and the Syrian Arab Republic was halted due to armed conflicts. On the contrary, Egypt has improved its transboundary water financing, as efficient allocation of the Nile waters remains a priority development concern for the country.

The Maghreb subregion has scored a marked improvement (34 per cent) compared to the levels in the first round of reporting in 2017. This is the only subregion that has achieved similar scores on national and subnational implementation levels driven by very high scores on the transboundary element generated by consistent national contributions within the framework of well-established transboundary cooperation arrangements, such as the Sahel and Sahara Observatory for Algeria and Tunisia, and the Senegal River Basin Development Authority in the case of Mauritania.

The progress in revenue raising has also resulted in consistent medium-high scores of 60 across the Maghreb subregion. All countries having established some form of revenue raising, including a "withdrawal fee" imposed on industrial and service sectors in Algeria and Mauritania; polluter pays and taker pays principles imposed at the basin level in Morocco; and a "binomial" water fee structure that integrates fixed and variable components in Tunisia. The greatest shortcoming is related to budget allocations for IWRM implementation at the subnational or basin level. Many countries are nevertheless advancing in this area by increasing the share of attributed funds to local water management authorities with accompanying IWRM implementation responsibilities. This is the case of hydraulic basin agencies in Morocco, which are responsible for deploying available resources for the implementation of IWRM activities at the basin level.

The Southern subregion maintains the lowest scores among the four subregions, with declining trends compared to 2017 (-27 per cent). IWRM implementation at both the national and subnational levels has remained at low levels since 2017. Many countries in this subregion, including Djibouti, have flagged the lack of financial resources as the main limiting factor holding back progress on all four related dimensions of IWRM and hence focus their efforts on mobilizing funds for water infrastructure development and IWRM implementation. Avenues for fundraising include revenues from water police, according to the provisions of the Water Code in the case of the Comoros; existing projects on climate resilience that cover the construction and rehabilitation of drinking water infrastructure in Djibouti; and donors' assistance and private sector engagement in the Sudan.

# Supporting Arab regional priorities

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### Key findings and recommendations

- Least developed countries and conflict-affected and fragile States are lagging farthest behind when it comes to IWRM implementation. They require more targeted support, particularly with respect to addressing transboundary water challenges and accessing climate finance for water.
- With most countries in the region still in the process of drafting or finalizing their national adaptation plans (NAPs), there continues to be ample opportunity to ensure that the water sector and IWRM are taken into account in national planning for climate change.
- Given the Arab region's dire water scarcity challenges, non-conventional water resources are a necessity. Research and development should be undertaken to ensure that non-conventional water resources can be exploited affordably and with minimal environmental impact.
- Water should be protected and prioritized as a natural resource that is essential to life, even and perhaps especially in conflict situations. Any documented incidents in which water is weaponized in a conflict setting need to be condemned by the international community.
- Climate finance for the water sector in the Arab region falls short of meeting the sector's needs and
  is too heavily concentrated in non-concessional debt. Grants and concessional lending to the water
  sector would greatly support IWRM progress and should be sought not only from international
  financial institutions but also from development agencies and lenders within the region.
- Most Arab countries have not performed extensive costing exercises in order to be able to accurately
  reflect their need for finance. Most of these countries also lack a pipeline of bankable water projects
  that can be used to seek financing effectively. Costing and project proposal development is an area
  where intergovernmental organizations can provide much-needed support in order to strengthen
  access to climate finance for the water sector.

### A. Summary of Arab regional priorities for IWRM

The Arab region faces a unique combination of challenges with respect to IWRM implementation. Climate change is the overlapping issue that is likely to exacerbate all others. According to projections from the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR), temperatures in the region will rise four to five degrees Celsius by the end of the century as rainfall variability and the occurrence of extreme weather events will also increase.<sup>42</sup> Climate change will complicate the capacity of countries to respond to other emergency situations, such as conflict, which remains pervasive in the Arab region, making finding ways to continue to support IWRM implementation in situations of conflict and post-conflict an important regional priority. Water scarcity, which is likewise aggravated by climate change, is also increasingly being addressed through the use of non-conventional water resources that have risen to the top of the agenda of national water plans in the region. Access to increased finance in general and climate finance specifically to support IWRM implementation will be key to addressing these challenges; as one of the lower-scoring dimensions in this round of reporting, it warrants further analysis and solution-seeking.

In 2021, the Arab region report on IWRM implementation focused on two regional priorities: groundwater and transboundary water resources. Since the last round of data collection, there has been steady progress in both of these areas (table 8).

With respect to groundwater, the average score for aquifer management has progressed from medium-low (49) to medium-high (52). More importantly, States cited the introduction of new tools, initiatives and policies for groundwater management. Examples include Algeria, where a new tool has been introduced to protect both the quantity and quality of groundwater resources. Two new groundwater management contracts were signed in the country in 2019, and since then, action plans are being implemented in the Adrar and Mitidja aquifers. In Morocco, four groundwater management contracts were signed, and water police have been strengthened in recent years to promote better enforcement of policies protecting aquifers. Oman implemented two large projects to inventory wells. Saudi Arabia and the United Arab Emirates also have programmes and systems in place for monitoring groundwater quality and volume.

	Groundwater	Transboundary						
	3.2b Management instruments	1.2c Arrangements	2.2e Organizations	3.2d Data- sharing	4.2c Financing	Average		
2017	48	37	46	43	33	40		
2020	49	48	52	46	46	48		
2023	52	55	54	54	47	53		

### Table 8. Average implementation scores across the four IWRM dimensions for aquifer and transboundary water management

#### Source: Authors.

Meanwhile, the LDCs and conflict-affected countries, primarily in the Southern subregion, continue to struggle in this area. The Comoros, Iraq, Mauritania, Somalia and Yemen all cited challenges with respect to a lack of monitoring equipment and/or resources to manage and maintain monitoring equipment. In Lebanon, management instruments remain limited and are applied only through short-term or ad hoc projects due to the geology of the country and lack of available resources.

In 2022, ESCWA launched the <u>Improved Water Security in</u> <u>Arab States</u> project, which draws on innovations in water technologies to support countries in monitoring, managing and reporting on groundwater resources. The technical partner is the Arab Center for the Studies of Arid Zones and Dry Lands. One of the outputs is the <u>Arab Groundwater</u> <u>Knowledge Platform</u>.

IWRM implementation with respect to transboundary water resources also improved slightly, with the average score moving from medium-low (48) to medium-high (53) overall and showing improvements across all components, albeit most limited with respect to financing. Progress is most marked with respect to data-sharing (question 3.2d). Djibouti reported sharing water data through the IGAD Drought Disaster Resilience and Sustainability Initiative. Egypt also reported regular data-sharing with the Sudan. Data- and informationsharing is taking place between Lebanon and the Syrian Arab Republic, but this is weakened by conflict and a lack of resources on both sides of the border. Mauritania shares data through the Organization for the Development of the Senegal River. The GCC countries also reported sharing information on transboundary water resources through the Water Resources Committee of the General Secretariat of the GCC.

In 2023, Iraq became the first country from the Arab region to join the United Nations Water Convention, thus demonstrating its commitment to the protection and sustainable management of transboundary water resources.

With respect to transboundary financing, four States (Iraq, Lebanon, State of Palestine, Syrian Arab Republic) said there was no funding allocated or available for transboundary water resources. Four other countries – the Comoros, Kuwait, Oman and Qatar – said it was not applicable or did not provide written commentary.

### B. Climate change mainstreaming in IWRM

For the first time, the 2023 SDG indicator 6.5.1 survey included specific free-text fields on "climate change considerations" for the following five questions: 1.1c National IWRM plans; 2.1b Cross-sector coordination; 2.1e Developing capacity; 3.1e Management to reduce waterrelated disasters; and 4.1b National budget for IWRM. While this does not provide numerical scores on climate change considerations, 15 countries provided responses to these fields, varying from a single sentence to descriptive paragraphs. The responses indicate important progress in this area in reaction to the ever-intensifying impacts of climate change on the Arab region, as evidenced by more frequent and severe natural disasters such as droughts and flooding.

With respect to the coordination between national IWRM plans and climate plans (question 1.1c), only four countries – Jordan, Kuwait, the State of Palestine and the Sudan – mention national adaptation plans (NAPs), and Morocco

has since submitted an NAP. Twenty Arab countries have submitted nationally determined contributions (NDCs) through 2022, and 17 included sections on water.<sup>43</sup> Bahrain includes water in its NDC and has a Green Climate Fund project that is aimed at increasing water resilience against climate change and mainstreaming climate resilience into sectoral water management planning. Egypt has a National Water Resources Plan 2037, which takes into account climate change impacts on water use scenario planning. Iraq is working on incorporating climate change impacts on water in NAP and NDC designs. The most recent NDC update issued by Lebanon in 2021 considers water as a key adaptation priority; the country's NAP is still under preparation. Mauritania considers water in its 4th National Communication Report on Climate Change. For Morocco, recommendations for protecting against floods and droughts are included in the National Water Plan and National Programme for Drinking Water Supply and Irrigation. The Qatar National Vision 2030 planning

document considers climate change impacts on water availability. In the United Arab Emirates, public climate policies integrate water sector concerns. Government initiatives have also been introduced to <u>enhance the climate</u> <u>resilience</u> of the water sector in Oman.<sup>44,45</sup>

Ouestion 2.1b focuses on efforts towards horizontal coordination, involving all relevant national government authorities and sectors in the IWRM process, and includes a free-text response on climate change considerations in terms of this coordination. It received a similar average score in 2023 and in 2020, the highest out of all three reporting exercises, though there is still space for improvement. The Comoros reported a decrease in score due to an inactive water committee. Jordan reported a decrease as well, as joint committees exist but there is a need to increase coordination at a strategic level between the water, energy and agriculture sectors. Tunisia also reported a decrease, citing a need for fundraising to update the Water Code and to promote greater stakeholder engagement around IWRM. The establishment of NAPs and NDCs as well as national climate and water plans could be one way to bring all relevant stakeholders to the table, facilitating better horizontal integration around the topic.

For capacity development (question 2.1e), 70 per cent of countries reported having some form of initiative around developing capacity with respect to climate change adaptation in the water sector. Examples include the Syrian Arab Republic, where the United Nations Educational, Scientific and Cultural Organization (UNESCO), ESCWA, FAO and others have been offering training courses to analyse the impact of climate change on water and agriculture. Saudi Arabia also introduced a monthly seminar for executive master's students that is hosted by the Deputy Ministry of Water and features climate change considerations. Morocco and Egypt reported training initiatives for civil servants, including workshops on climate change.

Every round of reporting has shown consistent improvement in water-related disaster mitigation (question 3.1e). Most countries have a plan or policy in place to address disaster risk reduction for droughts and floods. However, there is a need for more technical tools to support hydrological modelling and the development of early warning systems. Several countries also cited a need for greater disaster risk reduction coordination across relevant actors.

Bahrain reported one of the largest increases in scoring for question 3.1e, from 40 in 2020 to 60 in 2023. This is due to the fact that its Green Climate Fund project supports the development of models measuring the impact of climate change on groundwater. The Comoros also increased its score from 0 in 2020 to 40 in 2023, citing the development of contingency plans for the management of natural disaster risks. Morocco, scoring 60 in 2020 and 70 in 2023, reported that a new Water Act allows for the development of a flood risk prevention plan, though flood and drought management plans have long been in place in the country. Somalia also reported a score increase from 30 in 2020 to 40 in 2023, due to the expansion of the national hydromet network, including meteorological automatic weather stations throughout the country.

In terms of climate change considerations in relation to financing for IWRM (question 4.1b), Egypt reported that the country's platform for the water-food-energy nexus provides opportunities to mobilize climate finance for the water sector. Iraq has some small projects related to climate change impacts on water that are financed collectively by the Ministries of Agriculture and Environment, with financial support from the Green Climate Fund and the Adaptation Fund. In Saudi Arabia, climate change considerations are included in the national budget for IWRM and water infrastructure development activities.

Overall, in almost all countries' replies, the issue of climate change was referred to as an important factor shaping national water resources management regulations, strategies and plans. Priority climate action should focus on water sector adaptation to climate change impacts with increased efforts to move from policy towards action and with increased political and financial support for adaptation measures in the water sector. Climate adaptation requires both a "horizontal" approach (coordination across ministries and sectors) and a "vertical" approach, with commitment from the country's highest level of leadership down emphasizing the importance of addressing climate impacts.



### C. Use of non-conventional water resources

While the use of non-conventional water resources such as treated wastewater, desalination and rooftop rainwater harvesting does not appear in a specific question on the survey, they were mentioned by many Arab countries in different contexts as a potential avenue for addressing increasing water scarcity, which is included in SDG target 6.3.<sup>46</sup> Wastewater treatment was a recurrent topic in relation to question 3.1c on pollution control (table 9). While the average remained unchanged, countries detailed efforts to expand and improve wastewater treatment and water quality monitoring. For example, the United Arab Emirates described efforts to expand wastewater treatment plants. Morocco also cited efforts as part of a National Sanitation and Wastewater Treatment Plan to institute wastewater depollution plans and reuse projects in the Bouregreg and Sebou basins. The Palestinian Water Authority has developed water quality guidelines that allow for the use of treated effluent in agriculture.

Desalination is a topic of growing importance, particularly in GCC countries, as it typically requires cost- and energyintensive infrastructure and has become essential to meeting their water demands (box 5). Efforts to procure financing for desalination and rainwater harvesting are mentioned several times in relation to guestion 4.1a on a national water infrastructure budget for IWRM and guestion 4.2a on a subnational budget for water infrastructure. For example, in Morocco, regions have the possibility to contribute financially to the implementation of non-conventional water resource projects, including desalination and rainwater harvesting. Watershed agencies in the country may also provide grants for projects of this nature. Desalination plants are typically financed at the national level in Algeria. In Egypt, as part of its efforts at transboundary cooperation (question 4.2c), the Ministry of Foreign Affairs provides grants to Nile Basin countries to develop rainwater harvesting dams.

At the policy level, in response to question 1.1a on national water resources policy, Lebanon highlighted the need to



Wastewater treatment plant in Zahle, Lebanon.

develop an IWRM master plan that will incorporate the use of non-conventional water resources. As previously mentioned, Morocco has a National Shared Plan for Liquid Sanitation, Purification and Reuse, which was adopted in 2019 and seeks to optimize the use of treated wastewater. Oman is working on developing a comprehensive national water strategy that will include non-conventional sources such as treated wastewater and desalinated water. Tunisia also has a Reuse Master Plan for the Use of Treated Wastewater. The United Arab Emirates looks to develop a policy for the management of water returned from desalination plants to the sea.

	3.1c Pollution control	4.1a National budget for water infrastructure	4.2a Subnational or basin budget for water infrastructure
2017	52	45	38
2020	56	54	37
2023	56	56	43

### Table 9. Average implementation score across dimensions pertaining to the use of non-conventional water resources

Source: Authors.

### Box 5

### The Gulf Cooperation Council and desalination

The GCC countries are among the most water-scarce countries globally. In addition to scarce and non-perennial surface water, the GCC countries are faced with depleting groundwater resources.<sup>a</sup> In light of economic and population growth as well as urbanization, water consumption has increased, leading to the overextraction of the limited groundwater.<sup>b</sup> With an average per capita share of natural freshwater resources of 120 m<sup>3</sup>/year, and an average per capita annual water consumption of about 800 m<sup>3</sup>/capita/year,<sup>c</sup> the GCC countries have been relying heavily on desalination to fill the gap between supply and demand for fresh water.

Collectively, the GCC countries hold 60 per cent of the world's desalination capacity and produce 40 per cent of the global supply of desalinated water, as they operate over 400 desalination plants.<sup>d</sup> The Saline Water Conversion Corporation of Saudi Arabia stands out as the largest desalination company worldwide, contributing approximately 20 per cent of the global desalinated water output.<sup>e</sup> Yet, the reliance on desalination varies between countries. For instance, Kuwait leads with 90 per cent of its water consumption met through desalination,<sup>f</sup> followed by Qatar at 87 per cent, Saudi Arabia at 50 per cent, the United Arab Emirates at 42 per cent, Bahrain at 36 per cent and Oman at 27 per cent.<sup>g</sup> Across the GCC, desalinated water is predominantly used for municipal purposes, with the industrial sector being the second-largest consumer.<sup>h</sup>

Under the guidelines of the GCC Unified Water Strategy (2016–2035), GCC countries aim to ensure that by 2035, at least 10 per cent of the region's total desalination capacity is locally manufactured and owned.<sup>1</sup> In line with these targets, Oman seeks to ramp up its investments in desalination with a more than \$300 million investment in expanding the Ghubrah plant.<sup>1</sup> Similarly, Qatar plans to establish a new desalination plant with a production capacity of 130 million gallons per day.<sup>k</sup>

With the anticipated growth in desalination capacity within the GCC, it is crucial to acknowledge the associated challenges. Desalination remains an energy-intensive process. More sustainable solutions are required, such as the use of renewable energy in the desalination process. Saudi Arabia, with NEOM, is taking proactive steps in this direction, tying desalination plants to renewable energy resources.<sup>1</sup> The United Arab Emirates is also developing solar-powered desalination plants, and Oman is incorporating renewable energy in its capacity expansion plan.<sup>m</sup>

Desalination causes significant ecological challenges due to brine discharge and air pollution. Innovative solutions are emerging to mitigate these effects. For instance, as reported in the recent SDG indicator 6.5.1 survey, the United Arab Emirates is currently developing policies to manage brine discharge.<sup>n</sup>

While desalination remains a key solution for water-scarce GCC countries, given the aforementioned challenges, exploring other non-conventional water resources such as treated wastewater reuse is also essential.<sup>o</sup>

- <sup>a</sup> Sherif and others, 2023b.
- <sup>b</sup> Moossa and others, 2022; Sherif and others, 2023b; El Tayeb El-Kogali, 2024.
- <sup>c</sup> Tashtush, Al-Zubari and Al-Haddad, 2023.
- <sup>d</sup> Eyl-Mazzega and Cassignol, 2022; Chibani, 2023.
- <sup>e</sup> El Tayeb El-Kogali, 2024.
- <sup>f</sup> Chibani, 2023.
- <sup>g</sup> Sherif and others, 2023a.
- <sup>h</sup> Sherif and others, 2023b.
- <sup>i</sup> Moossa and others, 2022.
- <sup>3</sup> Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at <u>https://iwrmdataportal.unepdhi.org/country-reports;</u> Nama Power and Water Procurement, 2024.
- <sup>k</sup> Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at https://iwrmdataportal.unepdhi.org/country-reports.
- <sup>1</sup> Chibani, 2023.
- $^{\rm m}$  Sherif and others, 2023b.
- <sup>n</sup> Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at https://iwrmdataportal.unepdhi.org/country-reports.
- ° El Tayeb El-Kogali, 2024.

Overall, given the growing water scarcity challenges, nonconventional water resources are likely to become a topic of growing importance on the IWRM implementation agenda, as they will play a crucial role in achieving SDG 6 in the Arab region. Efforts should be made not only to provide appropriate financial and technical support to the development of these resources but also to create policies that prioritize the use of non-conventional resources. Additionally, capacity development and community engagement will be needed to alleviate the stigma around the use of resources such as treated wastewater. Another important emerging use of non-conventional water resources is the use of desalinated water for agriculture, as evidenced in Morocco. This is bound to increase as countries struggle to meet the water demand of the agriculture sector with important social ramifications and water and food security concerns.

### D. Supporting IWRM in LDCs and conflict-affected contexts

All of the Arab countries that scored either medium-low or low on the SDG indicator 6.5.1 survey are classified by the United Nations and/or the World Bank as being a least developed, conflict-affected and/or fragile country (table 10). It is important to note that both the Sudan and Yemen carried over their scoring from the prior data collection round, partly due to resource and institutional constraints resulting from ongoing conflict. Most of the Arab countries identified in table 10 performed poorly across all dimensions of IWRM implementation, with few exceptions. Additionally, Mauritania and the Syrian Arab Republic, classified as an LDC and conflict-affected country, respectively, scored medium-high on IWRM implementation but still identified many challenges to achieving further progress due to low levels of development and ongoing conflict (see box 6 for more on the Syrian Arab Republic).

### Table 10. Arab countries with LDC and/or fragile and conflict-affected status and their IWRM progress

	Least developed country (LDC)	Fragile and conflict- affected	Degree of IWRM implementation
Comoros	Х		Low
Djibouti	Х		Low
Iraq		Х	Medium-low
Lebanon		Х	Medium-low
Mauritania	Х		Medium-high
Somalia	Х	Х	Medium-low
State of Palestine		Х	Medium-low
Sudan	Х	Х	Medium-low
Syrian Arab Republic		Х	Medium-high
Yemen	Х	Х	Medium-low

Source: World Bank, List of fragile and conflict affected situations, n.d.; United Nations, List of LDCs, n.d.

### Box 6

### Polycrisis and integrated water resources management in the Syrian Arab Republic

The protracted war in the Syrian Arab Republic has disrupted the country's IWRM efforts and hindered reconstruction plans amid worsening socioeconomic conditions, exacerbated by sanctions and loss of human capital.

The Syrian conflict has led to widespread damage to water and wastewater infrastructure, including water treatment plants, pumping stations and water towers.<sup>a</sup> Thus, water access has decreased by approximately 40 per cent compared to a decade ago, and untreated wastewater discharge has led to an increase in health risks and groundwater resource contamination.<sup>b</sup>

The impact of the war extends beyond the material assets and is depicted through significant loss of human capital. For instance, State utilities that manage the water facilities in the Syrian Arab Republic have reported a decrease of 30 to 40 per cent in their technical staff, who have either fled the country or retired.<sup>c</sup>

International sanctions have further hampered these challenges, particularly impacting sectors vital for national recovery. Sanctions restrict access to crucial water sector goods, such as chlorine products, pumps, generators and membranes,<sup>d</sup> services and technology that are essential for water management and infrastructure rebuilding.<sup>e</sup> Regional and international banks and organizations, in their efforts to comply with sanctions, have caused delays and cancellations from suppliers, which has increased costs and extended timelines for water, sanitation and hygiene (WASH) projects.<sup>f</sup>

In light of limited financial resources, the development of water management capabilities and long-term sustainability goals has been halted, with the diversion of funds towards immediate humanitarian needs and military expenditures. Additionally, the lack of financial resources hinders the provision of training programmes for technical staff and capacity-building opportunities, which leads to further human capital loss. Financial constraints have also impeded previous productive data-sharing and collaboration efforts between the Syrian Arab Republic and Lebanon on transboundary water resources.

Although initiatives in collaboration with international organizations are in place that are aimed at climate change mitigation and adaptation in terms of water and agriculture, their effectiveness is limited, as the geographical coverage of these projects is reduced, and international donors are often reluctant to commit resources to a conflict zone.<sup>g</sup>

Overall, the prolonged war, coupled with economic sanctions, brain drain, natural disasters such as the 2023 earthquake and limited international investments have impaired the country's water management infrastructure and capabilities. To alleviate its financial constraints, the Syrian Government plans to implement more effective revenue collection mechanisms, replacing the current symbolic fees. With an increased funding capacity, the Government intends to prioritize water-related projects, enhance the budget dedicated to monitoring devices and climate adaptation projects, and provide capacity-building opportunities.

- <sup>a</sup> UN-Habitat, 2022; Sustainable Development Goal 6.5.1 Survey Country Reports, 2023. Available at <u>https://iwrmdataportal.unepdhi.org/country-reports;</u> Lund, 2023.
- <sup>b</sup> ESCWA. E/ESCWA/CL3.SEP/2023/TP.8.
- <sup>c</sup> Lund, 2023.
- <sup>d</sup> ESCWA. E/ESCWA/CL3.SEP/2023/TP.8.
- <sup>e</sup> Human Rights Watch, 2023.
- <sup>f</sup> ESCWA. E/ESCWA/CL3.SEP/2023/TP.8.
- <sup>g</sup> UN-Habitat, 2022.

Conflict has many implications for a country's capacity to implement objectives related to SDG 6. Throughout its survey responses, the State of Palestine emphasized how the administrative and military control of the State by Israel hinders the development of water resource infrastructure and the management of transboundary water resources (box 7). In response to question 1.2c, Somalia also highlighted complicated efforts at transboundary water resource management with neighbouring countries, which is due in part to a history of conflict. Efforts must be made to ensure that cooperation around water resources is prioritized and maintained even and especially in contexts of conflict, in which water is considered a resource that is essential to life and is therefore protected by international humanitarian law.

LDCs, fragile and conflict-affected countries also struggle with lack of access to finance to support IWRM objectives, as evidenced by their responses to questions on the

financing dimension. The Comoros and Yemen commented that there was no national budget allocated towards IWRM implementation, while Djibouti, Lebanon, Mauritania, the State of Palestine and the Syrian Arab Republic all said that the allotted resources from the national budget are minimal. Financial institutions and donors are often hesitant to provide funds to fragile and conflict-affected countries due to institutional instability. Also, these same countries are challenged when it comes to developing bankable project proposals due to a lack of human resources, as many of the most highly trained water professionals will opt to emigrate. This makes proposals for regional projects particularly powerful for fragile and conflictaffected countries that may struggle to develop project proposals alone at the national level without regional and/ or international support. Also, less risk-averse financing options need to be made available to support IWRM implementation in the Arab countries that are farthest behind and in need of financial support.



### Box 7

### Integrated water resources management and the impact of the war on Gaza

Since beginning in October 2023, the war on Gaza has significantly damaged critical water infrastructure, exacerbating pre-existing vulnerabilities in IWRM. Water has effectively been weaponized by depriving Gazans of this life-giving resource.<sup>a</sup>

An interim damage assessment estimates that 67 per cent of the water infrastructure in Gaza has been damaged or destroyed.<sup>b</sup> Damaged infrastructure includes pipelines, wells, wastewater treatment plants and maintenance depots. For instance, five of the six solid waste treatment plants in Gaza and 162 wells have been targeted, with damage valued at \$502,711,000.<sup>c</sup>

The conflict has disrupted essential services, amplifying the political and ecological challenges faced by the Palestinian Water Authority in terms of control and access to water resources.<sup>d</sup> With 97 per cent of the groundwater in Gaza contaminated due to overextraction, seawater intrusion and pollutants from military operations prior to the present conflict,<sup>e</sup> the Palestinian Water Authority resorted to importing drinking water through Mekorot, the Israeli national water company.<sup>f</sup> Gaza was thus dependent on three Mekorot drinking water pipelines.<sup>g</sup> However, in light of the conflict, only one of the three pipelines<sup>h</sup> remains operational at 47 per cent of its capacity.<sup>i</sup> With the lack of fuel and electricity, this blockade has not only compelled the closure of all five wastewater treatment facilities in Gaza<sup>i</sup> but has also halted the operation of water purification and desalination systems, either fully or partially.<sup>k</sup> The availability of drinking water has decreased to dire levels.

By 18 October 2023, the population of Gaza had lost 97 per cent of its average daily water requirement.<sup>1</sup> Water scarcity and poor water quality have created a cycle of health crises. The latter results from a surge in vector-borne diseases in conjunction with inadequate water, sanitation and hygiene (WASH) and healthcare facilities.<sup>m</sup> This is further evidenced with the detection of poliovirus at six sewage locations in Gaza<sup>n</sup> and the declaration of the virus as an epidemic in Gaza.<sup>o</sup>

Women and girls are disproportionately affected by the deterioration of WASH systems, with over 1.1 million in need of access to sufficient and safe water.<sup>p</sup> Restricted access to resources leads to gendered consequences, with increases in health risks, inadequate menstrual health management and exposure to infectious diseases while caring for sick family members.<sup>q</sup>

- <sup>a</sup> E/ESCWA/CL1.CCS/2023/Policy brief.5.
- <sup>b</sup> WHO, 2024.
- <sup>c</sup> World Bank, European Union and United Nations, 2024.
- <sup>d</sup> SDG indicator 6.5.1: Monitoring Guide, 2023.
- <sup>e</sup> Al-Muhannadi and Buheji, 2023; ESCWA, 2023c; Anera, 2024.
- <sup>f</sup> Rock, Rock and Grandavenir LLC, 2022.
- <sup>g</sup> Norwegian Refugee Council, 2023.
- <sup>h</sup> World Bank, European Union and United Nations, 2024; Zeitoun and others, 2024.
- <sup>i</sup> Anera, 2024.
- <sup>j</sup> Hall, Kirschenbaum and Michel, 2024.
- <sup>k</sup> ESCWA, 2023c; Anera, 2024.
- <sup>I</sup> OCHA, 2023.
- <sup>m</sup> Anera, 2024; Hall, Kirschenbaum and Michel, 2024; Zeitoun and others, 2024.
- <sup>n</sup> UNICEF, 2024; WHO and United Nations Office at Geneva, 2024.
- <sup>o</sup> Ministry of Health, State of Palestine, 2024.
- <sup>p</sup> UN-Women, 2024.
- ۹ Ibid.

### E. Climate finance to support IWRM

While an analysis of the financing dimension was provided in chapter 3, a more in-depth focus on climate finance is warranted. Given that finance was the lowest-scoring dimension, it is surprising that only one country – Somalia – mentioned improving access to climate finance as a priority in annex B of the SDG indicator 6.5.1 survey.<sup>47</sup> LDCs and conflict-affected countries are the most behind on this issue. The Comoros and Yemen have no national budget allocation for IWRM, and Lebanon recorded a score of 0 for the second time in a row for question 4.1b on national budget allotments for IWRM implementation.

According to their NDCs and other reports submitted to the United Nations Framework Convention on Climate Change (UNFCCC), Arab countries require at least \$127.46 billion for adaptation in the water sector, as only seven countries have costed their water-related adaptation finance needs.<sup>48</sup> In the last decade, the Arab region received only \$6.9 billion in water-related international public climate finance.<sup>49</sup> Most of the financing received was in the form of non-concessional debt (81 per cent). Furthermore, six LDCs – the Comoros, Djibouti, Mauritania, Somalia, the Sudan and Yemen – received only 6.5 per cent of the aforementioned climate finance flows.<sup>50</sup>

Intergovernmental agencies such as ESCWA can play a critical role in supporting Arab countries with efforts to cost their climate finance needs, develop a pipeline of bankable

water-related adaptation projects and improve access to international climate finance funds. The <u>Arab Initiative for</u> <u>Mobilizing Climate Finance for Water</u>, launched by ESCWA in 2023 in partnership with the League of Arab States, the Islamic Development Bank, the Green Climate Fund, the Food and Agriculture Organization of the United Nations, and the Government of Sweden is one example. This initiative aims to support countries in mobilizing finance for water projects that respond to climate change impacts by providing Arab countries with tailored training and technical support to prepare evidence-based project pipelines on climate finance for water, including national, regional and multi-country projects.

Furthermore, regional development funding should also be encouraged, with wealthier countries in the region providing funding for water projects to LDCs and conflict-affected countries in an effort that will improve overall regional stability and facilitate the attainment of SDG 6 (see also chapter 5 section B).

### Accelerating IWRM achievement in a polycrisis context

5

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### A. Political context for IWRM implementation in the Arab region

Momentum has been building around the water sector with respect to the achievement of the SDGs globally and in the Arab region in particular over the last several years, given the severe water-related challenges the region faces compounded by the impacts of climate change. On the global level, the Water Action Decade (2018–2028) and the 2023 United Nations Water Conference helped to motivate political action around IWRM, with Arab countries making at least 20 commitments. Looking towards the near future, the 2026 United Nations Water Conference will be held in the United Arab Emirates, co-hosted by the United Arab Emirates and Senegal, furnishing another opportunity for regional policymakers to engage with global leadership around IWRM and SDG 6 achievement. Furthermore, Saudi Arabia will host the World Water Forum in 2027, which will provide an optimal way to highlight regional challenges, needed initiatives and achievements with respect to IWRM advancement.

At the regional level, IWRM implementation benefits from the High-Level Joint Water-Agriculture Technical Committee formed under the auspices of the Arab Ministerial Water Council and the Arab Organization for Agricultural Development. Collectively, these entities enhance crosssectoral collaboration and coordination which may lead to better IWRM outcomes. The updated action plan for the Arab Water Security Strategy from the Arab Ministerial Water Council also focuses on IWRM as a tool for improving water security in the Arab region.

While progress has been made across many of the goals highlighted in the 2021 IWRM report on the Arab region, many of these objectives also remain valid and will require greater efforts going forward. They include: strengthening political will to advance IWRM implementation; coordinating financing and leveraging climate financing; ensuring coherent governance within and across sectors; improving the availability and accessibility of data and information; building capacity and engaging research; leveraging innovation and technologies; unleashing the potential of women and young persons; and reaching gender equality. Progress towards these prior goals and opportunities for further improvements are highlighted in the sections that follow.

### B. Summary of the findings on SDG indicator 6.5.1 in the Arab region and the sociopolitical context

While 2023 marked a year of progress towards attaining SDG indicator 6.5.1 targets in comparison to the previous round of data collection in 2020, the progress has markedly slowed when compared to the gains realized between 2017 and 2020. This could be due to a variety of factors. First, starting in 2017 with a medium-low average score for the region (48) – as is often the case in economic growth scenarios - the initial gains are the largest because they represent efforts to address the most pressing and apparent challenges. Over time, as greater levels of development are achieved, progress slows from the spurts in the earlier stage. A similar dynamic may be applicable in the case of IWRM implementation in the Arab region, where the initial gains were the most notable. The Southern subregion, for example, made its most important gains in 2023 in comparison to 2020 (4 points), after regressing during the period from 2017 to 2020 (-1).

However, the countries that have received the lowest IWRM implementation scores in the past remain low achievers. Only Bahrain and Mauritania advanced off the prior list of not being able to meet the IWRM implementation targets. The State of Palestine, on the other hand, saw a decline in progress and dropped to being unlikely to meet global targets.

The State of Palestine is an exemplar of the second factor that has likely slowed IWRM progress over the last several

years: conflict and sociopolitical turmoil. The Arab region has borne witness to severe and enduring conflict in several countries, which results in a divergence of resources away from the water sector, damage to critical water infrastructure (sometimes intentionally as an act of war) and political turmoil. These are all factors that halt progress.

It should also be noted that the reported progress or regression between reporting rounds could be due to differences of perception in IWRM status by country reporting teams. This is an extra incentive to ensure wide participation in the reporting rounds from various stakeholders, which would limit the influence of the perception of a smaller group from one entity.

Additionally, the impacts of climate change in the form of weather extremes and natural disasters are more frequent and more severe than they have been in the past and show no signs of slowing. The collapse of the Derna dam in Libya, which is why Libya was unable to complete the SDG indicator 6.5.1 survey in 2023, is indicative of the challenge at hand. The Derna incident is perhaps the most extreme example, but extreme temperatures, flooding, drought, and sand and dust storms continue to impact the Arab region, with the most vulnerable countries, primarily the Southern subregion, being both the most exposed to natural disasters and the most lacking in capacity to invest in adaptation solutions.

Institutions and participation	GCC	Maghreb	Mashreq	Southern	Arab region
Vulnerable groups' participation – 2020	80	67	30	10	36
Vulnerable groups' participation – 2023	80	33ª	42	20	38
Gender mainstreaming in water resources management – 2023	88	60	57	40	61

### Table 11. Inclusion of vulnerable groups and gender mainstreaming in IWRM, 2017, 2020 and 2023

<sup>a</sup> The decline in scores for the Maghreb is due in part to an increased understanding of the question in 2023.

### Table 12. Cross-sector coordination in IWRM, 2017 and 2023

Institutions and participation	GCC	Maghreb	Mashreq	Southern	Arab region
Cross-sector coordination – 2017	78	62	50	40	60
Cross-sector coordination – 2023	92	68	63	56	70

### Source: Authors.

The last edition of this report highlighted the need for improved inclusion of women and other vulnerable groups in IWRM. The 2023 survey results (table 11) indicate only very marginal improvement with respect to the inclusion of vulnerable groups and modest levels of achievement for gender inclusion, which is also detailed in the analysis of the second dimension of IWRM.

Recommendations were also directed towards improved cross-sector coordination in the last IWRM regional report. In this area, improvements have been made for the Arab region overall and in every subregion.

Looking towards the 2030 target of at least 91 per cent IWRM implementation, it is clear that this goal cannot be reached at the regional level unless great efforts are directed towards the lowest-scoring countries in the region, which remain mired in situations of lowlevel development and, in many cases, conflict. The gap between the highest-scoring subregion (GCC) and the lowest-scoring subregion (Southern) widened from 33 points in 2017 to 49 points in 2023. With the wealthiest countries in the region on track to meet SDG indicator 6.5.1 targets, the focus should shift towards ensuring that the most vulnerable countries in the region and their people are not left behind when it comes to the attainment of crucial water development goals.

In addition to prioritizing support to the Southern subgroup across all IWRM dimensions, the SDG indicator 6.5.1 survey results and analysis indicate the need for additional efforts on several recurrent themes: translating IWRM laws, policies and management tools from the national level to the subnational and regional (transboundary) levels, prioritizing IWRM within the climate action agenda, and increasing financial flows for IWRM implementation. Several key recommendations to accelerate solution-seeking around these key challenges are described herein.

### C. Prioritizing support to Southern subgroup countries

The Southern subgroup is the lowest-scoring subregion across all IWRM dimensions by a wide margin. As previously mentioned, the gap between the high and low achievers is only increasing. Many of the challenges impacting countries in this grouping are multidimensional in nature and require comprehensive reforms that stretch beyond the water sector. Nonetheless, there are key actions that can be taken through the water and development lens to accelerate IWRM achievement.

### Key findings and recommendations

- Encourage high-income countries in the region to provide development finance for water to the Southern subregion. To close the IWRM achievement gap, development financing entities in the GCC should take a more active role in supporting IWRM implementation in the Southern subregion. The Kuwait Fund, the Abu Dhabi Fund for Development, the Saudi Fund for Development and the Islamic Development Bank support a variety of water projects in the region. The Kuwait Fund, for example, has provided financial support to the sewage sectors in Somalia and Yemen. Lending and providing grants for IWRM in the Southern subregion is also beneficial to wealthier donor countries in the Arab region, as it can be calculated as official development assistance and thus supports the goal of countries including Saudi Arabia to be seen as global champions of sustainable development.<sup>51</sup>
- United Nations entities, together with government counterparts, should coordinate foreign aidfunded IWRM projects at the national and regional level. Countries in the Southern subregion often receive support for the water sector in the form of one-off projects that are based on donor rather than recipient priorities. United Nations entities, such as the United Nations Resident Coordinator System, should play an active role in organizing the portfolio of IWRM projects funded by international donors in the country and act as interlocuters with government officials, supporting them to identify and voice the needs of the water sector. The United Nations can use its convening power to ensure that international donors are addressing actual IWRM needs and that all related projects are being implemented in a coordinated and sustainable manner.
- Provide technical support for the development of bankable project proposals. The lack of
  project costing and bankable project pipelines is a major hurdle that impedes the access of
  countries in the Southern subregion to much-needed technical and financial support for the
  water sector. Efforts such as the Arab Initiative for Mobilizing Climate Finance for Water, led by
  ESCWA, the Green Climate Fund, the Food and Agriculture Organization of the United Nations, the
  Government of Sweden and the Islamic Development Bank, may help to address this challenge by
  supporting countries in the Southern subregion to engage in capacity-building for the preparation
  of bankable project proposals. Saudi Arabia has also advocated for the establishment of an
  Arab water economics centre to provide countries in the Arab region with assistance in the
  development of bankable water projects.<sup>52</sup>
- Promote efforts to ensure grant financing for heavily indebted poor countries (HIPCs) in the region • and to promote IWRM prioritization to countries already benefiting from debt relief. The Comoros, Somalia and the Sudan are all considered HIPCs by the World Bank. All three countries identified lack of finance as a constraint in their SDG indicator 6.5.1 survey responses, with the Comoros scoring only 4 points in the financing dimension, the lowest in the sample. All entities providing funds for the water sector should focus on offering grants to these three countries in particular. Though it goes beyond the scope of IWRM alone, debt relief should be a top priority on the development assistance agenda for HIPCs in the region, as this will be a key component to freeing up public funds for investment in the water sector. In December 2023, Somalia benefited from the International Monetary Fund (IMF) and World Bank's Heavily Indebted Poor Countries (HIPC) Initiative, which led to a reduction in external debt from 64 per cent of gross domestic product (GDP) in 2018 to 6 per cent of GDP by 2023.53 The Sudan was also approved by the World Bank to receive debt relief in 2021. In these cases, it is important to ensure that funds that otherwise would have been directed towards servicing foreign debt be redirected towards development needs, including IWRM implementation.

### D. Increasing financial flows to support IWRM implementation

The financing dimension remains the lowest-scoring dimension for the Arab region as a whole and half of the subregions

(Mashreq and Southern). Access to sufficient finance will be key to accelerating the achievement of IWRM targets in the region.

### Key findings and recommendations

- Focus on improving technical and management capacity and regulatory frameworks to boost cost recovery and access to private sector finance. It is important to recognize the essential interlinkage between the IWRM dimensions when it comes to access to finance for the water sector. A lack of management capacity and a poor regulatory framework will result in poor cost recovery, which creates a weak incentive for investment in the water sector, particularly from the private sector. Technical assistance efforts should be aimed at developing regulatory and management capacities that show a commitment to cost recovery and realized improvements. This will lead to a better business environment for IWRM investments.
- Increase water professionals' understanding of finance mechanisms and vice versa. Only three countries mentioned the need to improve national budget allocations to the water sector in response to annex B question 1.<sup>54</sup> This indicates that water-related technical staff should be more attuned to the financing needs for the sector. Conversely, officials from ministries of finance and central banks should also be more informed on the needs of the water sector. Efforts should be made to bring these actors into the same space and to support knowledge exchange. The IWRM consultation process could provide one medium for this. National climate consultations could also be a relevant opportunity for bringing public finance and water officials into the same space.
- Prioritize IWRM finance for fragile and conflict-affected countries. Fragile and conflict-affected countries, along with LDCs, are the Arab countries that struggle the most to access IWRM-related finance. One way to address this challenge is to promote the inclusion of the water sector in climate, peace and security projects, which is a topic of growing prevalence in the Arab region. Furthermore, climate projects can include peace and security assessments as well as tools and provisions for managing conflict risks and potential impacts on climate adaptation project implementation.<sup>55</sup>

### E. Translating laws, policies and management tools from the national level to regional (transboundary) and subnational levels

Gaps were apparent in subnational and/or transboundary performance versus national performance across all IWRM dimensions. While water resources have come to be viewed and managed as national assets, water is inherently both localized and transboundary in nature and IWRM implementation should reflect this.

### Key findings and recommendations

Support and expand regional and international efforts at transboundary cooperation. While policy
and legal structures to support IWRM at the transboundary level are few in the region, United Nations
entities and other international governmental organizations should expand and fortify their roles as
convening bodies, and bring all relevant stakeholders to the table to first promote transboundary
cooperation and then provide space and support to cultivate the legal and regulatory tools to make
this a reality. Support can also be provided for more countries in the region to make use of existing
instruments such as the United Nations Water Convention and the United Nations Convention on the
Law of the Non-navigational Uses of International Watercourses.

Strengthen collaboration between stakeholders at the basin level and national governments. As the
gap between national and subnational efforts at establishing institutions and stakeholder engagement
widens, efforts should be made to include basin-level water user associations, with a focus on the
most vulnerable stakeholders, in national IWRM consultations. One way to do so is by using the SDG
indicator 6.5.1 Stakeholder Consultation Manual as a tool for supporting IWRM consultations that can
lead to greater collaboration around the water sector overall.

Prioritize financing for subnational and transboundary IWRM projects. Developing transboundary-level
water projects may help to increase overall access to climate finance for the Arab region while also
accomplishing important IWRM objectives across several dimensions. Financing subnational IWRM
projects may be particularly relevant in fragile and conflict-affected countries where the national
government faces implementation challenges and working with local-level water user and basin
associations may be preferable.

### F. Continuing to emphasize water resources in the climate action agenda

While SDG 6 – ensuring clean water and sanitation for all – is recognized as the water SDG, improved IWRM has ripple effects across all SDGs, including SDG 13 on climate action. Survey responses universally indicated concern for the increasingly severe impacts of climate change on water resources and the need for action.

### Key findings and recommendations

- Integrate IWRM in all national adaptation plans (NAPs). Many countries in the region are still in the process of drafting their NAPs, indicating an opportunity for incorporating the water sector into their national climate action strategy.
- Dedicate resources to reducing the environmental impacts of non-conventional water resources. As non-conventional resources grow in importance as an essential water resource for Arab countries, research and development to increase the use of renewable energy in the desalination process and to reduce brine discharge and air pollution from the process is essential to limit the water sector's mid- to long-term contribution to climate change. Furthermore, increases in wastewater reuse can reduce the need for desalination.
- Promote greater access to climate finance for water. Most of the funding for IWRM comes from
  national budgets, but as the water sector gains importance on the climate action agenda, there are
  ripe opportunities to access financing from the Green Climate Fund or the Adaptation Fund, among
  other sources. Ensuring the inclusion of the water sector in newly drafted or revised NAPs is an
  important start in this area. Next, preparing bankable projects that seek to address climate change
  impacts on water is essential. The United Nations and other international governmental organizations
  should also seek to prioritize technical assistance in this area. The ESCWA Climate/SDG Debt Swap
  Mechanism is another potential opportunity for the United Nations to facilitate access to climate
  finance for IWRM advancement in the Arab region.<sup>56</sup>

# Annex 1. Sustainable Development Goal indicator 6.5.1 survey overview

### Section 1: Enabling environment

### 1.1 Status of policies, laws and plans to support IWRM at the national level:

- 1.1a National water resources policy, or similar
- 1.1b National water resources law(s)
- 1.1c National integrated water resources management (IWRM) plans, or similar

### 1.2 Status of policies, laws and plans to support IWRM at other levels:

- 1.2a Sub-national water resources policies or similar
- 1.2b Basin/aquifer management plans or similar, based on IWRM
- 1.2c Arrangements for transboundary water management
- 1.2d Sub-national water resources regulations (laws, decrees, ordinances or similar)

### Section 2: Institutions and participation

### 2.1 Status of institutions for IWRM implementation at the national level:

- 2.1a National government authorities for leading IWRM implementation
- 2.1b Coordination between national government authorities representing different sectors
- 2.1c Public participation in water resources, policy, planning and management at national level
- 2.1d Private sector participation in water resources development, management and use

2.1e Developing IWRM capacity

### 2.2 Status of institutions for IWRM implementation at other levels:

- 2.2a Basin/aquifer level organizations for leading implementation of IWRM
- 2.2b Public participation in water resources, policy, planning and management at the local level
- 2.2c Participation of vulnerable groups in water resources planning and management
- 2.2d Gender mainstreaming in water resources management
- 2.2e Organizational framework for transboundary water management

2.2f Sub-national authorities for leading IWRM implementation

### Section 3: Management instruments

### 3.1 Status of management instruments to support IWRM implementation at the national level:

3.1a National monitoring of water availability (incl. surface and/or groundwater)

- 3.1b Sustainable and efficient water use management at the national level (incl. surface and/or groundwater)
- 3.1c Pollution control from the national level

3.1d Management of water-related ecosystems and biodiversity from the national level

3.1e Management instruments to reduce impacts of water-related disasters - national level

### 3.2 Status of management instruments to support IWRM implementation at other levels:

3.2a Basin management instruments

3.2b Aquifer management instruments

3.2c Data and information sharing within countries at all levels

3.2d Transboundary data and information sharing between countries

### **Section 4: Financing**

### 4.1 Status of financing for water resources development and management at the national level:

4.1a National budget for water resources infrastructure (investment and recurrent costs)

4.1b National budget for IWRM elements (investments and recurrent costs)

### 4.2 Status of financing for water resources development and management at other levels:

4.2a Sub-national or basin budgets for water resources infrastructure (investment and recurrent costs)

4.2b Revenues raised for IWRM elements

4.2c Financing for transboundary cooperation

4.2d Sub-national or basin budgets for IWRM elements (investment and recurrent costs)

### Calculation of the national SDG 6.5.1 score (Degree of IWRM implementation 0-100)

Each question scored out of 100. (Section 1 average score + Section 2 average score + Section 3 average score + Section 4 average Score) / 4 = national SDG 6.5.1 score

### Annexes

Annex A: Glossary

Annex B: Key priorities and targets for IWRM implementation

Annex C: 6.5.1 country reporting process form

Download full survey and supporting materials from the IWRM Data Portal: http://iwrmdataportal.unepdhi.org/

## Annex 2. National Sustainable Development Goal indicator 6.5.1 data: IWRM implementation

### IWRM implementation categories and score thresholds

Very low	Low	Mediur	n-low Me	dium-high	High	١	/ery high
0-10	11-30			-70		<u>c</u>	91-100
			S1	S2		S3	S4
Countries		Final IWRM	Average	Averag	e	Average	Average
		score	Enabling environmen	t Institution t participat	ons Ma in	anagement struments	Financing
Algeria		60	56	55		64	63
Bahrain		59	60	66		56	53
Comoros		25	35	30		31	4
Djibouti		24	26	20		38	10
Egypt		63	61	63		62	65
Iraq		44	39	53		56	27
Jordan		64	73	59		69	55
Kuwait		95	90	100		88	100
Lebanon		33	40	45		30	17
Libyaª		60	54	67		60	60
Mauritania		53	63	64		38	47
Morocco		70	70	70		69	70
Oman		80	90	84		86	60
State of Palestine		41	63	40		33	27
Qatar		90	85	94		88	92
Saudi Arabia		83	87	70		81	93
Somalia		34	37	44		33	22
Sudan		34	43	35		36	23
Syrian Arab Repub	lic	63	79	65		60	47
Tunisia		60	59	61		51	67
United Arab Emirat	tes	83	77	85		76	95
Yemen		36	50	47		36	12

<sup>a</sup> Libya did not report in 2023 but 2020 data are shown.

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## Endnotes

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- 18 SDG 6 IWRM Support Programme. Available at https://www.gwp.org/en/sdg6support/.
- 19 According to annex C of the IWRM survey, 0–10 stakeholder groups involved = low stakeholder engagement; 11–20 = medium engagement; 20+ = high engagement.
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- 23 Annex B question 2 asks countries to provide their "business-as-usual" projected scores for 2030 and their national targets for 2030 across the four IWRM dimensions. For more information please visit: <u>https://iwrmdataportal.unepdhi.org/data-collection</u>.
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- 35 "Enhanced institutional capacity and knowledge management to mainstream climate resilience into sectoral water management planning" in Bahrain.
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- 37 E/ESCWA/CL1.CCS/2023/1.
- 38 The areas with the greatest need for capacity development are focused on data collection and analysis methodologies along with geospatial tools, among other areas.
- 39 The ecological flow requirement (or "eflow") may be defined as the amount and quality of water required for an ecosystem (and the life it encompasses) to thrive and provide services. Source: European Commission: Directorate-General for Environment, 2016.
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- 45 "Enhancing the water resilience against climate change" (2019–2024) for "enhanced institutional capacity and knowledge management to mainstream climate resilience into sectoral water management planning".
- 46 SDG target 6.3 reads: "By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally".
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As the impacts of climate change on the Arab region intensify and socioeconomic and political challenges – including conflict – persist, efforts to secure access to safe and reliable water supplies are of primary importance. In this context, this document serves as the third progress report on Sustainable Development Goal indicator 6.5.1 on the implementation of integrated water resources management (IWRM) in the Arab region, highlighting challenges and opportunities to advance implementation.

While the average IWRM implementation level for the Arab region is on par with global progress, it is marked by great disparity between the highincome countries and the least developed and conflict- and crisis-affected countries of the region. Overall, Arab countries have scored a slight increase in IWRM implementation compared to the 2020 scores, but progress is decelerating. Closing the achievement gap between high- and low-income and crisis-impacted countries in the region is crucial to IWRM implementation, as well as to the achievement of the goals laid out in the International Decade for Action, "Water for Sustainable Development", 2018–2028.

