

How to ensure water resources management supports climate-resilient development in Jordan

ABOUT THIS BRIEF

Water is a ‘climate connector’ – impacts of climate change on water will flow through all sectors of the economy and across national borders. This brief explains why integrated approaches to water management are essential for climate-resilient development, how Jordan has laid a solid foundation in that sense, and what needs to change if Jordan is to meet its commitments under the Paris Agreement and achieve the Sustainable Development Goals (SDGs).

SDG target 6.5, on integrated water resources management (IWRM), can make that climate connection. This brief looks at all four dimensions of IWRM, namely the enabling environment, institutions and participation, management instruments, and financing.

RECOMMENDATIONS

Key stakeholder(s)	Recommendation
Ministry of Environment (MoE), supported by Ministry of Water and Irrigation (MoWI) and Ministry of Local Administration (MoLA)	1 To support climate resilience nationally and in urban areas, key upcoming strategies, including revision to the 2021 Nationally Determined Contribution (NDC) and the National Adaptation Plan (NAP), can increase the emphasis on water resources management and governance solutions – with particular attention to both supply and demand management across cities and agriculture, and transboundary cooperation.
National Climate Change Committee (NCCC) MoWI Municipalities	2 To ensure strategy and action on climate and urban development are coordinated, the NCCC, strengthened by the new bylaw on climate, could utilise shared water challenges to bring together national and subnational (especially municipal) stakeholders to identify and implement solutions.
MoWI, in collaboration with MoE	3 To ensure officials have the tools needed to support climate-resilient development, Jordan can undertake a review, pursuant to bylaw No. 79, and update existing information and regulatory and management systems for water, to examine their fitness for a changing climate.

RECOMMENDATIONS CONTINUED...

Key stakeholder(s)	Recommendation
Ministry of Finance	<p>4 To finance the transition to a resilient, low-carbon, and green economy, Jordan can develop an overarching green finance strategy. This could integrate existing plans including the NDC Action Plan and Green Economy Plan, and consider all financing options – development and climate, public and private, international and domestic – over the short to long term.</p> <p>Integration of guidance already provided in the MoE’s Climate Finance & Project Preparation for Bankability Guidebook¹ can assist with this process.</p> <p>Water is already a priority for investment and can provide a unifying theme in such a strategy, across climate adaptation and sustainable development priorities.</p>
Ministry of Planning and International Cooperation	
MoE	
Other ministries	

THE CHALLENGE

Already a water-scarce country, Jordan will face increased water stress due to decreased precipitation, more drought/dry days, and potential decreased flow in transboundary waters, making Jordan extremely vulnerable to climate change.



Climate trends observed since the 1960s include a decline in annual precipitation by 5–20% across most of the country; an increase in the number of dry days nationwide; and an increase in annual maximum (by 0.3–1.8°C) and minimum (by 0.4–2.8°C) temperatures across all regions.²

Projected climate change includes an overall decrease in precipitation of 15–60% between 2011 and 2099 (though projections are highly variable); a 10 day increase in the number of consecutive dry days by 2040–2070, with increases highest in the Aqaba region, south Jordan; and further increases in annual minimum and maximum temperatures (by up to 5.1°C and 3.8°C, respectively, by 2085).³



Climate change will reduce both surface and groundwater resource availability, by 15% in 2040. As a result, the internal long-term conventional water resource availability will decrease even further from current levels of 680 million cubic metres (65 m³ per capita per year) to 580 million cubic metres (46 m³ per capita per year) in 2040.⁴

Jordan’s water demand is expected to exceed available water resources by more than 26% by 2025.⁵



Groundwater provides 71.4% of potable water in Jordan (MoWI, 2019), but levels have been declining continuously since the 1980s, due to falling precipitation and reduced surface water runoff, which climate change is expected to exacerbate.⁶

Future droughts and land-use changes upstream on the Yarmouk–Jordan River flow from Syria could lead to up to 70% less flow from the Yarmouk compared to historical flow.⁷



Urban water systems are generally not resilient to water scarcity and climate variability and change. There are high levels of non-revenue water (46% in 2020 vs. 43% in 2010; half of which is attributable to leakage) and supply is intermittent (over half of Jordanians receive water for only 24 hours per week).⁸



A major driver of urban population increase, and associated pressure on resources and services (including water) is the conflict in neighbouring countries, especially in Syria since 2011. Of the registered ‘persons of concern’ to the UN Refugee Agency (UNHCR), 84% are in urban areas (around 630,000 people); 36% are in Amman Governorate.⁹ There has been a 40% increase in water demand in the northern governorates in recent years.¹⁰



Urban water and climate adaptation challenges are also inseparable from agricultural water use. Agriculture accounted for 52% of water use in 2017 (45% domestic; 3% industry), and both domestic and agricultural water demand have grown in the last decade.¹¹

The interconnected nature of the water-related climate challenges in Jordan

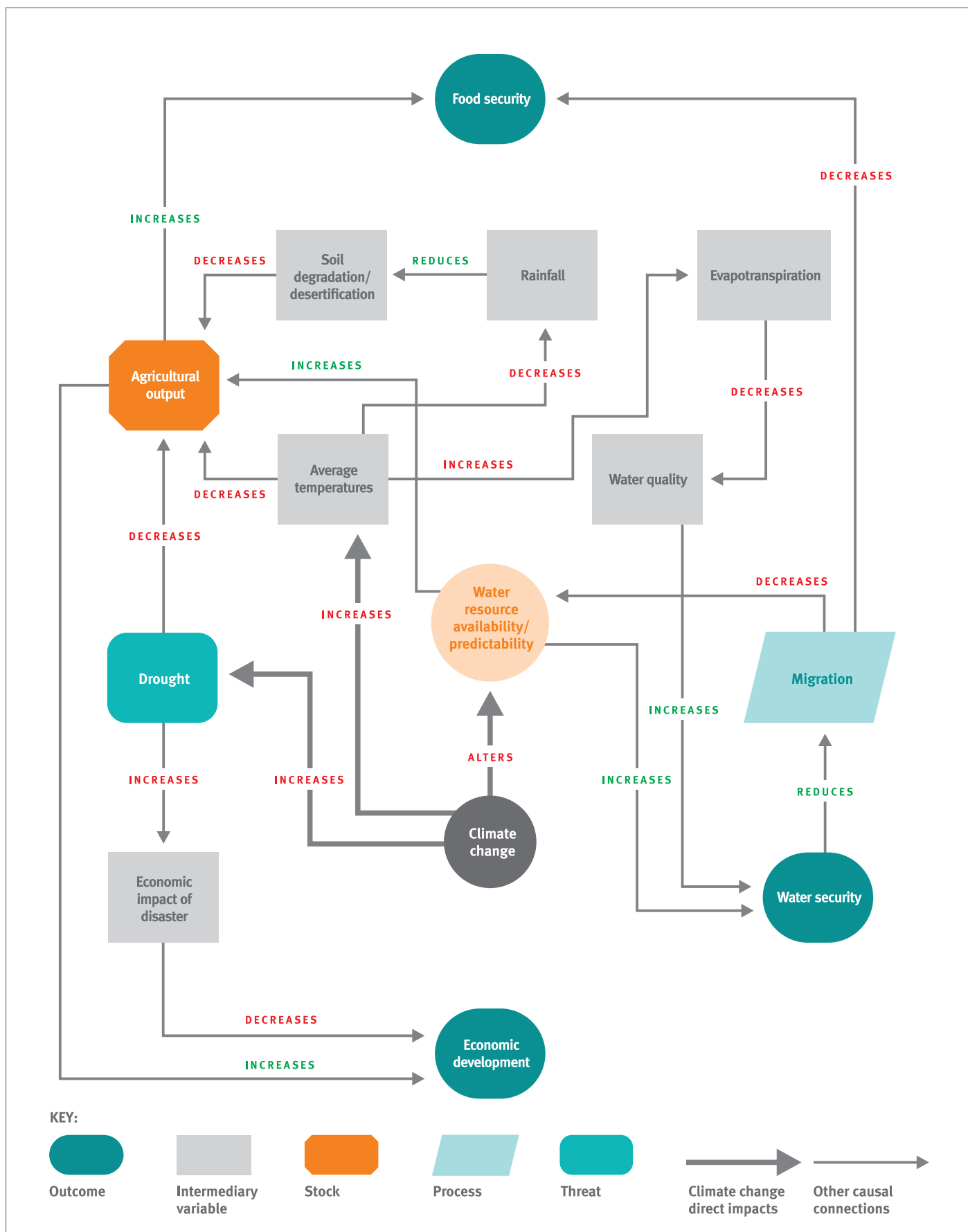
As with the water–energy–food nexus, climate resilience and sustainable development are interconnected. The diagram below maps the relationships between some of the key climate challenges that Jordan faces, showing why coordinated, integrated, and cross-sectoral responses are required to adapt to the impacts of climate change.

At the centre of the diagram is water resource availability/predictability, which is impacted by climate change (as shown by the words written on the arrows between the variables). The complex relationship between climate change and water availability/predictability is not shown here for reasons of space. The word ‘alters’ is used to describe the fact that climate change can affect the timing and amount of water availability in multiple ways, including via shifting seasonality, changing frequency and intensity of rainfall events, increasing or decreasing average precipitation irrespective of intensity of rainfall events, and affecting water quality – all while increasing uncertainty in changes and shifts in the water cycle and thereby reducing our ability to use past hydro-meteorological guides as a reliable predictor of water availability.

To illustrate the accurate reading of this diagram, two causal chains are described:

- **Causal chain 1:** Climate change impacts agricultural output through several means. Rising temperatures reduce agricultural output directly, but the increased temperatures caused by climate change will also reduce rainfall, which can cause a decrease in surface water and groundwater recharge, negatively impacting soil health and potentially leading to desertification, also decreasing agricultural output. Decreasing water resource availability/predictability will also harm agricultural output. All the above ultimately decrease food security in Jordan.
- **Causal chain 2:** Economic development also has the potential to suffer under climate change in Jordan. Increased drought decreases agricultural output, which negatively impacts economic development. The overall economic impacts of such water-related disasters will also hurt economic development.

THE INTERCONNECTED NATURE OF WATER-RELATED CLIMATE CHALLENGES IN JORDAN



ENABLING ENVIRONMENT

What do key policy statements say about integration of water, climate, and other Sustainable Development Goal agendas?

Jordan has advanced a sound strategy and policy base on climate change and water but needs to address several gaps and obstacles to implementation. On a positive note, its 2021 NDC features water-related actions prominently, and adaptation actions are also cross-sectoral, rather than confined to the water ‘sector’. Specific actions in the National Water Strategy still appear to be weighted towards increasing supply rather than managing demand. The main strategy also implies an assumption of increasing surface water availability, in contrast to climate projections. The Water Strategy recognises that transboundary cooperation on water is essential, and this is reconfirmed in Jordan’s 2021 NDC.

Sustainable development

Jordan’s long-term sustainable development plan, *Jordan 2025, A National Vision and Strategy*, recognises the water supply–demand gap as a key challenge, and that it is exacerbated by climate change. Measures for water focus on developing new and alternative supplies and demand management. The water measures do not explicitly mention climate change, which is covered separately, including the need to develop a legislative framework for climate change.¹²

Climate

Water features prominently in Jordan’s first updated NDC (2021), stated as “the defining sector for climate adaptation in Jordan,” which cites that the new Water Master Plan, in development by MoWI, will have climate change impacts as one of its pillars.¹³ Included in the 2021 NDC around water are a range of activities to adapt to climate change (e.g. climate change and resilience in water sector reform, reducing the gap between water supply and demand, improved adaptive capacity of utilities, improved water efficiency, improved contribution of non-conventional water resources, early warning systems, improved basin-level management, including transboundary water). Water is also highlighted as part of actions in all the other sections of the adaptation chapter.¹⁴ Jordan has also developed and validated an NDC action plan for the years 2019–2021, elaborating the measures in more depth, with funding requirements, responsibilities, and quantitative key

POLICY STATEMENTS

SECTOR	KEY POLICY STATEMENTS (INCLUDING LAWS, STRATEGIES, AND PLANS)
Cross-sectoral	<ul style="list-style-type: none"> ■ Jordan 2025, A National Vision and Strategy (sustainable development) ■ Green Growth National Action Plan (2020)
Climate change	<ul style="list-style-type: none"> ■ Updated Nationally Determined Contribution (2021) ■ Nationally Determined Contribution (2016) ■ NDC Action Plan (2019) ■ National Adaptation Plan (2021) ■ National Climate Change Policy (2013, extended)
Water	<ul style="list-style-type: none"> ■ National Water Strategy (2016–2025) ■ Water Sector Green Growth National Action Plan (2020)
Transboundary	<ul style="list-style-type: none"> ■ Climate Change Policy for a Resilient Water Sector (2016)
Agriculture	<ul style="list-style-type: none"> ■ National Plan for Sustainable Agriculture (2022)

performance indicators.¹⁵ The Action Plan aims to improve the resilience of, and lower the greenhouse gas emissions from, municipal water supply and wastewater infrastructure. Jordan also has several other climate change policies and strategies, notably the National Climate Change Policy (2013), which was extended from 2020 to 2030. The long-term goal for this policy mentions both “resilient communities” and “sustainable water”.¹⁶ A National Adaptation Plan was adopted in 2021 and aligns with the 2021 NDC with a significant focus on water throughout the NAP.¹⁷

Urban

Jordan does not have an explicit national urban policy or strategy, instead addressing urban issues through sectoral policies and strategies.¹⁸ There is a section on Urban Resilience and Disaster Risk Reduction included in Jordan’s NAP, which refers to climate-related disaster such

as flash floods and droughts.¹⁹ A recent Urban Growth Model was developed for the World Bank, in coordination with government ministries, but does not integrate climate variability or change into its scenarios.²⁰ Meanwhile the water-specific and climate strategies considered in this review (see below) do not appear to have a strong focus on urban issues, beyond recognising urbanisation as a general challenge.

An important recent development is the National Green Growth Plan, which includes a cost–benefit analysis of 24 projects across 6 sectors. The projects are organised into three clusters, of which the second “aims to transform Jordan’s urban areas into green cities that are attractive to both investors and residents”. The water-related investment projects appear to focus on infrastructure and implementation. Those relating to municipal/urban water management include solar-powered desalination and biogas recovery from wastewater treatment; others include dam construction and drip irrigation. The plan mentions measures that would entail reforms to water governance and management as ‘policy considerations’ rather than costed interventions, including community education on the value of water and farmer income diversification to reduce agricultural expansion and related water stress.²¹

City-level plans also play an important role in the context of ongoing decentralisation. Greater Amman Municipality, which hosts approximately 42% of the national population²² and is the political and economic capital, appears to be furthest ahead in climate strategy development. The Resilience Strategy of Greater Amman Municipality (GAM), supported by the 100 Resilient Cities initiative, includes ‘Manage our water efficiently’ as one of 16 goals, with actions on rainwater harvesting and greywater recycling.²³ GAM’s Amman Climate Plan, produced with the Ministry of Environment, has ‘Reducing water use and improving efficiency’ as one of six pillars, with activities mapping to those in the Resilience Strategy, plus additional ones on building water efficiency, storm water planning, green infrastructure, and drought management in green spaces,²⁴ which coincides with the Water Sector Green Growth National Action Plan 2021–2025.²⁵

Water

Jordan’s latest water strategy, the National Water Strategy for 2016–2025 (NWS), explicitly commits to integrated water resources management as an approach and sets out a number of principles to guide future planning on water. These include the importance of preserving freshwater ecosystems; the need for more effective, efficient, and responsible use by Jordanians; the joint responsibility of citizens and the private and public sectors for water management, including of local watersheds; and the need to address the impact of climate change through institutional capacity and community education and awareness.²⁶ The policy notes successes in bridging the supply–demand gap – already over 90% of all wastewater is reused, mainly for irrigation – but emphasises desalination as the route to meet remaining shortfalls in water availability. Also included in the document, if less prominent, are a range of institutional reform objectives including “comprehensive national policy for appropriate allocations and regulatory guidance on the planning and implementation of national water demand management plans”.²⁷

Demand management is also accepted as a central need within the Climate Change Policy for a Resilient Water Sector (CCPRWS) also adopted in 2016. This does not develop new projects but builds on existing strategies of water-related sectors. It is again based on integrated water resources management principles.²⁸ However, the two strategies appear to take an inconsistent approach to the projected impacts of climate change on water availability. The CCPRWS draws on regional climate projections showing a decrease in river discharge, particularly from 2040. The NWS, however, refers to steadily increasing availability of surface water.²⁹

Spotlight on transboundary water and climate adaptation

The 2021 NDC does mention transboundary cooperation on water as part of the climate change adaptation response, highlighting the importance of developing pragmatic transboundary water management plans that are not sustainably or effectively covered by current political agreements.³⁰ The NWS identifies transboundary cooperation as “a useful tool for broader benefit-sharing and conflict prevention”.³¹ Jordan’s agreements on water sharing with Syria and Israel have not been observed, leaving Jordan with less than 10% of the total flow of the Upper Jordan and Yarmouk Rivers.³² The CCPRWS appears largely silent on the importance of, and approaches to, transboundary water management in the face of climate change.

INSTITUTIONS

Are Jordan's institutions ready to manage the impacts of climate change on water resources and on other water-related sectors in an integrated way?

Jordan has put in place some of the institutional arrangements for coordinated and inclusive action on climate and water. However, others are missing or outdated, and there are considerable hurdles to cooperation in practice – at and between the municipal, national, and international levels. At the national level, Jordan has a well-established National Climate Change Committee involving key ministries and non-state parties. However, an equivalent structure for integrated water resources management is still awaited.

Leadership and coordination on climate and water issues

As the lead ministry for climate change, MoE includes a Climate Change Directorate established in 2014. It oversees the policy and legal frameworks for climate change – both mitigation and adaptation – and coordinates all activities related to the UN Framework Convention on Climate Change (UNFCCC).³³ Other ministries playing important roles include MoWI and the Ministries of Energy and Mineral Resources, Agriculture, and Health.³⁴ MoLA has only recently been established (May 2019) and effectively succeeds the Ministry of Municipal Administration, which acted as the main ministry for urban issues.³⁵

In 2019, MoE bylaw No. 79 formally established the National Climate Change Committee (NCCC), an institutional mechanism to address climate change and to coordinate and ensure full engagement of stakeholders, both technical and decision-makers, creating a clear institutional mandate. The NCCC includes representatives of several ministries and government agencies (including MoWI, MoLA, and Greater Amman Municipality), civil society, the private sector, and academia, and supervises implementation of climate policy. There is no inter-ministerial coordination body for water. The NWS states that MoWI will coordinate, as well as initiate and plan, an integrated approach to water resources management. A National Implementation Committee for Effective Integrated Wastewater Management (NICE) exists in Jordan, as of 2018.³⁶

As well as coordinating across sectors (horizontally), decentralisation has created additional needs for municipalities and national entities to coordinate (vertically). Municipalities, headed by elected mayors, are

responsible for urban management of their territories and implementation of numerous sector policies, although for water and wastewater their responsibility, and authority, is more limited. The Amman Climate Plan, for example, notes that it can only take the lead in actions related to water efficiency and reuse in municipal buildings and open spaces; for other activities it will need to act as an advocate and delivery partner to national entities.³⁷

At the transboundary level, the formal institutions – both cooperation structures and agreements – appear to be inadequate to manage the water-related impacts of climate change. The peace treaty and other cooperative agreements with Israel, for example, “were never designed to accommodate climate-change related events”.³⁸ Thus far climate change has not provided a strong incentive to cooperate across borders.³⁹

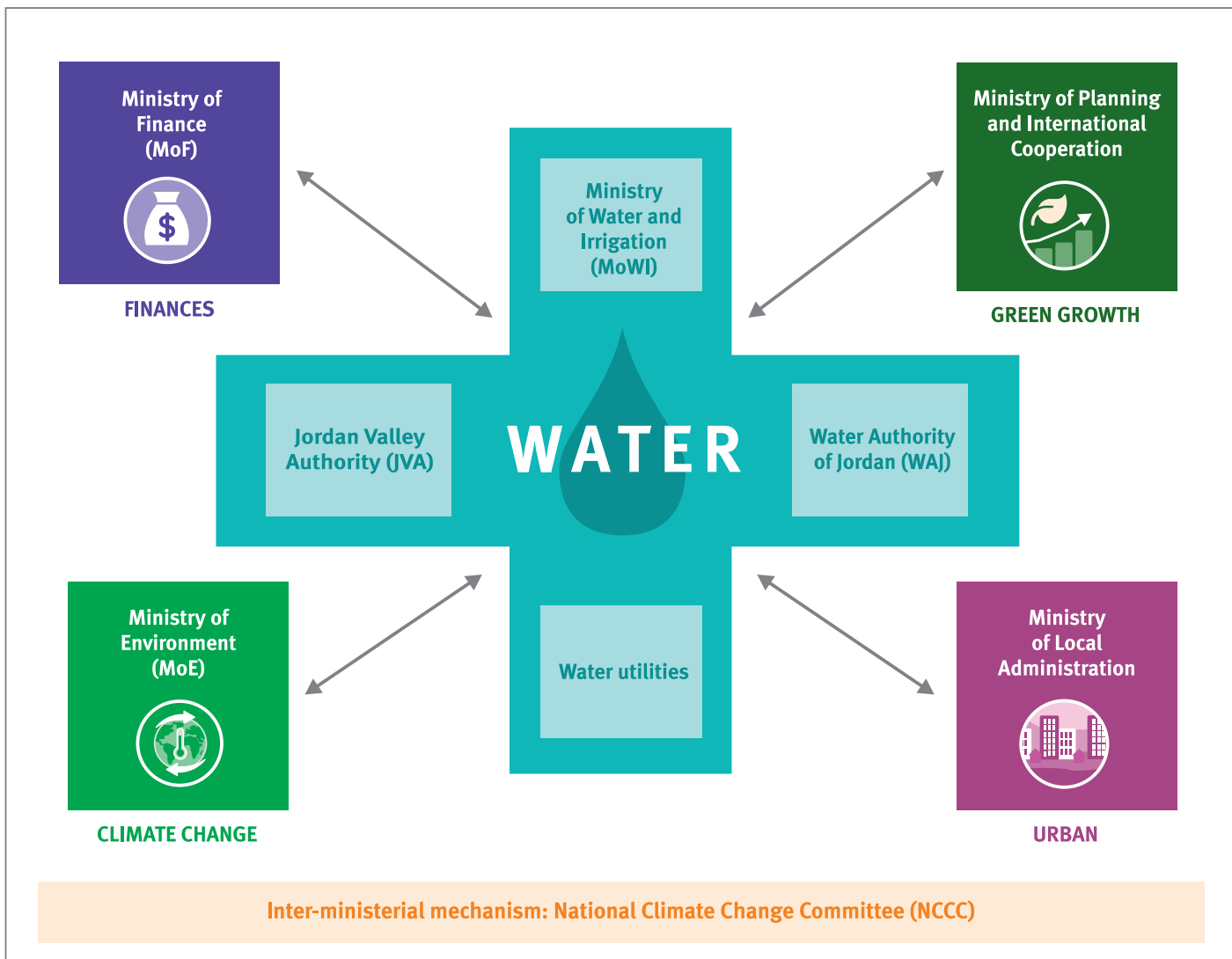
Underlying barriers and enablers

At the national level, a key underlying challenge for institutional coordination is lack of awareness or political attention to climate change across sectors. More immediate priorities dominate the political discourse, including poverty reduction and tackling unemployment. With other urgent priorities capturing leaders' attention – domestic, as well as international such as the Syria crisis – it is perhaps unsurprising that the MoE sought to increase the seniority of representation in the NCCC through bylaw No. 79.

At the city level, the rapid expansion of population and its effect on demand for water resources and services can be added to the above barriers. In this context, city policy-makers struggle to keep pace. For example, the Master Plan for Amman, which is home to around 60% of the country's population, was developed in 2009 and much of it is recognised to be obsolete following the Syria crisis and significant increase in population.

At the transboundary level, Jordan shares surface water with Israel, Palestine, and Syria and groundwater with both Saudi Arabia and Syria. Most of Jordan's transboundary water comes from outside the country, which makes controlling those resources more complicated. As part of the 1994 peace treaty between Jordan and Israel, they cooperate on the distribution of water from the Jordan River. Jordan has a bilateral agreement with Syria over the Yarmouk River, first signed in 1953, but updated again in 1987. In 2015, Jordan and Saudi Arabia came to an agreement over the use of the Disi aquifer.⁴⁰

JORDAN'S INSTITUTIONS



MANAGEMENT INSTRUMENTS

Are management decisions on water and other Sustainable Development Goal issues being guided by evidence on climate change?

Jordan has been working to develop robust, flexible instruments, systems, and tools that can support evidence-based decision-making on water management, in the context of climate change. This includes in the areas of demand management (tariff reform, metering); water allocation (including a dedicated policy); and drought and flood early warning systems. However, given the scale of Jordan's water challenges it is not clear that these are enough to manage the impacts of climate extremes, nor to balance competing intersectoral needs.

Data and information systems

In Jordan's National Adaptation Plan, under water resources management, the stated goal is to improve meteorological capacities to assist with managing climate-related extreme weather risks, develop flood risk maps, and identify flood hotspots. The NAP for coastal ecosystems proposes the creation of a database of climate change adaptation strategies, plans, programmes, and measures in Aqaba as well as strengthening an existing database of coastal area ecosystems, habitats, and species. In fact, one of their six main strategic objectives is to "Develop a data management system for climate change adaptation".⁴¹

While the Third National Communication to the UNFCCC in 2014 noted numerous challenges, some issues have been addressed and some remain, including gaps and inconsistencies in historical meteorological data held by both MoWI and the Meteorology Department, and a lack of models for local conditions. The conversion of climate and water data into useable information also appears to have been a challenge. The National Communication itself compiled, and was informed by, a huge amount of data – including on greenhouse gases, mitigation, vulnerability, and adaptation. The MoE has established a monitoring, reporting, and verification system, but it appears to focus on mitigation and project implementation aspects, rather than vulnerability and adaptation.⁴²

At the city level, water and climate data and information management are not a particularly strong focus of Amman's Climate Plan and Resilience Strategy, though the latter does envisage setting up a centralised GIS

database and urban resilience centre (by implication, to cover a range of issues for integrated urban planning and management, not just climate/water).⁴³

Management and decision-making

Despite the gaps in raw data and processed information, Jordan has made some progress in developing instruments, systems, and tools to support decision-making for climate adaptation and sustainable water management. In the area of demand management, it has begun fundamental revisions to water and wastewater tariffs – though low tariffs for fresh water have been maintained, disincentivising use of treated wastewater.⁴⁴ Despite the continued high level of non-revenue water, it has also made progress in extending metering of household consumption, especially through the USAID-funded project Water Management Initiative (WMI), improving supervisory control and data acquisition systems in several water utilities,⁴⁵ as well as licensing and metering of wells. Pricing of water in Jordan is, however, shaped by many other considerations besides demand management, including cost recovery for the provider and affordability for consumers.⁴⁶

With respect to managing water allocation in a changing climate, policies under the NWS are relevant, including the Water Reallocation Policy. This has a somewhat vague provision: "In extreme events, during drought periods and when climate changes result in reduced water quantities, scenarios allowing reducing the impact shall be pursued and implemented with care."⁴⁷ This review did not establish whether sectoral or user allocations have been significantly adjusted to respond to climate extremes or change, to date.

In the context of increased drought risks, early warning systems are another area in which Jordan has been attempting to increase its capacity and it now has a drought management system within MoWI and MoA.⁴⁸ Several flash flood warning systems have been put in place or are under construction.⁴⁹ The NAP also refers to enhancing the functions of the existing "early warning systems against floods, droughts, and other climate risks in poverty-stricken areas".⁵⁰

Underlying barriers and enablers

There has been some progress in enhancing the collection and flow of information to support decision-making. The establishment of the NCCC was an effort to coordinate stakeholder input into decision-making processes related to climate change.

However, there are entrenched obstacles to evidence-based decision-making on water and climate change. In Jordan's evolving political settlement, vested interests seek to maintain existing arrangements where they

already benefit – for example, from unsustainable use of water in agriculture, or illegal wells.⁵¹ The wider domain of water regulation is also politically sensitive, especially in the context of increased private sector participation.⁵²

FINANCES

How ready is Jordan to finance water-related climate action?

Jordan has prioritised investments in water, building management, and governance capacity as well as infrastructure, but has relied mainly on aid to do so. Looking to the future, it will need to increase the contribution from its own budget and improve the environment for the private sector – in water and in general – as well as improve specific investment opportunities, both national and international, through development of attractive projects and investment pipelines. Water has attracted a high share of funding from the multilateral climate funds, as well as more general development assistance that is 'climate-related' – with investments in urban water and wastewater infrastructure and in water management and governance featuring prominently.

Climate-related financing needs and commitments

Jordan's 2021 NDC gives precise numbers for the estimated costs of the actions related to the water sector with regard to the investment plans of adaptation projects. These estimates are sourced from the NDC Action Plan and the National Green Growth Plan (NGGP). These investments total over US\$214 million for those categorised as in the water sector. Another US\$61 million is for water-related projects (e.g. rainwater harvesting) classified under the agriculture sector. On the mitigation side, two projects are included in the 2021 NDC, the far larger of the two being the Aqaba Amman Water Desalination and Conveyance Project (AAWDPC) (US\$2.8 billion) and US\$20 million for biogas generation from wastewater treatment plants.⁵³

Water is a priority sector for investment for Jordan.⁵⁴ It has received a large share both of dedicated climate finance from the multilateral climate funds, and of wider external development finance that is 'climate-related'. Since 2007, over US\$36 million has been approved for Jordan by the various multilateral climate funds for projects focusing on water. Around US\$9.6 million has been disbursed, around one-quarter of the total.⁵⁵ Among urban-focused projects, Jordan participates in the Green Cities Facility of the European Bank for Reconstruction and Development, which is co-financed by the Green Climate Fund (GCF).

Meanwhile, Jordan's development partners indicate that about 42% (or US\$1.8 billion) of the total development finance that they deemed to be 'climate-related', from 2012 to 2019, was committed to water-focused activities.⁵⁶ However, it should be noted that this is existing development finance rather than 'additional' climate finance. Most of this had either a 'principle' or 'significant' focus on climate change adaptation. A small proportion either had 'climate components' relating to adaptation, or was targeted mainly at mitigation or not screened ('not targeted/not screened'). Projects targeting (integrated) water resources management and large (predominantly urban) water supply and wastewater infrastructure are prominent.

Estimates of spending from Jordan's government or the private sector for water-focused climate change activities were not identified in this review. Jordan's wider macro-economic position – including chronic budget deficits, limited added value in the service sector, and a narrow industrial base – mean that it relies primarily on foreign aid as well as remittances and rents.⁵⁷

SELECT WATER-RELATED CLIMATE CHANGE PROJECTS

ADAPTATION PROJECTS	SECTOR	SOURCE	COST (US\$)
Wastewater networking (al-Koura district), in addition to implementation of lifting stations and wastewater treatment plants for different villages	Water	NDC Action Plan	52,380,000
Reduce soil erosion through the management and harvesting of rainwater by small farmers in rural areas of Jordan	Agriculture	NDC Action Plan	28,318,421
Increase the resilience of displaced persons and host communities to climate change-related water challenges	Water	NGGP	7,000,000
Increase the availability of water, sanitation, and hygiene in schools and strengthen standards for climate change impacts	Water	NGGP	1,500,000
MITIGATION PROJECTS			
185 MW PV for the Aqaba Amman Water Desalination and Conveyance Project (AAWDCP) (50% of the overall power demand covered by Wheeling and Net Metering)	Water/ Renewable energy	INDC	2,820,910,000
Biogas generation by utilising the sludge generated from domestic wastewater treatment plants: in five areas (Ramtha, Madaba, Al-Salt, Wadi Arab, and Baqa'a)	Wastewater	INDC	20,000,000

Barriers and enablers

Development of the first and updated NDCs has seen increased efforts within government to engage with development partners to access finance for climate resilience, especially water, including concessional loans as well as grants.⁵⁸ Jordan has received a range of support to improve its readiness for climate finance, including two grants from the GCF – the latest targeting development of investment-ready projects and government capacity for this, as well as private sector engagement in green investment, among other outcomes.⁵⁹

These positive efforts, however, need to be set against two key challenges for financing infrastructure and the related management needs in Jordan. Firstly, as an upper middle-income country, Jordan does have some further scope to allocate greater domestic resources to climate activities, and to attract private investors through use of instruments such as guarantees.⁶⁰ For water, specifically, there is an acute need to improve the financial position, address low cost recovery and MoWI's debt, which

exceeded US\$1.3 billion as of 2016.⁶¹ Yet the challenging macro-economic environment, as well as the political barriers to tariff reform mentioned above, mean that the approach to the needed reforms will likely be incremental, both in water and in general. Of note is that the United Nations Economic and Social Commission for Western Asia (UN-ESCWA) has developed a climate/SDGs debt swap mechanism, which could be utilised as an avenue for Jordan to explore in terms of its debt and climate- and/or water SDG-related projects.⁶²

Secondly, while donors have tended to emphasise cross-sectoral integration and demand management, the Government has focused on supply-side measures, including transboundary initiatives.⁶³ There may therefore also be a case for revisiting the balance of emphasis in project proposals, to ensure that integrated water resources management approaches and related governance and capacity needs are not just mentioned in policy, but included and funded as part of project proposals and investment pipelines.

INTERNATIONAL PUBLIC CLIMATE FINANCE

US\$56 million

Jordan has received US\$4.5 billion in climate finance from the **multilateral climate funds**, as of February 2019, with the majority allocated to mitigation activities in the energy and forest sectors.

US\$25.6 million has been **disbursed**.

~ **64%** was allocated to **water**-focused activities (including water-use technology/efficiency, water reuse, and wastewater treatment).

US\$4.5 billion

From 2012 to 2019, US\$4.5 billion was committed as **development finance** that was tagged by contributors as 'climate-related'.

US\$1.8 billion

US\$1.8 billion, or 42%, was earmarked for **water-focused activities**, the majority of which went to water supply and sanitation, water resources conservation, water policy, and water-use efficiency.

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ABOUT THIS PUBLICATION

This Country Brief is one of a series of 15 publications that explores how integrated water resources management at a country level contributes to climate resilience and sustainable development, as well as meeting the commitments under the Paris Agreement and achieving the Sustainable Development Goals (SDGs).

The full synthesis report, *The Untold Story of Water in Climate Adaptation. Part II. 15 Countries Speak*, of the work undertaken in all 15 countries is available at www.gwp.org.

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