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Cohort 4: Climate-related security risks and sustaining peace

Jordan's climate-related security risks: A challenge to achieving the 2030 agenda

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Introduction

Climate-related security risks in Jordan, such as water scarcity exacerbated by climate change, constrained agricultural and economic growth, and increased food insecurity and desertification, represent multidimensional vulnerabilities (whether structural or recent) that span economic, political, governance, gender, health and humanitarian concerns. Climate risk, which relates to the catalytic effects of climate-related change in Jordan, also refers to the adaptive capacity of the state and its ability to determine the extent to which climate-related change impacts inequalities and affects its humanitarian and development agenda.

The Kingdom's socio-economic and political stability is itself underpinned by the strength and legitimacy of the current social contract, which is increasingly stressed by existing inequalities. Consequently, this calls for considering how to better mainstream the principles of Leaving No One Behind (LNOB) in a context where they might otherwise be highly politicized. The pressures stemming from climate change are likely to increase over time and while adaptation has been an efficient means to mitigate its impact, this is unlikely to be sustainable. This thus begs the question of how a strained adaptation policy may impact socio-economic and political stability over time.

Jordan's capacity to adapt to water scarcity and climate change has been weakened by a lack of policy coherence and implementation, weak monitoring mechanisms and accountability, political dynamics, greater consumption of water and resource use linked to the Syrian refugee humanitarian crisis, damaged infrastructure and unsustainable livelihoods, and accompanying economic models. These elements impact social cohesion and inequalities, as well as the governance-related approach and human rights, with disaggregated data very often absent from conversations.

While Jordan's National Communications and its 2025 Vision and Strategy project a steady decline of available freshwater levels (due to rising temperatures, less rainfall and increased evapotranspiration), the country's national water strategy does not reflect this decline. Addressing climate risks in Jordan is not just a matter of policy alignment, coherence or financing. Rather, it calls for greater efforts to understand the governance structure of the country and how it translates to communities exposed to climate-related uncertainties, such as women in rural or remote areas, migrant workers, and communities whose income from agriculture has fallen declined and who are migrating to urban centres.

Mainstreaming the Leaving No One Behind (LNOB) principles in response to climate risks requires a more holistic approach, via social protection mechanisms

and more community-based consultations. This is the case in a country where energy, water and food subsidies are increasingly reduced via fiscal and economic reforms and where vulnerabilities are rising.

Overview of climate vulnerability in Jordan

Jordan ranks as the fifth most water-stressed country in the world.¹ Water scarcity and management remains the most pressing issue in terms of climate vulnerability, as temperatures are forecast to increase every year² and groundwater levels are declining by as much as 12 meters per year.³ Water access rates are high in Jordan: more than 98 percent of the population has access to an improved water source; 93 percent has access to a safely-managed source; and 86 percent has access to a piped network. The occurrence of frequent droughts and adverse climate change effects will drive *climate displacement towards the capital city of Amman* as more secured water sources are existing. As such migration from rural to urban areas was in 2018 expected to increase with an approximate *15% of the country's farmers* who would leave their lands or shift their use from agriculture to other uses.⁴

While more than 98% of the population has access to an improved water source, only 93% access a safely-managed source and 86% to a piped network. In urban areas, water is usually available once a week, but less than once every two weeks in rural areas, with reduced frequency during the summer.⁵ Only 77.3 percent of existing sanitation systems are managed safely and only one-third of schools have basic sanitation services. The government has so far adopted a response-based approach where solutions are sought after the impact of drought has occurred, which intensifies the negative environmental, economic and social impacts of drought on Jordanians.⁶ According to a

UNDP Jordan assessment in 2018, approximately 2.5 million people of the northwest governorates of Ajloun, Irbid and Jerash were extremely vulnerable to drought due to their high sensitivity and exposure and the low adaptive capacity.

Aquifers, located in a dozen main groundwater basins, provide the country's water. Most of Jordan's water supply (59 percent) is extracted from 10 renewable and two non-renewable groundwater basins. Over-extraction of these basins is currently 160 percent and 123 percent of safe yield, respectively.⁷ Some 45 percent of water usage goes to agriculture. Meanwhile, municipal water networks lose roughly half their water to theft and leaks. Of Jordan's 12 groundwater basins, 10 are being pumped at a deficit. According to Jordan's water ministry, groundwater is being extracted at twice the replenishment rate.⁸ This trend is likely exacerbated by the recent COVID pandemic and curfew, during which household water consumption has increased significantly (by up to 40 percent). This surpassed usual consumption levels and led the government to increase trucking of water to some areas to ensure water supply to vulnerable populations. Other areas, such as in Irbid, had already reported overconsumption and shortages by mid-May. The concern about Jordan's aquifers is thus not if they will be depleted but, rather, when.⁹

Although irrigated land accounts for only 33 percent of total cultivated area, as noted above, agriculture consumes around 65 percent of total available water, while meeting only 19 percent of the country's food requirement. Jordan imports three times more than it exports, overconsuming water while experiencing the impacts of climate change and soil degradation. The projected economic impacts of climate change on agriculture include loss of income resulting from the inability to cultivate export crops, increased food imports and declining access to affordable, nutritious foods.

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1 <https://www.wri.org/aqueduct/>.

2 Mohammed Matouq, Tayel El-Hasan, Hussam Al-Bilbisi, Monther Abdelhadi, Muna Hindiyeh, Saeid Eslamian & Salman Duheisat (2013) The climate change implication on Jordan: A case study using GIS and Artificial Neural Networks for weather forecasting, Journal of Taibah University for Science, 7:2, 44-55, DOI: [10.1016/j.jtusci.2013.04.001](https://doi.org/10.1016/j.jtusci.2013.04.001). By 2050 and with a decline in rainfall of 8–10 percent, annual runoff in Jordan's watersheds could decrease by 40–60 percent, according to Givati A, Thirel G, Rosenfeld D & Paz D. 2019. Climate change impacts on streamflow at the upper Jordan River based on an ensemble of regional climate models. Journal of Hydrology: Regional Studies, 21 92–09. According to the World Bank, mean annual temperature is expected to increase by 2C by 2050. For more, see also: <https://climateknowledgeportal.worldbank.org/country/jordan/climate-data-projections>

3 <https://www.jordantimes.com/opinion/un-climate-action-group/covid-19-crisis-and-next-looming-climate-crisis>

4 UNDP, March 26, 2019. Water Sector Policy for Drought Management in Jordan: <https://www.jo.undp.org/content/jordan/en/home/library/droughtpolicy.html>

5 UNICEF, Water, Sanitation and Hygiene: Access to safe water and Sanitation: <https://www.unicef.org/jordan/water-sanitation-and-hygiene>

6 *Idem*

7 <https://www.jordantimes.com/opinion/un-climate-action-group/covid-19-crisis-and-next-looming-climate-crisis>. [Moreover, according to several studies, the Jordan River Basin region will witness an increase in the severity of drought in the period 2031-2060, compared with the period 1961-1990, with expectations of an increase in the severity of droughts and their recurrence and a decrease in the incidence of moderate drought. Successive droughts have occurred at least three times during the past forty years. It is expected that the sequence will increase every 20-25 years, as an average drought is expected every 3 to 4 years.](#)

8 Overpumping ranges between 146 percent in minor aquifers and 235 percent in major ones. Average annual abstraction from groundwater basins in Jordan exceeds the renewable average of recharge and currently stands at 159 percent.

9 In official planning documents, the government has acknowledged that it needs to improve its groundwater data collection, analysis and monitoring. The documents do not account for illegal pumping, either; it is estimated at 52 percent. The government is handling water scarcity by providing high levels of subsidies which in itself is a complex issue driven by several economic, social and political variables. It should be clear however that in this context, the government is keen to address water management issues through a resource management approach, but so far has not come to do so due to these above mentioned variables.

Only 2 percent of Jordan's total working population and 0.9 percent of its total female labour force was employed in agriculture in 2014, while some 25 percent of the country's poor who live in rural areas continue to depend on agriculture as a primary source of livelihood.¹⁰ This is likely to further affect herding and settled agriculture, which are essential to village livelihoods. The government previously bridged that gap by integrating these workers into the economy by providing employment in the public security sector. That option is no longer viable. Given fiscal constraints and rising debt levels, Jordan has had to reconsider its economic approach, leaning towards reducing public sector employment.

More recently, in February, the International Monetary Fund also stressed the role of agriculture as a key sector for economic growth and emphasized the Kingdom's need to treat water as a precious resource, rather than a disposable commodity.¹¹ Because water is insufficient and/or expensive, most of the agricultural fields in many areas sit fallow. Conditions for crop cultivation and animal grazing are only worsening as severe water scarcity endures. A growing number of farmers and rural residents have lost their income, hoping that the government will provide.

Policy and programme response

The Ministry of Environment issued the National Climate Change Policy of the Hashemite Kingdom of Jordan (2013-2020) in November 2013. It sets out long- and short-term goals related to mitigation, vulnerability and adaptation actions. The country's main ministry responsible for climate change policies is the Ministry of Environment (MoEnv) and its Climate Change Directorate (CCD), created in 2014. In 2001, Jordan formed a National Committee on Climate Change. Its task is to oversee the Partnership for Market Readiness¹², several ministries of the Jordanian government, funding agencies, NGOs and private industries.

Jordan's climate change projections, together with its National Water Strategy for 2016-2025, unveils several inconsistencies, whereby different laws, agencies, ministries and budget lines address siloed efforts and approaches to investment, regulatory frameworks and programming with disaster risk reduction and climate adaptation, development and humanitarian work.

Furthermore, Jordanian government experts tend to focus on how to increase water supply, mainly through regional solutions and transboundary agreements, at a time when regional stability ebbs and flows. The regional situation and dependence on its neighbours for water resources puts Jordan under additional pressure as a regional and diplomatic actor, while donors and international organizations focus on demand restraint and a cross-sectoral prioritization of water issues. The government is fully aware of the challenges ahead, but institutional and financial barriers remain, with limited mandates for state and non-state actors,¹³ lack of technical capacity for adaptation planning, and limited implementation and enforcement.

LNOB and climate risk

LNOB is guided by a human rights and capabilities approach to development. This promise requires protecting and realizing all the economic, social, political, cultural, and civic rights and freedoms to which human beings are entitled so that they can all "fulfil their potential in dignity and equality."¹⁴ With this pledge, Jordan committed to end poverty, especially extreme poverty, and reduce inequality by 2030. It is of paramount importance to establish reducing structural inequality and providing equal opportunities as an explicit objective when considering climate risk and its different and disproportionate effects on communities. Prioritizing vulnerable and disadvantaged communities can significantly change the ways climate risks are considered, evaluated, addressed and prioritized.

Importantly, women and the poor are also more likely to be vulnerable to climate change because they face discrimination and inequalities in accessing productive resources services, markets, technologies, education and funding. As a result, it is especially difficult for them to adapt to climate change. With fewer resources, they are unable to buffer, adapt or recover quickly from shocks and often live in the most vulnerable and risk-exposed areas.

Despite global commitments to leave no one behind, those most affected and vulnerable are not receiving the assistance they need. Older persons, people with disabilities, women, the poor and socially marginalized people lack access to information, decision-making

10 See: <https://reliefweb.int/report/jordan/womens-participation-agricultural-sector-rural-institutions-and-community-life>.

11 <https://www.imf.org/en/News/Articles/2020/01/30/pr2026-jordan-imf-reaches-a-staff-level-agreement-on-a-four-year-extended-fund-facility>

12 Jordan focused on three target areas: Energy (renewables and energy efficiency); water (water efficiency and wastewater management); and a city-wide approach to GHG emissions management. These areas have been identified due to their mitigation potential, Jordan's prior experience with mitigation, institutional and organizational feasibility, responsiveness to price signals and finally, transaction costs. For more, see also: <https://www.thepmr.org/country/jordan-0>

13 For example, although the MoEnv chairs the National Climate Change Committee, it cannot veto decisions on policies under discussion. The MoEnv and its subsidiary committees are further limited because climate change is not included in relevant laws or strategies.

14 <https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind>

structures, resources and social justice and are disproportionately affected by hazards.

National investments in adaptation, risk reduction and preparedness fail to prioritize these individuals and often fail to reach vulnerable communities at the local level, where the need is greatest. Climate adaptation focuses on climate proofing hard investments, such as infrastructure meant to protect against potential impacts. However, such investments do not address the needs of vulnerable and marginalized communities nor do they consider landscapes and ecosystems in reducing risks from extreme events. This is not due to a lack of political will but, rather, a lack of disaggregated data on the existing populations in areas affected by climate-related stress and water scarcity, which in turn affects the ability to better grasp the impacts on the most vulnerable over time. This is further compounded by the challenges cited above, from lack of awareness to failure to create inclusive processes for consultation, design solutions and implement adaptation policies, notwithstanding financial capacity.

Impacts of climate change on achieving the SDGs in Jordan

According to the Jordanian government, poverty and unemployment are its major challenges in meeting its sustainable development goals (SDGs). Yet, climate change would seriously hinder achieving the SDGs, including in rural areas, and undermine prior progress in reducing poverty. A study of rural women found that their “theoretical knowledge and understanding of climate change and adaptation remain limited, impeding their ability and willingness to act and find long term adaptive solutions.”¹⁵

The Paris Agreement and Agenda 2030 both provide a framework to leverage the interlinkage among those documents’ many goals to increase the efficiency of resource use and implementation in facing the challenges and risks that climate change poses. The SDGs listed below are a modest attempt to present the risks Jordan faces and their impact on its capacity to achieve the goals set forth in the 2015 commitments.

By framing those challenges through the SDGs, the aim is to encourage consideration and possible discussions on better ways to integrate climate vulnerabilities in the overall response, development plans and strategies adopted by the Kingdom, while simultaneously emphasizing the synergies and possible trade-offs among the goals and the strength and advantages of these interlinkages across actions that Jordan undertakes. The

use of the SDGs in the context of climate vulnerabilities provides a stronger reference frame through which resilience can be improved and strengthened and where key principles are agreed upon bottom up and from the top down.

SDGs 1&2: End poverty and achieve zero hunger.

Jordan is characterized by chronic poverty and challenged by low productivity, scarce water and degraded soils. This calls for focusing on the sustainable intensification and diversification of production systems and the sustainable transformation of value chains.

SDG 5: Gender equality

Women are an important part of the agrarian workforce and in some cases are single head of household, yet the gender gap is significant in Jordan’s rural area. Gender-focused research, value chains and innovations, as well as diversified income sources, are required and should be considered as part of the economic and structural reforms.

SDGs 6 & 12: Clean water and sanitation and responsible consumption and production

Water is at a premium. Despite contributing only 4 percent of GDP and 15 percent of employment, agriculture accounts for 65–75 percent of Jordan’s total water consumption, often using surface water, or even treated sewage effluent (TSE).¹⁶ Economic losses from inadequate water supply are estimated to cost Jordan approximately 0.34 percent of GDP annually.¹⁷ Consumption and use of water in Jordan has long been problematic and calls for a more sustainable approach.

SDG 8: Decent work and economic growth

Rural areas suffer from sluggish growth and high unemployment rates, as well as underemployment. Sustained, inclusive and sustainable economic growth that offers full and productive employment and decent work for all are key objectives in the Kingdom’s strategic planning documents, but cannot be achieved without developing specific strategies that respond to the challenges faced in the agricultural sector and integrating longer-term planning vulnerabilities related to climate change. Moreover, this goal is very highly interdependent with SDG 5.

15 UN Women, 2018, p. 4

16 Vasquez O, Khraishy M (eds). 2016. *Market overview and guide to Jordanian market requirements*. USDA Foreign Agricultural Service. Amman.

17 World Bank (ed). 2018. *Beyond scarcity. Water security in the Middle East and North Africa*. Washington.

SDG 10: Reduced inequalities

Poverty can be pervasive in rural areas. Rural areas have long been marginalized and are characterized by under-capacitated public institutions, poor infrastructure and weak markets. Addressing inequalities and discrimination within and between regions through investments in human capital and policies that support the growth of local economies are needed.

SDG 13: Climate action

Climate change affects rural areas disproportionately, increasing the risk and challenges for crop and livestock production. Less water intensive crop and livestock systems need to be strengthened and communities empowered to access climate-resilient technologies and knowledge, including early warning systems. However, climate action also extends to the management of resources and infrastructure in both rural and urban areas.

SDG 15: Life on land

Land degradation, particularly after flash floods and heavy rains, is a serious issue, leading to loss of fertile soils and increased soil salinity, which reduces productivity.

SDG 16: Peace, justice and strong institutions

Refugees and waves of migration are blamed for the over-exploitation of water and depletion of resources. However, the lack of institutional accountability at local and national levels and decades of mismanagement of Jordan's aquifers are more likely to explain the problems and are the key to addressing the challenges ahead. A more sustainable policy focusing on equal access, justice and stronger rule of law would avoid or at least mitigate some of the social and political tensions linked to the competition for scarce resources and employment, especially in rural areas or more vulnerable urban areas.

SDG 17: Partnerships

Rural areas have suffered from weak national agriculture research institutions, while policy and decision-makers lack awareness on the impact of climate change on water resources and adequate adaptation measures to adopt. Strengthening national research capacities and establishing research partnerships are required to enable Jordan to tackle the specific challenges regarding water management and sustainability.

Conclusion and overall recommendations

- Mainstream climate issues into multi-sectoral processes, such as Poverty Reduction Strategies or national strategies for sustainable rural development;
- Support multi-stakeholder platforms for policy dialogue and inter-ministerial collaboration to mainstream adaptation in policy, strategies and programmes;
- Carry out vulnerability assessments to understand climate change impacts on poverty, and evaluate the capacity of the poor to cope with and adapt to climate change;
- Integrate climate factor impacts into macroeconomic projections of economic growth and inequality;
- Develop a better understanding of the risks, how and to what extent they affect the most vulnerable, the costs to national capacity and the added stress generated at the national level in terms of economic and policy response; and,
- Strengthen early warning systems so that communities at risk can take early action. This can also be achieved by sensitizing these vulnerable communities and bringing them into decision-making processes regarding the mechanisms that directly affect and concern them.

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<https://peaceinfrastructures.org/>

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<https://fba.se/en/>