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Gender, climate and cohesion

Uncovering the linkages between climate change, human security and gender in Jordan

Research paper

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Acknowledgements

This research paper was authored by Dr Majd Al Naber, Eng Reem Al Haddadin and Eng Samer Fakhoury from the WANA Institute with Ruth Simpson from International Alert. The authors would like to thank Camille Marquette and Jessica Hartog of International Alert. Alert and WANA would like to thank the research participants for sharing their insights and experiences. Finally, Alert and WANA would like to thank the Swedish International Development Cooperation Agency (SIDA), which has supported the project and publishing of this paper.

The opinions expressed in this research paper do not necessarily reflect the opinions or policies of SIDA.

Published 2023

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Layout: Racelle Ishak

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INTRODUCTION

As one of the most water-scarce countries in the world, Jordan is particularly vulnerable to water-related hazards, such as floods, and climate change.¹ The close interaction between water and climate change continues to exacerbate the challenge of reduced water for agriculture, cities, businesses and social systems,² and to have negative impacts on the country and its people, who have weathered a series of shocks, including regional crises and conflicts, which is creating significant challenges for agricultural production, food security, sustainable livelihoods and social cohesion.

The impacts of climate change are wide ranging, including effects on Jordan's import-dependent economy, environmental security and people's human security. These impacts on the communities' resilience and social fabric vary based on gender, age, economic status, location (rural, urban), lifestyle and profession.

Women in Jordan are particularly impacted by climate change, given their specific roles, responsibilities, differential access to natural resources and socio-economic opportunities, and risk factors. Women face disproportionate economic, social and cultural challenges, and exposure to climate-related social tensions. Furthermore, through increasing poverty, dependence on scarce natural resources and an imbalance of power relations, women and girls can be at increased risk of gender-based violence (GBV).³ Despite these compound challenges, women play a critical role in climate action. Although they may have had limited exposure to theoretical concepts, they have practical experience and applied knowledge of the impacts of climate change and water scarcity, and have networks to mobilise and address issues at a local level.⁴

Issues relating to human security and social cohesion and climate change, and climate change and gender have only recently begun to be examined in the Jordanian context. However, **the intersections between climate, human security and gender are largely underexplored.** The framing of human security explored in this research paper is not limited to 'hard security' such as armed conflict; it rather involves a holistic approach, encompassing the sense of safety in one's household and community, wellbeing, water security, food security, energy security and socio-economic (livelihoods) security, and gender equality. Closely linked to the concept of human security is that of social cohesion, which is conceptualised here as the level of trust and social capital between members of community groups, as well as between community members and local authorities and institutions.

This research paper examines the links between climate change and social cohesion and human security in Jordan through examples of approaches to local development, agriculture and management of natural resources that integrate an understanding of the gendered impacts of climate change on human security and social cohesion in Jordan.

Given **the multidimensional, accelerating threats to human security posed by climate change in Jordan and the disproportionate impact on women, it is critical to act now and support women-led climate action which supports social cohesion.** This research paper identifies a series of entry points and recommendations to implementers, donors and authorities for building social cohesion, enhancing gender equality and supporting human security through climate mitigation and responses.

This research paper was developed by the Jordanian think tank the West Asia and North Africa (WANA) Institute in partnership with the international peacebuilding non-governmental organisation International Alert with the support of the Swedish Development Agency (SIDA).

METHODOLOGICAL APPROACH

The methodology involved desk-based research and a series of key informant interviews (KIIs). The desk research included a review of academic publications on the linkages between climate change, gender and human security. In addition, the researchers identified gender-informed initiatives that support community resilience to climate change and insecurity. Consultations were conducted with several key informants (Table 1), and lessons learned recorded from their experiences of activities implemented on climate change, gender and security.

The interviews conducted with nine key experts from international and national organisations, as well as Jordanian governmental entities, covered aspects of climate change, water and food security, and gender mainstreaming. To ensure anonymity, each interviewee was coded as shown in Table 1.

Table 1: Key Informant code

Key informant code	Key informant position
KI-1	Expert in water resources management
KI-2	Expert in rangeland and forestry and local community engagement
KI-3	Expert in climate change adaptation and programming
KI-4	Gender expert
KI-5	Environmental expert
KI-6	Social scientist and gender expert
KI-7	Gender specialist
KI-8	Climate change specialist
KI-9	Nature conservation and water and climate change specialist
KI-10	Environmental expert / Waste management expert
KI-11	Local community representative
KI-12	Expert in water governance

JORDAN AND CLIMATE CHANGE

Jordan is located in the heart of the Middle East, with a population of 10.8 million distributed over 12 governorates, and 47% of the total population is female. Amman, the capital, has the highest proportion of the total population at 42%, followed by Irbid with 18.5% (see Table 2).⁵ As of 2019, 67,000 Iraqi refugees, 1.3 million Syrian refugees⁶ and 2.2 million Palestinian refugees resided in Jordan,⁷ making it the country with the second-highest share of refugees per capita in the world.⁸

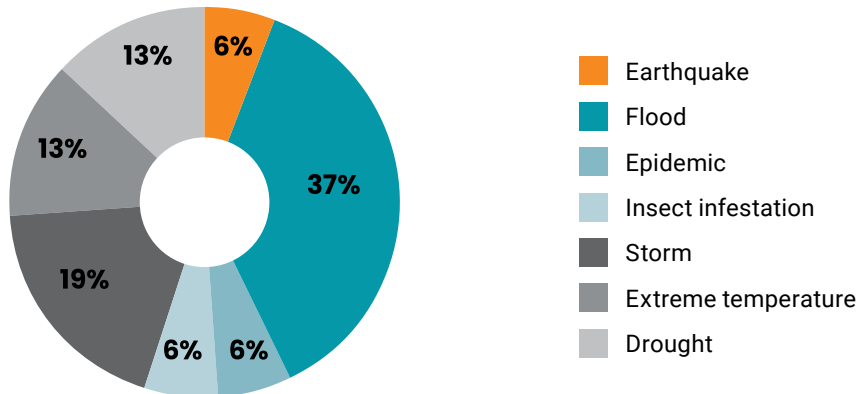
Table 2: Jordan demographics

	Governorate	Population 2020		Unemployment rate 2021		Poverty rate (2010)
		Female	Male	Female	Male	
Central	Amman	2,100,500 (46%)	2,436,000 (54%)	26.20%	25.60%	11.4
	Madaba	100,900 (47%)	113,200 (53%)	30.50%	27.80%	15.1
	Balqa	257,700 (46%)	298,900 (54%)	27.00%	27.70%	20.9
	Zarqa	728,100 (47%)	817,000 (53%)	35.00%	23.50%	14.1
North	Ajloun	96,800 (48%)	102,600 (52%)	39.70%	18.10%	25.6
	Irbid	968,300 (48%)	1,035,500 (52%)	31.00%	23.50%	15.0
	Jarash	128,800 (48%)	139,500 (52%)	35.40%	21.00%	20.3
	Mafraq	301,500 (48%)	321,000 (52%)	22.60%	23.60%	19.2
South	Karak	171,200 (47%)	187,200 (53%)	22.60%	23.60%	13.4
	Ma'an	85,700 (47%)	93,600 (53%)	15.40%	17.00%	26.6
	Tafilah	52,000 (47%)	57,000 (53%)	32.60%	23.70%	17.2
	Aqaba	92,500 (43%)	120,500 (57%)	27.90%	22.20%	19.2

The pressures of climate change have significant consequences on Jordan's economy. Jordan is a lower-middle-income country with a gross national income of US\$4,200 compared to a global average of US\$11,610, ranking it 123rd worldwide.⁹ As such, Jordan is considered a country more affected by greenhouse gases (GHG) than an emitter. It emits around 25 million tons (Mt) of CO₂ per capita¹⁰ and was ranked 129th out of 266 countries, according to World Bank data for 2016. The highest percentage of GHG sources in Jordan are emitted from energy (electricity and heat) – 10.4 Mt; transport – 8.3 Mt; solid waste disposal – 5.25 Mt; and industrial processes – 4.77 Mt. The agriculture sector contributes only 1.32 Mt,¹¹ and is the most impacted by climate change.

Jordan is increasingly impacted by extreme weather events such as sudden floods and droughts, which in turn is likely to further threaten water points and sanitation facilities, increasing contamination of water, and as such is directly impacting human health.¹² From 1990 to 2018, floods were the most reoccurring extreme weather events (37%) followed by storms (19%), as shown in Figure 1.

Figure 1: Annual natural hazards – Jordan (1990–2018)¹³



The impacts of climate change are multisectoral, with the agricultural sector being among the most vulnerable. Climate change has significant consequences on agricultural production in Jordan, especially for the rural poor who are heavily dependent on agriculture as their main source of income. The 2017 Sendai Framework Data Readiness Review estimated US\$29 million economic losses in Jordan due to natural disasters, and an 840-hectare crop loss from 1981 to 2012.¹⁴ Agriculture is especially vulnerable to climate change, and rural agriculture-dependent communities are increasingly bearing the burden. The sector already has a high poverty rate of 21%. Poverty impacts factors such as communities' ability to access improved and advanced technologies and irrigation systems to better respond to extreme weather events such as drought or frost. Negative impacts on the agricultural sector especially affect women, who have key roles as farmers, animal caretakers, workers and rural entrepreneurs, while simultaneously having a lower social status than men with restricted access to resources to cope with adverse events. Future impacts are set to also include rising food prices and dependency on food imports threatening food security.¹⁵ The health sector is also witnessing the impacts of climate change with new diseases and viruses predicted to spread due to temperature variations and rainfall fluctuations.¹⁶ There are growing implications of climate change for the energy sector, as higher temperatures and colder winters will exacerbate energy needs for cooling and heating.

CLIMATE, SOCIAL COHESION AND HUMAN SECURITY

// Drastic climatic changes will produce a domino effect by reducing agricultural and food production, threatening the survival of one-third of Jordan's biodiversity, exacerbating water scarcity, dissipating ecosystems and watersheds, and causing the decline of economic livelihoods, to name the most severe amongst other critical consequences. In the context of the ongoing Syrian refugee crisis, climate change could undermine efforts of poverty eradication and towards peacebuilding and achievement of sustainable development, turning this challenge into a global issue intersecting gender, age, and geography. //

- UN Women, Rural women and climate change in Jordan¹⁷

Framing climate, social cohesion and human security

Human security involves a holistic approach, encompassing the sense of safety in one's household and community, wellbeing and access to water security, food security, energy security and socio-economic (livelihoods) security, and gender equality (see Figure 2). This involves sufficient, fair and inclusive access to water, food and energy resources and economic opportunities, taking into account the specific barriers and enablers experienced by women and men of different backgrounds, ages, abilities, etc. Physical and psychological safety is an essential element of human security. It implies freedom from interpersonal, community and structural violence, a sense of personal safety and security, health and wellbeing. "Human security recognises that people face multiple insecurities and these must be tackled together, comprehensively. Only then will people begin to feel safe in all aspects of their lives, have the income and opportunities to attain well-being, and know that their rights and dignity are fully respected."¹⁸ Integral to the concept of human security is gender equality: "If gender equality is not fully achieved and inequalities between men and women, boys and girls persist, important opportunities that contribute to human security are lost. For example, women's exclusion from the labour market leads to reduced household incomes which in turn threatens economic security, food security, and perhaps also health security."¹⁹

Closely connected to the concept of human security is social cohesion, here understood as the level of trust and social capital between members of community groups, as well as between community members and local authorities and institutions. Aspects of positive social cohesion include inclusive participation of different genders, ages and groups in decision-making, high levels of cooperation for joint community benefits and low levels of social, economic and political marginalisation and exclusion, violence (including GBV) and tensions. Evidence shows that social cohesion can improve climate change adaptation, as communities displaying high levels of social cohesion often manage better during and after natural disasters and have enhanced emergency responses.²⁰

The importance of applying a gender lens

Despite advances, **women in Jordan continue to face significant challenges to equal political, economic and social participation.** Despite a higher level of enrolment in universities than men, women's representation in the labour market is below 15%.²¹ Unemployment disproportionately impacts women: in 2021, overall unemployment rates in Jordan reached almost 25%, while among women the unemployment rate was over 33%.²²

Traditional gender norms and roles for women mean women face compound stressors and risks in relation to water scarcity and climate shocks. Women in Jordan are generally responsible for household work, such as cooking, cleaning and the management of water resources, including rationing water. This increases physical and psychological stress when water is scarce.²³ The burden is heavier on women living in poverty and female-headed households who often lack resources and support networks to cope with climate-related shocks and food insecurity.²⁴ Furthermore, recent research has highlighted the likelihood of increased tensions in the home and risks of intimate partner violence.²⁵

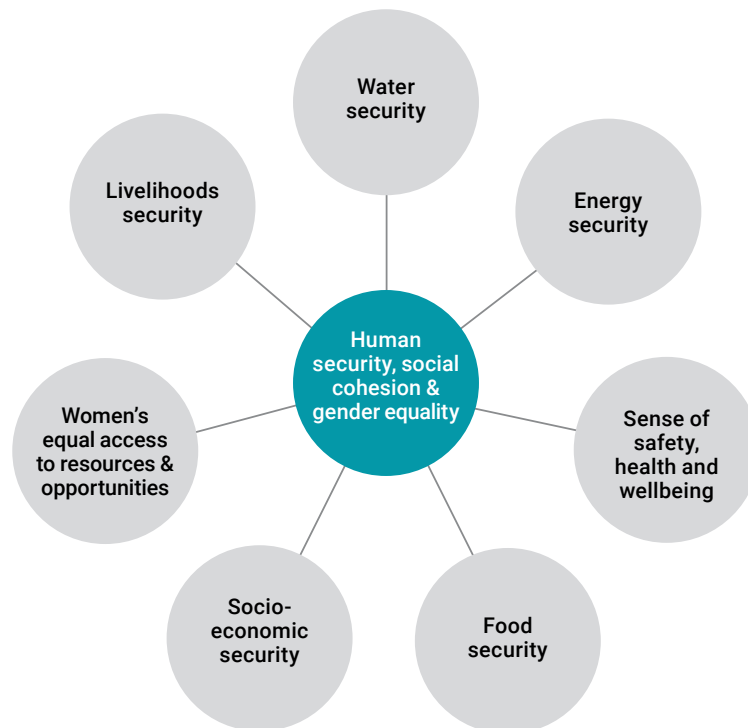
Women's role in climate action is largely overlooked, despite women being most affected. Women are still not fully represented in climate policy-making and formal climate action, despite being invested in and having direct experience of climate action. There are several barriers to women's (especially rural women's) active participation in climate change adaptation and mitigation, including lack of networks and access to decision-makers, restricted access to leadership positions and limited opportunities for skills and knowledge building, information and technologies.²⁶ Despite this, women do play an active role in informal climate actions, particularly at grassroots levels. Given this active role at the local level and the fact that women are often most affected by water scarcity, initiatives aimed at securing and saving water at the household level should be addressed directly to women. The inclusion of such gender considerations in climate action is essential as gender-blind interventions have often not shown the required results.²⁷

Climate change, social cohesion and community resilience

Climate change has implications for human security and social cohesion. Social cohesion plays an important role in building solidarity to work towards increasing resilience to potential economic, social, political and environmental risks.²⁸ Social cohesion is important before as well as after extreme weather events. Before such events, the work of identifying groups in local communities with similar vulnerabilities can help determine appropriate measures to increase resilience. After natural disasters, socially cohesive communities can better facilitate recovery processes.²⁹

Jordan has shown a level of resilience and internal cohesion in the face of many political, economic and social challenges.³⁰ However, given the outlook in terms of climate change, it is critical to reinforce social cohesion. For its communities to build on this and become truly resilient to climate change impacts, their adaptive capacities must be augmented and social capital strengthened. This includes ensuring inclusive development, implementation and monitoring of climate adaptation and mitigation planning, policy and interventions at national and community level, which actively engages women, particularly those most marginalised (such as in rural communities). Climate action which is not inclusive and does not take into account different social tensions and barriers to participation, including those related to gender, risks widening divisions rather than building community resilience.

Figure 2: Interconnected elements of human security, social cohesion and gender equality



Livelihoods security

Poor economic growth has created heightened pressure on livelihoods, and access to basic needs, which in turn imposes disparities between the population, with many people facing deficiencies which can affect social cohesion between communities. This disproportionately impacts women, given the country's ranking in the Gender Gap Index (134) and its low level of female participation in the labour force (15%).³¹ Poverty is also associated with low levels of education and professional skills that can help build resilience and bolster cohesion.³² Issues of social cohesion are often considered in terms of tensions related to employment in relation to host and refugee communities in the country, while high youth unemployment rates and gender disparities in employment also contribute to frustrations and grievances. Ensuring inclusive and sustainable livelihoods with dignity is critical to ensuring livelihoods security. In addition, addressing job precarity is important for tackling connected food security and health and wellbeing for human security. Engagement in climate action projects that also provide relevant skills, income-generation activities and access to markets can offer opportunities to women previously excluded from economic participation (see, for example, the case of an agribusiness project below).

Environmental security (water and energy)

Water security

Water security is defined as: “the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability”.³³ To achieve water security, five main components need to be met: long-term and holistic strategy to address climate security, good governance, cooperation, political stability and financing resources.³⁴

Water scarcity and insecurity has been a major challenge in Jordan and is accelerating with the impact of climate change. Significantly, while Jordan used to receive 9–10 billion cubic metres of rainfall, recently the country receives only around 3 billion cubic metres and can sustain only 7–10% of it.³⁵

Women are often impacted more directly than men in terms of water security.³⁶ When safe drinking water is not available to household premises, the burden of water collection and treatment falls largely on the shoulders of women and girls who are often responsible for household activities, such as washing, cleaning and cooking.³⁷ Exposure to illness, household harassment and violence tend to increase with the lack of safe sanitation and hygiene facilities at home, potentially hampering women’s ability to engage in activities such as learning, earning an income and moving around freely.^{38,39} According to UNICEF, many girls are unable to attend school on the days of their menstrual cycle due to inadequate WASH services in schools.⁴⁰ When a member of a family falls sick due to poor water quality, women usually provide the needed care.⁴¹ Research conducted by Mercy Corps in water-stressed and vulnerable areas in Jordan found that female-headed households faced difficulties during periods of water shortages as their dependency on private trucked water increased, with male truck drivers prioritising water deliveries to male peers. In addition, the need to buy trucked water caused friction among couples, as women were often blamed by their husbands for their water consumption and waste.⁴²

Energy security

In Jordan, 99% of households have access to electricity. Yet Jordan is facing a challenge as it imports 94% of its energy resources. Energy consumption at household level has increased by 400% in Jordan from 2005 to 2018.⁴³ Meanwhile, energy prices and supply fluctuate on a monthly basis, and price increases may oblige the poorest users to switch to lower-grade energy and fuels such as wood, coal or dung, thereby increasing indoor air pollution, to which women and children are generally more exposed than men as they spend more time indoors.⁴⁴ Meanwhile, Jordan has huge untapped potential in investing in renewable energy, especially solar energy and wind.

Energy prices intersect with traditional gender roles and increase pressure on women who have limited autonomy on household budgeting. In addition, higher electricity prices lead to either lower electricity consumption or higher electricity expenditure. As budget managers, men often decide the amount to be spent on electricity consumption, while women are the chief users to carry out domestic chores. In Jordan, women reported that they refrain from using appliances such as washing machines as a result of higher electricity bills. Women who stay at home say that they often do not heat the house during the day when other members are out to minimise their energy bill.

Food security⁴⁵

Climate change affects all dimensions of food security,⁴⁶ especially in countries such as Jordan with arid and semi-arid climatic conditions.⁴⁷ Anticipated increases in temperature and decreases in rainfall will lead to a reduction in crop yields and food production, increasing the country's reliance on food imports (the country already imports almost 81% of its domestic food requirements).

Food insecurity would be highest among rural, poor farming communities. The highest exposure to climate change impacts is expected to be seen in the Eastern and Southern areas, and the mountainous areas in the North. Highest sensitivity is expected in the northern highlands and across the Middle areas like the Jordan Valley. According to the Department of Statistics, in 2010, 10% of the total Jordanian population lived in rural areas, with 31.3% living below the level of middle class. For the rural population, land is the most valuable asset. Women own only around 3% of total croplands and therefore have a lack of control over farmlands and reduced nutritional security.

Based on different interviews with key experts, it was agreed that in the agriculture sector women are the most vulnerable to climate change.⁴⁸ Jordan Valley farmers rely mainly on female temporary labour in the harvest seasons due to their lower wages and better performance compared to their male counterparts. However, these **informal female workers are not regulated or protected by law, do not have health insurance and are exposed to harsh working conditions and direct sunlight.** One expert indicated that women tended to avoid drinking water while working due to the absence of toilets, negatively impacting their health. In addition, future variations in crop production will directly affect women's working hours and income.⁴⁹ Some farmers already tend to shift their agricultural patterns to reduce their reliance on frequent usage of female pickers. Women are vulnerable to being laid off, with consequent negative results such as to livelihoods and family relations, including an increase in male violence towards females.⁵⁰

Food accessibility in rural and urban poor areas negatively impacts women who are exposed to harsh conditions to get access to essential food. For example, in Jabal Al Nadiyah, an urban poor area, women must walk for at least two hours to reach Wehdat Centre where they can buy food and bargain for cheap products. Due to a lack of public transportation, they return with heavy bags by taxi, which is costly in terms of time, effort and money, and are exposed to harsh environmental conditions and increased risks of harassment.

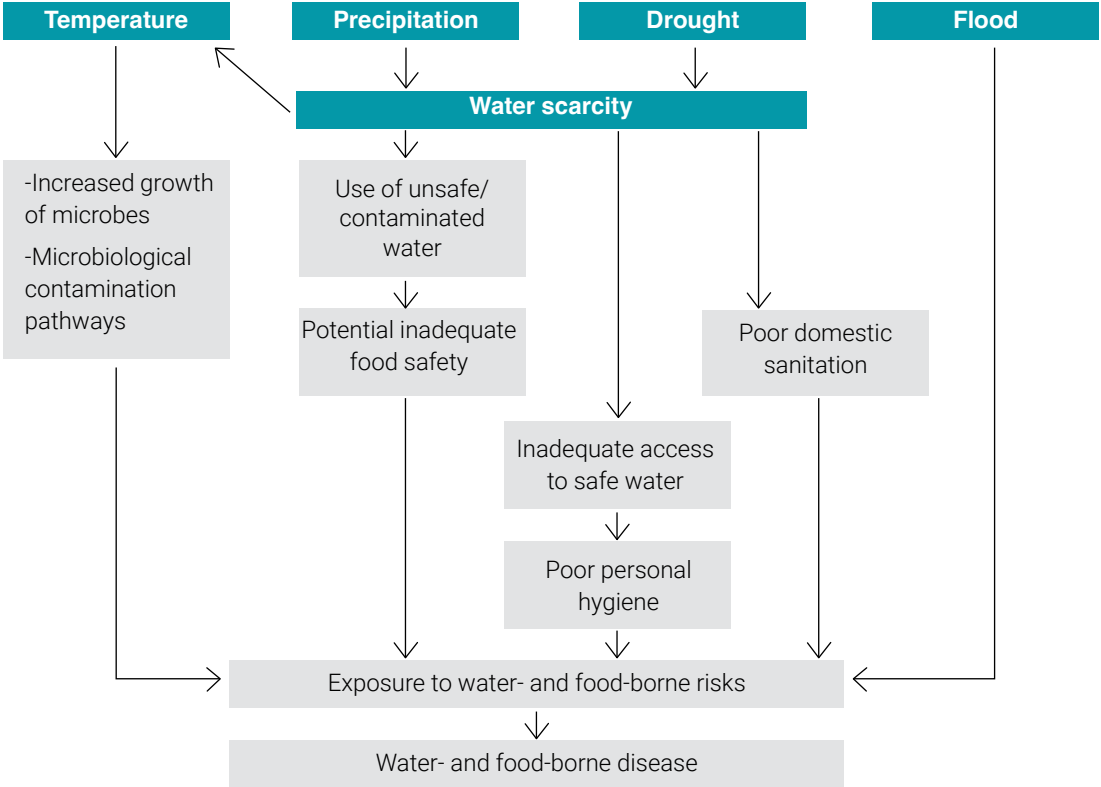
Climate change is also impacting food utilisation, which is related to consuming food that provides sufficient diet and essential nutrients, impacting women and especially pregnant women. Data indicates that elevated CO₂ levels lead to a decrease in the concentration of nutrients such as zinc and iron, and sometimes protein.⁵¹ Women of all ages, and particularly pregnant women, are more sensitive to the effects of nutrients and dietary deficiencies.⁵² In Jordan, 34.7% of women aged 15–49 already suffer from anaemia.

Health security

A growing body of evidence has documented human health risks linked to climate hazards, including higher temperatures, water scarcity, loss of biodiversity, reduced agricultural yield and rising sanitation risks (see Figure 3).^{53,54} For example, higher temperatures are associated with an increased survival of unsafe micro-organisms in food and water. Increased intensity of flood events will disrupt water-treatment plants, purification plants and sewage disposal systems in which dirty flood water can back-siphon into home water-pipe systems.⁵⁵ As a result, water- and food-borne illnesses are more likely to spread.

There are continuous cases of people using unsafe water in different Jordanian governorates due to water shortages, which has led to an epidemic of contamination in areas that already suffer from limited municipal water-pumping days. Recent episodes of water- and food-borne diseases outbreaks in Jordan include two incidents in 2007 and 2021 in the northern governorate of Jerash.

Figure 3: Climate change effects on health (water- and food-borne disease)⁵⁶



Women play an important role in breaking the transmission cycle of water- and food-borne diseases, given that they have a primary position as the household consumption decision-makers.⁵⁷

Vector-borne diseases are not currently present in Jordan but the future advent of extreme rainfall will be directly interlinked with vector-borne diseases in the long term. Virulent infections are highly sensitive to climate change variations where they influence the life-cycles of the vectors and infectious agents that carry and transmit diseases.⁵⁸ In addition, increased outdoor air pollution, through drought, dust and sandstorms, will cause respiratory diseases and infections like bronchial asthma. Droughts will cause food shortages and increased undernutrition.⁵⁹

SOCIAL COHESION APPROACHES AND TOOLS AS POTENTIAL AVENUES FOR GENDER-RESPONSIVE CLIMATE RESILIENCE

Just as climate change is threatening social cohesion, with the potential to exacerbate social tensions, climate adaptation and mitigation responses that take these tensions into account and ensure sensitivity can build community cohesion and resilience. This research paper highlights several local and household-level projects (such as faith-based awareness, agribusiness, green technologies, social waste management, etc.) that aim to build social cohesion, such as by identifying and including the gender dimension. The projects explored in this research paper are at different phases in the project cycle, therefore some have demonstrated lessons learned and outcomes, whereas, in other projects, results are still emerging. Each project provides different insights into how social cohesion, human security and gender can be considered and strengthened through different interventions related to climate change.

Faith-based environmental awareness

A faith-based approach involves utilising the religious traditions and teachings of a community in promoting awareness on environmental topics such as conserving water. Religious faith is important to Jordanian communities, and the faith of different religious groups can be used as a framework for raising awareness on the water challenges in Jordan.

Gesellschaft für Internationale Zusammenarbeit (GIZ) created a framework in the northern governorates that included reaching out to official religious entities and educating religious leaders and scholars regarding water protection and conservation techniques. This knowledge was then communicated to communities (Muslim and Christian) during their respective weekly prayers. In addition, water-saving techniques were implemented in mosques and churches, demonstrating real-life examples on the effectiveness and efficiency of these techniques. The framework also promotes the idea of including environmental knowledge and awareness in the curriculum of religious education in schools and universities.⁶⁰

In addition, the Ministry of Awqaf and Islamic Affairs/Department of Women Affairs in collaboration with Jordan Forum for Business and Professional Women (JFBPW) – funded by USAID – launched a programme that promotes Waithat (female religious scholars) in raising awareness in reducing water and energy consumption. In this programme, Waithat from six different governorates were trained for three days, and then passed on the knowledge they learned to women in households and encouraged them to use water-saving equipment and efficient light bulbs. This knowledge was also transferred to female students, and a guidebook was produced and distributed that showcased water-management practices in daily life from an Islamic perspective.⁶¹

Green job opportunities

Green jobs play a vital role in human security, including water, food and energy security, by both providing livelihoods and ensuring environmental protection.

Agribusiness

Agribusiness includes all activities within the food value chain, starting from the raw material of agriculture inputs to production of agricultural products and delivery to end users. Agribusiness creates 'off-farm' job opportunities that can improve the economic conditions of vulnerable local communities. In Jordan, agricultural production and processing is important for rural women who could benefit from participating in such opportunities.

One of the interviewees for this study used the example of a project titled "Wadi" that was implemented in one of the northern governorates where agriculture is strong. A group of women from different community-based organisations (CBOs) were selected and given intensive capacity-building workshops on technical skills to work in nurseries preparing seedlings. Other trainings included marketing and branding for end products, such as marmalade and vinegar, facilitating their access to the market. The project had two major outcomes. First, it incentivised women to start their own nurseries, providing a food source and income for themselves, as well as employment opportunities to other local women. Second, the women were able to transfer their knowledge to other areas of the country.

Another interviewee highlighted that gendered social norms can be very dominant in the community, and there was opposition to the idea of women going into fieldwork and attending workshops. This challenge was overcome by showing the families the details of the work, as well as securing safe transportation for women participants. The result was not just the overcoming of a taboo, but also social cohesion was strengthened through the interaction of women from different areas and addressing gendered barriers to inclusion.

Adopting clean technologies

Shifting to clean technologies is a transformative approach that can mitigate the negative impacts and slow the progression of climate change. Women have largely not been part of such initiatives.

In 2018, the Jordan Valley Links programme was launched to support the development of soft and technical skills in increasing energy skills among more than 580 women entrepreneurs. The programme also promoted clean energy adoption within the local communities. After attending several workshops and lectures regarding clean technologies, as well as other skills, women were able to establish their own businesses that focused on introducing LED lights to vulnerable communities to reduce energy consumption and energy bills.

Integrated Water Resource Management (IWRM)

IWRM means making the best use of every drop of water. Reclaiming wastewater for different purposes is one approach⁶² that, among other outcomes, reduces the risk of competition and conflicts over limited water resources. Adaptation tools such as water conservation devices and non-conventional water for irrigation purposes can provide food, crops and access to healthy organic options through home gardens. By engaging communities in management and decision-making, IWRM can have the additional benefits of building community bonds and social cohesion, as well as enhancing awareness around climate change and techniques for resilience.

Climate change adaptation of agriculture through technology transfer for vulnerable communities

Reuse of Treated Wastewater for On-farm Agricultural Adaptation in Wadi Mousa

One interviewee shared their experience of the climate adaptation fund under the umbrella of the Ministry of Planning and Cooperation. The project, Reuse of Treated Wastewater for On-farm Agricultural Adaptation in Wadi Mousa, was implemented in the southern governorate of Ma'an, where the poverty rate is around 26% and there is limited water supply. This Bedouin community is one of Jordan's 'poverty pockets' and agriculture dominates the local economy.⁶³ Under the project, around 22,193,200 cubic metres of treated wastewater per year will be reused in irrigated agriculture.⁶⁴ The project target beneficiaries are 240 families with an average size of 6 members (960 male and 480 female landowners) who benefited from technology transfer and capacity building on the importance of the reuse of treated wastewater as an option to increase water availability. A total of 350 dunums of land were planted with trees and fodder for livestock.⁶⁵

Alternative farming for development

Under a European Commission-funded project implemented by WANA, the Training for Change: Empowering Civil Society to Advocate Policies project aims to enable and build the capacity of seven CBOs in knowledge and skills on environmental topics. Afaq Al Readeh for Development and Training is implementing a project on alternative farming methods using a hydroponic system to mitigate the over-extraction of groundwater.

Afaq Al Readeh supported the implementation of three different initiatives using deep water culture and Nutrient Film Technique (NFT) in Rihab, Bala'ma and Mafraq city. Project activities also included awareness building on the importance of water conservation, which these technologies promote, training sessions on environmental and agricultural challenges in relation to human health, alternative farming options and models, entrepreneurship in environmental and agricultural projects, networking and collaboration between different social institutions, such as CBOs, and proposal writing to enable technology and knowledge transfer, and the installation of three alternative farming systems in each area.

Reduced water consumption through water conservation techniques

Water and energy efficiency committees in the North of Jordan

In Jordan, household managers are often women, who are also responsible for the water resources for domestic use. The Royal Scientific Society is implementing a "Water and energy efficiency committees in the north of Jordan" project, which includes the installation of water-saving devices at the household level, where they can be placed on faucets around the house.

As stated by a research participant, "The northern governorates of Jordan have witnessed a sudden increase in population due to the influx of Syrian refugees, which puts pressure on the water supply in many villages, where water is piped once for ten hours every three weeks." Household managers therefore had to adapt their activities around water.⁶⁶

Water conservation devices to enhance water sustainability in Sakhra area – Ajloun governorate (north)

Under the EU-funded project “Training for Change: Empowering Civil Society to Advocate Policies”, CBO Aum Al Lulu is conducting a project to ensure water conservation in one of the most affected northern governorates with intermittent water supply and depleted water resources. The CBO has included several activities to engage women and men on the role of water conservation. Project activities included awareness sessions with housewives on water conservation and the distribution of 600 water conservation devices for faucets. In addition, five houses benefited from the renovation of their water-pipe system due to old age and leakage problems. Greywater reuse systems were installed for irrigation in seven household gardens.

Water harvest and reuse at household level

Living in a freshwater-scarcity situation encourages the adoption of different solutions. Another component of the above-mentioned EU-funded project that promotes water conservation techniques in northern governorates of Jordan works on installing units for the reclamation of greywater for reuse for the irrigation of home gardens. Home managers, who are usually women, were also trained to use compost as an organic fertiliser in their home gardens.

Home gardens for household sufficiency in Karak governorate

Rainwater harvesting is another household-level activity that can provide supplementary water. In the northern and southern (highlands) part of Jordan, 90% of agriculture is rainfed.⁶⁷ The southern part of Jordan is expected to receive higher amounts of precipitation under RCP 4.5 climate change predictions.⁶⁸ Hence, there is a need to better utilise rainwater for irrigation purposes. Currently, many areas in Jordan cannot afford to have home gardens due to limited water resources for irrigation. The Zahum Charity organisation located in the southern governorate of Karak is implementing a project that will benefit homes by the installation of rainwater-harvesting tanks to help irrigate home gardens.⁶⁹

Solid waste management

Waste generation accounts for 7% of GHG emissions in Jordan.⁷⁰ Solid waste comes from domestic, commercial, medical and industrial sources. A total of 90% of solid waste comes from domestic generation.⁷¹

Solid waste management in Ma’an

In a rural community in the southern governorate of Ma’an, a CBO focusing on conservation of nature and people implemented a project with female household managers, school students and commercial building owners on solid waste management and recycling. Awareness and capacity-building training was provided for 400 female household managers on the importance of sorting waste and recycling.⁷² From the 400 women, 200 from the most vulnerable households were compensated with a financial return for the waste they sorted and turned in.⁷³ School students were encouraged to integrate the concept of recycling into their curriculum and daily lives, thereby becoming more socially and environmentally responsible.

Participatory stakeholder involvement at each level of the project cycle supports gender inclusion

Actively engaging stakeholders in planning, implementation and monitoring projects throughout the project cycle can enhance gender inclusion and social cohesion outcomes of climate action. Stakeholder mapping in project design to identify underrepresented or marginalised individuals and groups can promote a participatory approach that ensures the involvement of stakeholders according to diverse needs, including women's and men's different vulnerability to access water.

An example of a project that considered gender inclusion throughout the project cycle was "Increasing the Resilience of Poor and Vulnerable Communities to Climate Change Impacts in Jordan through Implementing Innovative Projects in Water and Agriculture in Support of Adaptation to Climate Change". The project, implemented by the Royal Scientific Society/Climate Change Division, provided a programme of activities including awareness, capacity building and peer-to-peer learning sessions with a gender lens on ways to conserve water at the household level and at a farm level. It ensured active participation of men and women through its design and awareness-raising activities during implementation. One interviewee stated that "programmes, initiatives and actions shall consider gender equality along the implementation of each activity where both males and females could contribute as an agent of change at different levels and capacity".⁷⁴

CONCLUSION

Climate change, especially its impacts relating to water scarcity, poses real risks to social cohesion, human security and gender equality in Jordan. Water availability is diminishing, while quality and accessibility is worsening. Food production is fluctuating and energy security is threatened by a rising need for heating and cooling. Health security is under threat from the appearance of new diseases and viruses, some related to temperature variations or the deterioration in water quality.

Women are disproportionately impacted by climate-related hazards and disasters. At the same time, given women's role in productive sectors, they can and do play a central role in climate action. Accordingly, initiatives aiming to increase resilience towards climate change and human security should be sensitive and inclusive to gendered pressures, expectations and norms.

As the negative impact of climate change affects people's human security in Jordan, social cleavages are set to rise, threatening social cohesion. This includes significant increases in gendered impacts of climate change and environmental crises, as well as disparities between urban and rural populations, regions and socio-economic classes. This increases the risk of tensions over scarce resources, food and economic opportunities, and GBV, thus underscoring the need for climate action that integrates peacebuilding approaches.

Evidence from initiatives covered in this research paper illustrate what this could look like by pointing to **the importance of addressing integrated water resources management, capacity building and knowledge transfer, green job opportunities and faith-based environmental awareness, which prioritise building social cohesion and promoting gender equality as a common denominator.**

RECOMMENDATIONS

This study recommends the following to implementers, authorities and donors:

On programming and implementation

- **Ensure easy access and safe transportation methods to food markets for women:** Women in poor rural areas are suffering from a lack of affordable and efficient access to food markets due to the lack of transportation means. Creating reliable and safe transportation networks (that ensure the physical safety of road users especially for women when travelling alone) to and from food markets would result in better food security for women and their families to increase their resilience towards the effects of climate change. This could be a joint effort from the Ministry of Transportation and the Ministry of Municipal Affairs and could include creating bus stops and safe bus routes. Another approach could be creating food markets in areas close to women in rural areas, following appropriate research.
- **Empower women to increase their knowledge of resource management and environmental ownership to increase community resilience, and involve men in this process:** Women do not have sufficient knowledge on environmental issues and their effects on their livelihoods. Capacity building should also include men to build their support for women's leadership on environmental issues. This can help create enabling environments for women and men to become aware of their rights, the specific issues and challenges facing women, and to address tensions related to women's role in climate action, thus enhancing community cohesion.

On policy-making

- **Include the participation of vulnerable communities, in particular rural women and women heads of households, in decision- and policy-making:** The inclusion of different women in vulnerable areas in decision-making can ensure their perspectives are taken into account when decisions are made concerning them. It is essential to understand the roles and responsibilities of women and men at the household level and how resource scarcity and other environmental pressures impact them differently to enable them to effectively voice their opinions on matters that affect them and affect change.
- **Develop policy to protect informal labourers:** Most female workers are seasonal temporary employees who are paid less than men while being exposed to harsh environmental conditions, have limited employment protection and are subject to other risks (such as harassment). Work to ensure their rights through legal frameworks and support local businesses to provide for different needs of employees and ensure their rights are protected.
- **Include the health sector in the nexus considerations around water, energy, food and environment:** When assessing climate change impacts, it is vital to assess effects on health (physical and mental health) and wellbeing. This is often neglected but is at the core of people's food, water and energy security, and the associated impacts of climate-related shocks and pressures (poor nutrition, etc.).

On research and evidence

- **Carry out more research to increase understanding of how women and men from different social backgrounds are affected differently by climate change** and how they can respond to climate change challenges, be it in mitigation or adaptation efforts.
- **Decision-making in climate mitigation or adaption responses needs to be evidence-based**, informed by the different needs and priorities of women and men from different backgrounds and **inclusive**, involving diverse voices and community members.

On funding

- **Invest in community initiatives, especially those that are women-led, integrating the following intervention areas:** Integrated water resources management, capacity building and knowledge transfer, green job opportunities and faith-based environmental awareness. Ensure initiatives are informed by a nuanced understanding of gender dynamics and are designed to foster social cohesion.
- **Increase support for interventions that grow spaces for women's leadership in climate security actions and the green economy:** Capitalise on the tangible opportunities that already exist to grow spaces for rural and urban women of all backgrounds to actively participate in and lead initiatives.
- **Allocate budgets and financial instruments for climate change actions to be responsive to the gender dimension and prioritise women's participation:** Budgeting should be gender sensitive, taking account of the needs and capacities of both genders. This could include, for example, recognising and taking action, such as through financial support, to overcome the challenges that women often face related to the lack of inclusion in initiatives, such as business accelerators, especially in rural areas.

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