The Ministry of Water and Irrigation

Water Sector Policy
For Drought Management

2023

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This document is an integral part of the National Water Strategy and related policies and action plans.

1. National Water Strategy 2023-2040.
2. Water Sector Capital Investment Program (2023-2040).
3. Water Demand Management Policy.
4. Energy Efficiency and Renewable Energy in the water sector Policy.
5. Water Reallocation Policy.
6. Surface Water Utilization Policy.
7. Groundwater Sustainability Policy.
8. Wastewater Management and Reuse Policy
9. Climate Change Policy for a Resilience Water Sector
10. Water Sector Policy for Drought Management
11. Action Plan to Reduce Water Sector Losses (Structural Benchmark).

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FOREWORD

Jordan is a nation with extreme water scarcity that has always been one of the biggest barriers to our economic growth and development. This crisis situation has been aggravated by a population increase that has doubled in the last two decades because of refugees fleeing to Jordan from neighboring countries, in addition to the trans-boundary and climate change issues affecting Jordan's water supply.

In the face of these challenges, and to achieve our goal of successful integration of Jordan's water resources management, the Ministry of Water and Irrigation has been active in developing a new policy for drought management in the water sector that sets clearly defined rules to manage the scarce water resources efficiently and sustainably taking into account the risks of droughts on the water sector. This new policy lays out the measures and actions required to achieve our national goals for long-term water security, built upon results of the newly developed and adopted national water strategy, policies, and plans that are constantly updated based on the results. Together they are an integral and ongoing part of the overall management efforts that have already been achieved.

This policy is the result of the efforts of the working group to whom I am thankful. My team has been putting great efforts to enhance water governance that support this policy at all levels, which include enforcement of a suitable legal framework and regulatory tools, enhancing efficient institutional capacities, and supporting dynamic management plans that adapt to the concepts of participation and decentralization all under the umbrella of integrated water resources management which I am sure will show results in the near future.

Eng. Raed Abu Soud

Minister of Water and Irrigation

1 INTRODUCTION

Water scarcity in Jordan is a known problem that represents a challenge to development plans in different sectors. The problem is exacerbated by droughts resulting from the decreased precipitation and its uneven spatial and temporal distributions, the high population growth and hosting of refugee waves, the increasing economic development needs, and the adverse climate change impacts.

Over the past two decades, Jordan has witnessed a decline and fluctuation in rainfall, exacerbating pressures on water availability, distribution and affordability by the Government and the citizen, as well as giving priority to the use of fresh water for household purposes. Several studies and forecasts have shown that drought severity will increase in the future, with predictions suggesting that drought would occur once every three to four years.

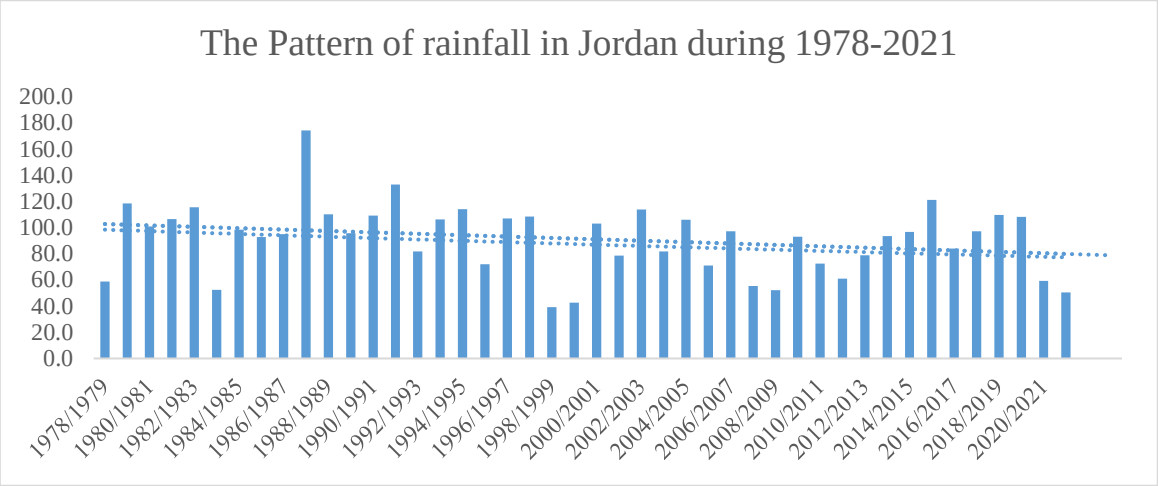
At the same time, Jordan's renewable water resources are limited and insufficient to meet the increasing demand. Increasing evidence is evident of overexploitation of many surface and groundwater sources. Whereas the annual sustainable yield of the renewable groundwater is around 277 million cubic meters, the actual extraction is around 450 million cubic meters in year 2021. This resulted in depletion and deterioration of water quality of groundwater and drying of wells. The *per capita* annual sustainable water supply has decreased from more than 500 m^3 in 1975 to 140 m^3 in 2010 and around 100 m^3 in 2022, much below the global water poverty line of 1000 m^3 per capita per year for all uses.

Many policies, strategies and plans were developed by Jordan Government to promote the development, management, and use of water resources and to meet the future challenges facing these resources. The National Water Strategy (2023-2040) highlighted climate change and its impact on water resources and the need for drought forecast management and adaptation to climate change through appropriate policies and regulations. Despite the outstanding efforts of the national institutions in water management, the problem of drought and its impacts on various sectors is still increasing, as the existing response is not programmed and lack coordination and integration. The current approach to drought management is interactive, which may exacerbate the negative effects of drought on the social, economic, and environmental aspects. Therefore, it is important to adopt and implement a comprehensive approach based on integrated drought management to reduce the impacts using proactive and preventive risk management approaches, instead of using the interactive crisis management approach. Therefore, the water sector must develop a policy that aims to institutionally address the risks of drought incidences.

2 DROUGHT PHENOMENON

Drought is defined as the situations and conditions resulting from lack of water storage due to shortfall of rainfall over a period of time. Drought has several types that include meteorological, agricultural, and hydrological drought, resulting in adverse effects on both economic and social aspects. Data from the Jordan Meteorological Department and results from different local and international studies indicated negative changes in temperature and rainfall in Jordan and a potential increase in incidence and severity of droughts. Records for the period 1978-2021 indicated a clear climate change at the level of the country as shown

in the following figure:



Several studies have indicated that Jordan River Basin will experience a more severe drought in the period 2031-2060 compared to 1961-1990, with the expectation of increasing severe and extreme drought events.

Successive droughts in Jordan occurred at least three times in the last 40 years. The frequency is expected to increase every 20-25 years, with a mild drought event every 3 to 4 years and a severe or extreme drought every 6 to 7 years. Subsequently, with the increase drought events and the negative impact of climate change, the internal long-term conventional water resources availability will decrease even further from current levels of 65 m^3/ca/yr. to 46 m^3/ca/yr. (NWMP 2020).

Impacts of drought will not be confined to water sector, but they will also extend to the agricultural sector through shortage and misdistribution of rainfall resulting in lower volumes of crops production, in addition to the health sector, which will be directly and indirectly affected by droughts. The known impacts are related to water shortages or the use of marginal water sources, which may adversely affect the health services provided to the population.

Generally, negative impacts of historic droughts recorded in Jordan resulted in drying of springs and recession of discharge others, groundwater level has decreased by approximately 1 meter/year in the past 30 years, decreased base flow of surface water and side wadis of Jordan Valley and decreased water storage rates (by less than 50%) in the main dams in the past 20 years.

3 POLICY RATIONALE

Current drought management challenges include the weak link between information, knowledge, available climate tools, and decision-making on adaptation actions at the level of affected sectors, in addition to the lack of special drought forecasting tools for Jordan. At present, national capacity is weak in terms of developing sectorial adaptation measures and measures needed to mitigate

the effects of drought.

Adoption of a drought management policy for the water sector can be justified in the following points:

- There is no clear legislation dealing with drought like other natural disasters, although drought has been included in the action plan of the National Center for Security and Crisis Management.
- Drought is not treated as a disaster; it is an emergency or water shortage condition.
- Drought management in Jordan is still based on interaction with crises and what is known as post-event measures. In other words, actions are not proactive, other than being targeted primarily for relief. This is due to the absence of a national drought management policy that supports action plans at sector level.
- Current national drought response responsibility is not clear when it comes to which institution should have the lead, and lacks coordination as it is usually managed by different departments and sections within the relevant institutions. Therefore, there is a need to update the current policy and existing legislation in the water sector to support national efforts to manage drought or to address its effects within appropriate timeframes.
- Resources for drought preparedness, mitigation, response, and recovery are not available in a manner commensurate with the challenge posed by these disasters.

4 POLICY OBJECTIVES

The main objective of the water sector policy for drought management is to promote an integrated management approach to minimize the negative impacts of drought on society, economy, social values, environment, and natural resources, especially water. Specific objectives are:

1. Ensure adequate supply of water to meet the basic needs of the population to ensure good health and preserve lives during all phases of drought, with special focus on vulnerable groups, that might include -but not limited to ; women, girls, refugees and PWDs.
2. Minimize the negative impacts of drought on water resources and bodies, especially freshwater resources, dams and surface and groundwater.
3. Reducing the negative impacts of drought on agriculture and other economic activities, in accordance with the priority given in the national water strategy and other drought-related plans and strategies.
4. Strengthening national capacities through the establishment of a national drought forecasting and early warning system
5. Develop and implement national drought management plans based on proactive risk management rather than crisis management in order to address various types of droughts in coordination with the public and private sectors.

6. Ensure effective coordination of institutional response to drought mitigation measures.
7. Develop, coordinate, and evaluate action plans and contingency plans to address various types of droughts, through the National Center for Security and Crisis Management and in coordination with vital public institutions and the private sector.
8. Planning and implementing educational, training, and public awareness programs related to drought management, while engaging youth students at schools and universities, NGOs and local community-based organizations (CBOs) in implementing the awareness programs.
9. Encourage affected economic sectors and population groups to adopt self-reliance measures that enhance risk management.

This policy is in line with sustainable development goals (SDGs) in general and the goals related to clean water and sanitation (Goal 6), climate action (Goal 13) and Life on Land (Goal 15), in particular. Furthermore, Marrakesh proclamation (November 2016) and the Paris climate agreement on climate (entered action in November 2016) provide additional context for this policy, as they identify solutions to mitigate climate change and enhance countries capacity to deal with the impacts of climate change and drought. They also assess needs for adaptation to aid developing countries and to propose programs to finance the mainstreaming of climate change adaptation measures.

5 IMPLEMENTATION

5.1 LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

The Ministry of Water and Irrigation was established in 2018 and the formation of National Committee for Drought Management in addition to the establishment of a Technical Drought Committee marked start, followed by the Drought Management Unit. the start of implementation of coherent and proactive management plans for drought risks, besides the existence of legislation in Jordan related to disasters. The aim is to harmonize and integrate efforts of all ministries and public and private institutions concerned with drought, and to optimize the use of available capacities and resources, as well as to prevent duplication and overlapping. An amendment to existing laws and regulations in Jordan will be carried out, when necessary, through reviewing the context and importance of existing legislation related to sustainable management of water resources. It is therefore necessary to consider the following points:

- Review and periodically update legislation to support drought policy and action plans.
- support the developed framework to enhance and sustain communication and cooperation in the areas of drought management and planning, data exchange and implementation of mitigation and response plans.
- Activation of the National Committee for Drought Management, previously formed by the decision makers from the relevant institutions who have the authority to make executive decisions, which receives all technical recommendations from the already established Drought Technical Committee from all relevant governmental entities.

- Roles and responsibilities of the established drought management unit include the following tasks:
    1. Regular and timely collection, analysis, and dissemination of drought information.
    2. Conducting drought risk and vulnerability assessments.
    3. Collaborating with JMD and others to monitor and predict drought.
    4. Providing decision-makers with information and recommendations for drought management.
    5. Setting the technical criteria for drought.
    6. Coordinating with other institutions to assess drought impacts and loss and damages in different sectors.
    7. Follow up with the drought action plan, including preparedness, mitigation, and response actions.
- Clearly define the roles and responsibilities of institutions at the local, national, and regional levels.
- The Ministry of Water and Irrigation shall update the drought management policy and its action plan for the water sector and follow up its implementation with all concerned parties.
- Giving priority to capacity-building of water-related institutions and capacity-building of human resources with emphasis on youth and gender to ensure effective drought management and effective implementation of action plans.
- Capacity-building for monitoring, early warning, drought forecasting and water management with emphasis on youth and gender.

5.2 PUBLIC AWARENESS AND COMMUNITY PARTICIPATION

- Conducting a public awareness campaigns and water education through various means of communication and media focusing on water scarcity and drought, as well as contingency measures and spreading the culture of awareness and responsibility to overcome water shortages during drought events.
- Develop educational programs and materials for youth within the education system to increase their awareness towards drought and water-saving behaviors, with emphasis on gender and the important roles of woman in water management.
- Develop a comprehensive public education program on water issues to support and assist in the conservation and management of water resources in all uses.
- Promote stakeholder participation in water conservation and protection programs with a strong emphasis on gender-differentiated tasks.
- Launch an education campaign to improve water use and conservation and change the tone of public debates on water rights, drought relief, compensation, and drought conditions.

5.3 INTERNATIONAL AND REGIONAL COOPERATION

- Cooperation with neighboring countries to exchange information on drought and climate data.
- Utilize international expertise in drought management to enhance capacity in this regard.
- Comply with international and regional conventions and agreements, to which Jordan is committed.

5.4 SCIENTIFIC RESEARCH AND ACADEMIA COOPERATION

- Increase support for research in the areas of drought risk mapping, vulnerability assessment, seasonal drought forecasting, drought indicator and drought management aspects.
- Utilize research findings and recommendations in decision making and in updating policies and other relevant strategic documents.
- Promote research on drought to improve drought management, innovation, and technology programs; and conduct research in social sciences to assess the socio-economic impacts of drought in temporal and spatial dimensions to better understand risks and vulnerabilities.

6 MONITORING AND EVALUATION

The adoption of best mitigation policies and more advanced monitoring and prediction systems will not prevent drought. Therefore, it is important that methods of drought management are carefully planned before the crisis. Also, they shall be flexible and scalable. Therefore, the developed mitigation and response plans and this policy shall be continuously monitored and evaluated as a dynamic document, updated whenever there is a change in policy inputs, or an evolution of droughts and their effects occur, or changes in population demographics are taking place. Indicators for implementation should be developed and a report on the proposed amendments shall be prepared.

This policy shall guide the development of the mitigation and response plans for the water sector that will support national efforts to enhance preparedness and response to drought-related natural disasters. Also, it will enhance the capacity and resilience of affected sectors through a series of interrelated activities that can contribute to the development of inter-sectorial linkages to ensure no conflict among them and to mitigate the effects of drought.