The Ministry of Water and Irrigation

Water Sector Policy For Surface Water Utilization

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 burdened 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 alone because of refugees fleeing to Jordan from neighboring countries. We must then add to this the transboundary and climate change issues affecting Jordan's water supplies.

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 putting forward new policies that set clearly defined rules to manage the scarce water resources efficiently and sustainably. These new policies lay out the measures and actions required to achieve our national goals for long-term water security. These result-oriented policies are built upon and updated from previously adopted strategies, policies, and plans. 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 working group to whom I am thankful. My team has been putting great efforts to enhance water governance that support these policies 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 the concepts of participation and decentralizations all under the umbrella of Integrated Water Resource Management which I am sure will show results in the near future.

Eng. Raed Abu Soud

Minister of Water and Irrigation

1 INTRODUCTION

Surface water accounts for about 53% of the total available freshwater resources in Jordan, which basically consists of the base flow in wadis, rivers, springs' discharge, and flood water during rainy seasons. Surface water volumes are mainly dependent on rainfall which fluctuates in time and space, it also depends on the aquifers characteristics that feed wadis base flow and springs, those characteristics define the quality, quantity, and durability of discharged water.

Because of the relative durability of the surface water from springs and base flow discharge which does not require high investments for its development. This water resource is almost entirely tapped in Jordan.

The flash floods are the most common and dangerous floods. They are caused by heavy rains in short duration and, characterized by volatility in terms of quantity, and may pose a threat to people's lives and cause huge damage to the public infrastructure and private properties. Therefore, mitigation measures are needed to avoid the adverse effects of these floods and more infrastructure investments are required to store this floodwater and use it.

Around 28% of the total available water resources are originated from surface water (Water Budget 2021). The total design storage capacity of major dams in Jordan was approximately 352 million cubic meters (MCM). In early 2022, JVA corrected the design capacities to 302 MCM and available capacity for use to 281 MCM, through excluding Karama dam capacity (52MCM) and the estimated sediments from some dams (20.2 MCM).

During the period 2010-2020, the average storage amount in these dams was only about 50% (about 170 MCM).

It is essential to maximize the use of surface water to the greatest extent possible by increasing the efficiency of water use in the various sectors and investment in rainwater harvesting in remote areas and from rooftops, while focusing on women role in this area. Most of the surface water in Jordan is used for agricultural purposes, while there is a need and a top priority to meet the growing demand for municipal purposes which calls for the development of action plans and programs for further utilization of surface water for municipal purposes and for high returns economic activities. In this respect, the surface water utilization policy is highly needed.

2 POLICY OBJECTIVE

The objective of this policy is to present in more detail what is envisioned towards the maximum utilization and optimum use of surface water, its protection, its management, and propose measures needed towards successfully integrating all its components.

3 WATER RESOURCES DEVELOPMENT

1. The full potential of surface water shall be tapped to the extent permissible by economic feasibility, and by social and environmental impacts.
2. Assessment of the available and potential surface resources shall be conducted periodically.
3. An integrated development and conservation program shall be established to increase

surface water development in Jordan, including the development of sustainable management plans for surface water systems in the Jordan Valley.

4. A far-sighted plan shall be formulated for the development of surface water resources, and a revolving plan shall be extracted from it and updated as necessary. The revolving [management] plan shall be compatible with those formulated for the other sectors of the economy. A parallel investment plan shall accompany the development plan.
5. Supply-enhancing measures shall be adopted, including surface and subsurface storage, minimizing losses by surface evaporation and seepage, soil, and water programs, and protecting surface water supplies from pollution.
6. Potential shall be tapped, and maximum use made of the extensive experience gained within MWI in the design and construction of water harvesting schemes (ponds and desert dams) in the Highlands.
7. Land use in all catchments and sub-catchments shall be subject to permitting in cooperation with ministries and municipalities such that the generation of sediments subject to being transported by rainwater is minimized.
8. Protection zones for all drinking water sources shall be delineated and monitored.
9. Cooperation with concerned authorities and other governmental bodies shall be undertaken to ensure that restrictions imposed on protection zones are implemented and enforced.
10. Storage of dams shall be enhanced by reducing/managing sediments accumulated over the years, and by minimizing losses due to evaporation.
11. Sedimentation caused by soil erosion shall be minimized by delineating bare soil areas on sloping terrains and planting them, starting with areas closer to the dam and moving out to cover the entire catchment.
12. A comprehensive monitoring and assessment program for surface water quantity, quality, uses and protection shall be in place in order to enhance surface water resources.
13. Interactive use of multiple resources (especially groundwater and surface water) with different qualities shall be targeted to maximize the usable flows and maximize the net benefit from the use of a unit flow of water. Furthermore, where the opportunity allows, priority shall be given to substituting groundwater used for any purpose by surface water where available.
14. Whereas climate change is anticipated to lead to reduced precipitation and higher temperatures for which provisions shall be made to reduce the impacts thereof, measures shall be taken to account for extreme events such as higher rainfall intensities and lower temperatures.
15. Design training and capacity building programs for women and housewives on water harvesting concept and tools and utilization from rooftops.

4 TREATED WASTEWATER AS SURFACE WATER

The quality of treated wastewater from all municipal and industrial wastewater treatment plants, used in industry and unrestricted agriculture, shall meet national standards, monitored regularly, and reviewed periodically.

Public health and the environment, in particular surface water supplies destined for potable use shall be protected from contaminated wastewater in the areas surrounding wastewater treatment plants.

5 IRRIGATION

Water allocated to irrigated agriculture is dynamic in nature as the total amounts of surface water vary. The agricultural sector's share of water resources shall be capped over a planning horizon and will favor other sectors that show a higher economic return per cubic meter consumed.

Resource management shall continually aim at achieving the highest possible efficiency in conveyance, distribution, and use. One such policy is the separation of bulk from retail and entrusting the retail function to private entities, as JVA is doing with Water Users Associations and WAJ with the corporatized utilities.

Institutional arrangements and legislation in effect shall be periodically reviewed to appraise adequacy of the retail function for irrigation water being handled by the empowered WUAs.

Appropriate water tariffs and incentives shall be introduced in order to promote water efficiency in irrigation and higher economic returns for irrigated agricultural products.

6 LOCAL AND REGIONAL COOPERATION

Cooperation and coordination among public and private entities involved in environmental considerations of water development and management shall be assured.

Work shall take place with Ministries of Environment and Agriculture and the NGOs, particularly the Royal Society for the Conservation of Nature RSCN, to monitor biodiversity in various surface water bodies and by developing short-, medium- and long-term plans to address issues of ecological impacts.

Close cooperation shall be maintained with the other organizations whose activities may directly impact the performance in the water sector. Planning for project implementation and thereafter for water allocation shall be based on these considerations.

Around a quarter of Jordan's renewable water resources originate from outside its territory[1]. As a result, Jordan must manage resources that can be affected by the actions of other countries which are completely outside of its control but still impact water supply availability.

Efforts shall be maintained to sustain Jordan's rights in shared surface water resources through cooperation, negotiations, and agreements.

[1]FAO [2017]. AQUASTAT Core Database. Food and Agriculture Organization of the United Nations. Web: http://www.fao.org/aquastat/en/.

Shared basins shall be managed as a holistic resource, irrespective of national borders, and should be addressed at political and technical levels. Cooperation platforms with neighboring countries –to ensure effective coordination and compliance with international agreements– must be steadily and regularly strengthened and nurtured. At the technical level, accurate and reliable data and evidence around the changing quality and quantity of shared resources shall be the basis for managing discussions as well as any needed negotiations and revisions to bilateral and multilateral agreements. The sector shall actively promote and identify the economic, social, environmental, and political feasibility of projects to mobilize resources and public support in order to finance them.

There is a need for regional cooperation to develop contingencies for droughts and impacts of climate change.

7 FLOOD RISK MITIGATION

Detailed flood mapping, including hydrological models, should be developed to identify the threatened areas by floods.

Flood Risk Analysis (FRA), Risk Assessment, and Risk Mapping should be developed for the areas prone to floods.

Sufficient hydro meteorological data, specifically runoff gauging, should be available to calculate the maximum flood discharge and its frequency.

A comprehensive survey should be conducted for the status of all existing water facilities and infrastructures.

A local and regional early warning and rapid response system along the hot spots should be developed and activated to minimize the flood impacts with specific emphasis on flash flood.

Measures in the upstream of catchments, wadis, streams, and vacant lands should be developed to reduce the speed of flow and reduce the sediments.

An integrated plan to raise awareness and change behavior to spread the culture of public safety and enhance flood control behaviors and the role of citizens in limiting the blocking of drainage systems should be developed.

8 ROLE OF SOCIETY

Jordanians are aware that water is a resource to be shared by all those living on Jordan's soil and that strategies related to the resource are national strategies rather than sector strategies.

Jordanians shall be made well aware of water scarcity and the importance of conserving and protecting our limited water resources. Society shall be educated through various means about the value of water for them and the wellbeing of the country for the sustainability of life, and for economic and social development, with specific focus on the role of youth students at schools and universities, men and women community members, NGOs, and local CBO's in spreading the awareness around the alarming status of water scarcity in Jordan.

Participation of stakeholders shall be introduced and enhanced in water resources management and legislated for their involvement wherever necessary.

The public should be enlightened on the value of zero/minimum-tillage and other soil conservation practices on sloping grounds as it would minimize erosion, that ends up in sedimentation accumulation in the dams, and retain a significant amount of moisture in the soil to the extent that it can be a feasible source for non-irrigated agriculture.

9 MONITORING

A comprehensive national water data bank will be established and kept at MWI and shall be supported by a decision support unit. It will be supported by a program of monitoring and a system of data collection, entry, updating, processing, and dissemination of information.

The monitoring system for all surface water resources (springs, base flows, etc..) shall be supported.

Data collected in the monitoring process shall be formatted for storage in and retrieval from computer files. Hard copies and computer backup copies shall be always maintained.

Adoption of modern technologies for data collection, validation, analysis, modeling, sharing, and dissemination shall be expanded.

The National Water Master Plan shall include a comprehensive surface water management plan for each catchment area.

A Water Yearbook shall be produced incorporating all gathered data, the yearbook describes the water situation for each basin and is updated on a yearly basis.

10 LEGISLATION

Laws in effect shall be enforced. Update legislation whenever necessary to respond to emerging needs including the needs for improving compliance of the water users with these laws.

Laws and regulations for water protection zones already in place to safeguard the quality of water resources should be periodically reviewed and updated when needed.

Consider building codes to be inclusive of water harvesting model on rooftops as mandatory requirement for building licensing.

11 INSTITUTIONAL CONSIDERATIONS

Human resources development shall occupy an advanced rank in the priority scale. Continuous education, on-the-job training and overseas training programs shall be organized and implemented. Over- employment shall be trimmed to reach optimum employment levels compatible with efficient management. Additionally, new opportunities shall be offered for newly emerged leaders female and male youth, in response to Governance Chapter, Goal 4 objectives from the NWS 2023-2040 in increasing youth engagement and hiring within the sector to develop the next generation of water sector leaders and operators.

Internal communication, both intra-institutionally and inter-institutionally, shall be enhanced through processes and procedures developed for this purpose.

12 OPERATIONS

Bulk water distribution (incl. reducing energy consumption) all the way to improving the efficiency of water distribution of irrigation systems at the field level (within farms) or distribution systems within the municipalities and service provision areas shall be improved.

The sector shall also consider separating legal, institutional, and financial responsibilities of bulk water supply production and transmission from the retail service delivery of water and sanitation operations and maintenance to clearly delineate responsibilities and ringfence costs.

13 POLICY FOLLOW-UP

The clauses of this policy document should be monitored on a yearly basis, and a relevant report shall be prepared. A review is also warranted every three years, amendments proposed and acted upon.