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**WASTEWATER AND
WATER MANAGEMENT**

IN JORDAN

FLANDERS INVESTMENT & TRADE MARKET SURVEY

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WASTEWATER AND WATER
MANAGEMENT IN JORDAN

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1. INTRODUCTION

The Hashemite Kingdom of Jordan is located in the heart of the Arab world. Belgium is about 2.9 times smaller than Jordan with approximately the same size population.

WHY JORDAN?

- Compared to the region, the Kingdom is politically stable and secured (Peace treaty signed with Israel in 1994) which creates a comparative advantage within the region,
- Gateway to Iraq and Syria: The Kingdom's geographical position is strategic and its location in the center of the Middle East serves as a platform for companies supplying regional markets and is favorable for those wishing to access reconstruction opportunities in Iraq and Syria,
- The Kingdom relies upon imports which offers opportunities for Belgian exporters,
- EU technology, quality of products, and brands are well-appreciated, even though the market is price oriented,
- Many major infrastructure projects are taking place or planned.

2. THE WATER SECTOR

2.1 OVERVIEW

As one of the most water-scarce countries in the world, water is a valued commodity in Jordan, with demand greater than supply. The World Bank has described the country as one of the most water-stressed countries in the world as a result of naturally low occurring water resources, recurring droughts, overconsumption and inefficiencies in distribution. Climate change is exacerbating this situation, linked to a decrease of 20% in annual precipitation over the last few decades. Water pollution, limited surface water supplies, and over abstraction have all taken a toll on ecosystem services.

The country's major surface water resources, the Jordan River and the Yarmouk River, are shared with Israel and Syria, leaving only a small amount for Jordan. Over-extraction and desertification have also resulted in dwindling freshwater resources and a rising risk of shortages which would particularly disrupt water-intensive industries such as textile



manufacturing and agriculture, which accounts for around 53% of national water usage. This makes the country an unappealing location for water-intensive industries. At the same time, water quality has deteriorated sharply, with high levels of salinity and pollution due to agricultural fertilizer use and infiltration of untreated wastewater upstream from Israel and the West Bank. Poor water and sewage infrastructure further detracts from Jordan's water availability. Non-Revenue Water (NRW) or water that is pumped and then lost or unaccounted for, remains a significant challenge in Jordan, amounting for approximately 50% of Jordan's extracted water.

With climate change impacting rainfall which is already very limited, and the population continuing to grow, coupled with growing pressure following the large influx of refugees from Iraq and Syria, water shortages are expected to intensify.

The country thus has one of the lowest levels of water availability, currently standing at 76 cubic meters available per capita, which is 10% of the internationally recognized water scarcity level. This is far exceeded by water consumption levels in the country, which stand at 142 cubic meters per capita. Reports have indicated that in the capital city, Amman, water is only available for 12-24 hours each week. As a result, Jordan has been importing water from Israel since the early 1990s, but this supply has been intermittently disrupted since 2018 due to political disputes.

2.2 WATER STRATEGIES

Extreme water scarcity is one of Jordan's greatest sustainability challenges, threatening its economic growth potential, environmental sustainability, and social development. The government is aware of all these risks. Addressing water security is consequently a vital part of Jordan's development plans and improving water security is included in the Vision 2025 program. Several strategies were established in this regard. They include but are not limited to:

The 2023-2040 National Water Strategy

This comprehensive strategy focuses on key objectives such as reducing water loss, enhancing energy efficiency, promoting the utilization of alternative energy sources and optimizing the operation and maintenance of water resources. To support these objectives, the strategy spotlights the exploration of non-conventional water supply sources and the implementation of essential projects. Furthermore, the strategy aims to improve drinking water supply efficiency, expand wastewater treatment for irrigation purposes and meet the water requirements of the industrial, agricultural and tourism sectors.

The Financial Sustainability Roadmap for the Water Sector

Financed by a USD 200 million loan from the International Bank for Reconstruction and Development (IBRD) and a USD 50 million grant from the Global Concessional Financing Facility (GCFF), it will address three key areas:



- focus on sustainable reduction of Non-Revenue Water (NRW) by rehabilitating water supply infrastructure, modernizing water supply systems and engaging customers and communities,
- enhance energy efficiency and the reduction of energy supply costs,
- implement measures for water security and drought management that will serve as a foundation for improving efficiency in the water sector and adapting to the challenges posed by climate change.

The National Water Loss Strategy (2022-2040)

The strategy seeks to reduce water loss to less than 25% by 2040, in cooperation with the USAID-funded Jordan Water Governance Activity (WGA).

The Water Sector Green Growth Action National Action Plan 2021-2025 (GG-NAP)

9 priority actions have been identified for implementation in the 2021- 2025 period.

2.3 MAIN DONORS AND DEVELOPMENT FUNDING

Jordan’s government has been constrained for many years by its own dependence on various sources of international assistance without which it is unable to compensate for its basic expenditures and development projects. Over the years, it has qualified to receive Official Development Assistance (ODA) from countries, donor agencies, international financing institutions, multilateral financial institutions and international organizations. These include, (the US and the World Bank topping the list):

- USAID
- World Bank
- EBRD
- European Investment Bank
- German Development Bank (KfW)
- Agence Française de Développement (AFD)
- Swiss Agency for Development and Cooperation (SDC)
- Etc.



2.4 OPPORTUNITIES

Belgian firms will find both export- and project-based business opportunities involving infrastructure development, smart water technologies for agriculture and water (systems that automate monitoring and metering, treatment, distribution, loss, and leakage) and training/consultation services associated with water conservation, wastewater treatment, and desalination. Opportunities may range from utility company tenders to government-driven PPPs to donor-financed projects.

2.5 LEADING SUB-SECTORS

Wastewater treatment and management

The use of wastewater in Jordan is growing due to water scarcity, and the government is concentrating efforts on the improvement of wastewater for agriculture use. Jordan has 33 wastewater treatment plants to treat and reuse wastewater. Projections have stated that the expansion of wastewater treatment plants and improvement in the quality of treated water will potentially offset the agricultural demand for freshwater. The government seeks new technologies in several areas, including treatment of toxic organic and inorganic chemicals; recycling wastewater treatment sludge; and improved energy efficiency at treatment facilities

Desalination

More particularly the National Conveyance Project (NCP)

Smart Efficiency Solutions

Energy efficiency, smart metering, monitoring and controlling systems, under the Non-Revenue Water (NRW) project.

3. PROJECTS

The government has therefore sought to construct numerous projects to mitigate against the water shortages. These projects, the majority of which are supported by international donors or development funding, should help bridge the gap between demand and supply through increased use of reclaimed water (treated wastewater) and desalinated sea water. The country will however remain highly water-stressed over the coming years.



3.1 ONGOING OR PLANNED WATER PROJECTS INCLUDE:

National Conveyance Project (NCP), also known as the National Water Carrier Project or the Aqaba-Amman Water Desalination and Transport Project and formerly known as Red Sea-Dead Sea Water Project

Described as the largest infrastructure project in Jordan’s history, this USD 2.9 billion project will provide 300 million cubic meters of desalinated water annually from the Gulf of Aqaba on the Red Sea to the capital Amman. The project will consist of a seawater withdrawal system, a desalination plant based on the southern shore of Aqaba, pumping stations and tanks and a pipeline. The project includes the following components: marine works, a desalination facility, a freshwater conveyance system, around 450 kilometers of pipelines, booster pump stations and regulating tanks to convey freshwater to Amman, and renewable energy facilities, e.g., a solar PV plant necessary to supply the project’s power requirements from its own renewable energy resources.

The NCP should be implemented by early 2024 and expected to produce desalinated water by 2028.

Pledges made so far by donor countries and international institutions such as USAID (development of studies and designs) and the European Investment Bank (preparation of environmental and social studies) have amounted to USD 2.4 billion in development and investment grants and loans, including grants worth USD 472.2 million, USD 694 million in development loans and USD 1.28 billion in investment loans to the project’s developer.

Water-for-energy deal

In November 2022, Israel and Jordan signed a memorandum of understanding to proceed with a water-for-energy deal. The deal will see Jordan build a solar plant with the capacity to export 600 MW of energy to Israel. In return, Israel will supply Jordan with 200 million cubic metres of desalinated water. Emirati state-owned company Masdar is slated to construct the solar farm in Jordan.

3.2 WASTEWATER TREATMENT

A large number of projects are planned or underway in this sector. They include:

- The USD 48 million **Ain Ghazal Pre-Treatment-As-Samra Wastewater Plant Pipeline Project** is currently under construction. The pipeline will transport water from Ain Ghazal pre-treatment to As-Samra wastewater plant.
- The USD 81 million **Al Ghabawi Wastewater Treatment Facility** near Amman is at the planning stage. In Q1 2023, the EBRD and the EU agreed to co-finance this greenfield wastewater treatment with an expected capacity of 22,500 cubic meters per day. The facility will treat septage collected from areas in the capital that are not connected to the



sewerage network. The new facility will replace the existing one in Ain Ghazal, which is harming the environment and causing a nuisance to the surrounding communities. The project will receive EUR 41.3 million from the European Bank for Reconstruction and Development (EBRD) and EUR 30 million from the EU. In February 2023, the Ministry of Water and Irrigation of Jordan signed a contract with Arab Towers Contracting Company for the design and implementation of the wastewater treatment plant.

- The USD 200 million **second Expansion project of As-Samra Wastewater Treatment Plant** is also in the planning phase. The plant’s capacity will increase by 100,000 cubic meters per day once the expansion is completed and boost on-site energy production. The EBRD and the EU have co-financed the expansion which serves the governorates of Amman and Zarqa.
- In November 2021, The Ministry of Water and Irrigation of Jordan signed a USD 40 million agreement to deliver works for the **West Irbid Wastewater Network** in the country. The agreement, backed by the EU and the European Bank for Reconstruction and Development, comprises three phases, with other phases likely to be added.
- The USD 100 million **Halabat Industrial Wastewater Treatment Plant** in Al Akaider is at the planning stage.
- The USD 49 million **Wadi Al Sir Wastewater Treatment Plant Renovation** in Amman, which is in the planning phase, will allow the upgraded plant to treat 17,000 cubic meters per day.
- The USD 45 million **Zarqa-Al Samra Plant Wastewater Pipeline** is also in the planning stage. It involves the building of a 20km wastewater pipeline to transport sewage from Zarqa Governorate and parts of Amman to Al Samra Wastewater Treatment Plant.
- Jordan’s Ministry of Water and Irrigation has awarded a contract to Metito for a USD 51.1 million for the rehabilitation of the **Central Irbid and Wadi Al-Arab Wastewater treatment plants**, which will treat 13,000 cubic meters and 27,000 cubic meters of water per day respectively. The works also include the rehabilitation of sludge lines, optimizing energy consumption and the generation of energy utilizing biogas. Completion is expected in the coming months.

3.3 OTHER TYPE OF PROJECTS

- **Projects for the Reduction of Non-Revenue Water (NRW)**, for example:

Smart Metering, Monitoring & Controlling Systems: This USD 70 million project is part of an NRW project with Jordanian water utilities and is ongoing through July 2025.



• **Jordan Water Sector Efficiency Project**

The World Bank has approved USD 250 million in financing to improve the efficiency of water services in Jordan through the rehabilitation of water distribution networks, improving energy efficiency and strengthening the drought management system in the Kingdom. The project will deliver impact for people and the planet by reducing water losses, reducing electricity usage and improving water management systems. An estimated 1.6 million people will benefit from improved water services. Water system management will also be strengthened for farmers and industries, building economic productivity and strengthening the country’s resilience to climate shocks.

The approved financing for the new Jordan Water Sector Efficiency Project consists of a USD 200 million loan from the International Bank for Reconstruction and Development (IBRD) and a USD 50 million grant from the Global Concessional Financing Facility (GCFF). The Project will target areas with higher refugee populations, providing benefits to both the refugees and the host community.

The Jordan Water Sector Efficiency Project will address three key areas: It will focus on sustainable reduction of NRW by rehabilitating water supply infrastructure, modernizing water supply systems and engaging customers and communities. The Project will also enhance energy efficiency and the reduction of energy supply costs. It will implement measures for water security and drought management that will serve as a foundation for improving efficiency in the water sector and adapting to the challenges posed by climate change.

The Jordan Water Sector Efficiency Project is fully aligned with the Government’s Water Sector Strategy adopted in March 2023 and the Financial Sustainability Roadmap for the Water Sector adopted by the Cabinet of Ministers in November 2022. The Project also supports the implementation of key recommendations from the Jordan Country Climate and Development Report, which prioritizes water sector efficiency, loss reduction, drought risk management, promotion of water-energy nexus solutions and water security.

4. LOCAL AUTHORITIES INVOLVED IN THE WATER PROCESS

The Ministry of Water and Irrigation (MWI) and the Ministry of Environment (MoE) handle water and environment related issues in Jordan. MoE manages the Jordan Environment Fund that includes grant funding from national and foreign organizations. The Fund acts as an implementation arm for MoE in delivering supporting activities that contribute to environmental protection and conservation, and development of environment friendly practices. Belgian firms are encouraged to monitor tender opportunities issued by both ministries, as well as the three water utilities – Miyahuna, Yarmouk Water Company, and Aqaba Water Company, each of which covers different parts of the country.



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