

# The international community's role in the climate and environment space in Jordan

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## Question

*What the international community does in the climate and environment space in Jordan (donors/UN/INGOs)?*

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# 1. Summary

This review gives an overview of the current programmes and policies on climate change and environmental issues being supported by donors in the Hashemite Kingdom of Jordan (hereafter referred to as "Jordan"). The review focuses on national programmes although some regional programmes are touched on. The first section provides an overview of key national strategies, policies and reports related to climate change and environmental issues, with specific attention given to those that identify key priority sectors for Jordan and funding needed for implementation. Some of these also provide examples and lists of priority entry-points or projects that Jordan wants to implement, and these are highlighted where possible. However, in the course of this review it has not been possible to identify whether these gaps have been filled or not by donors. The next section provides information on investment opportunities and gaps as identified in a recent analysis by US' export.gov. The final section provides information on some of the ongoing projects currently being implemented by donors that were identified during this review.

In general, the key bilateral donors to Jordan who prioritise climate and environmental issues are France, Germany, Japan and the US. Other key bilateral donors working in the environment sector include Switzerland. The European Bank of Reconstruction and Development (EBRD) is a key financier of energy and infrastructure-related projects. Other development banks and climate funds funding major projects in Jordan include the Abu Dhabi Fund for Development, the Adaptation Fund and the Islamic Development Bank. United Nations Development Programme (UNDP) is a key implementing agency, often with financing from the Global Environment Facility (GEF). Other key UN agencies working in climate and environment include United Nations Environment Programme (UNEP) and the Food and Agricultural Organisation (FAO). The World Bank also has a presence, although is only currently implementing one environment project in Jordan. Priority sectors identified by Jordan are the water and waste management sectors, the energy sector and the transport sector. Although agriculture is also a priority, less information could be found on this and current donor work in this field, although many of the projects have crosscutting benefits. Jordan also receives assistance (both financial and technical) from the GEF, Germany and UNDP to report to international conventions to which it is a party, for example United Nations Framework Convention on Climate Change (UNFCCC) and UN Convention on Biological Diversity (UNCBD).

The Jordanian Ministry of Planning and International Cooperation provides a useful overview on the donors supporting Jordan<sup>1</sup>; although the information is not up-to-date, it gives an insight into the key donors recently working in Jordan. The information was used as a starting point for this institutional mapping and was elaborated on using online searches and information. Much of the information for this institutional mapping was taken from donors' and intergovernmental organisations' (INGOs) websites, some grey literature and policy documents were also used. Little academic literature was found. Although there was a lot of information available on donors working in Jordan on climate and environmental issues, this was not always up-to-date or complete. Furthermore, given the time constraints of this review, it was not possible to fully match priorities with on-going activities or identify where opportunities are to fill gaps. Issues around gender were not explicit in this review, but many of the projects highlighted are aimed at vulnerable populations, including women and young people.

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<sup>1</sup> See <http://www.mop.gov.jo/DetailsPage/PartnersAndReportsOfExternalAssistanceEN.aspx?CourseID=17> [accessed 06/06/2019]

## 2. Key national priorities and reporting

Jordan has a number of strategies and reports that set out priorities for addressing climate change and environmental issues. Its National Climate Change Policy is a key strategy setting out a seven-year plan (Al-Zu'bi, 2018). Jordan has also undertaken reporting to international conventions that it is a party to, for example the UNFCCC and the UNCBD. Jordan is taking serious steps to mainstream climate change into development policies and strategies. Relevant strategies include its National Women Strategy (2012); National Poverty Reduction Strategy (2013); National Water Strategy (2016 – 2025); National Strategy for Agricultural Development (2016-2025); and the updated Master Strategy in the Energy Sector for (2015-2025). Jordan 2025 (2015) is considered the overall developmental blueprint for the country and includes climate and environment considerations (Al-Zu'bi, 2018). Jordan has also produced a National Green Growth Plan (2017), developed through the Ministry of Environment and a number of sectoral action plans to drive its green economy agenda (MoEnv, 2017). Some of these strategies and communications are looked at in more detail in the following section, specifically highlighting any priorities or investment needs stated. For more information on Jordan's environmental policies and engagement on climate change, see Combaz (2019).

### Key national strategies

#### **The National Climate Change Policy of the Hashemite Kingdom of Jordan 2013-2020**

Jordan's National Climate Change Strategy (MoEnv, 2013) was released in 2013 and was developed with support from the GEF and UNDP. The Strategy is a seven-year plan with three main objectives:

- To achieve a pro-active, climate risk resilient Jordan; remaining a low-carbon growing economy, sustainable water and agricultural resources, healthy ecosystems and climate resilient communities
- To build adaptive capacity of communities and institutions, including social issues related to gender and vulnerable groups, increasing resiliency of ecosystems to climate change, especially as it relates to water resources and agriculture; taking full advantages of any mitigation opportunities
- To prioritise both mitigation and adaptation to climate change, but with emphasis on adaptation (given Jordan's relatively low carbon emissions).

The strategy lists seven short-term goals:

- Provide guidance to government ministries in order to implement policy related to climate change adaptation and mitigation
- Facilitate the incorporation of climate change adaptation and mitigation into various private and public sectors, policies and legal frameworks
- Encourage strategies maximising co-benefits as it relates to health and minimising unintended negative consequences
- Encourage the integration of climate change mitigation objectives into key sectors' policies (energy, transportation and waste)

- Take note of the needs of vulnerable groups while devising adaptation and mitigation policies, and incorporating adaptation and mitigation into green growth strategies and other policies as they relate to vulnerable groups (youth, elderly, women, poor)
- Mainstream climate change considerations in infrastructure and land-use planning and services
- Provide a strategy to ensure adequate financing for mitigation and adaptation objectives, strengthening institutional and human resource capacity

The Strategy document overviews the country's strategies to combat climate change across various sectors and delineates the strategic actions that the country will implement in the coming years. Special attention is given to "vulnerable groups" that stand to disproportionately suffer from the negative effects of climate change, as well as strategies to address gender imbalances between men and women. The document also details how the Climate Change Strategy will be monitored from a policy implementation perspective and institutional arrangements that will encourage adoption of climate change perspective in ministries outside of those directly involved with environmental management. The policy highlights a quantifiable target of 20% energy efficiency improvement by 2020 against a 2007 baseline.<sup>2</sup>

### **Jordan 2025**

*Jordan 2025: A national vision and strategy* documents Jordan's long-term national vision, strategies and policies that correspond to the basic principles of sustainability, institutionalisation, excellence, competitiveness etc. Jordan 2025 is based on the identification of a set of goals that the Jordan government aspires to achieve through the adoption of procedures and policies on the sectoral level (The Hashemite Kingdom of Jordan, 2015a).

A study commissioned by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (Al Zoubi et al., 2015) includes the summary of the baseline assessments carried out by GIZ to provide strategic recommendations for the Government of Jordan to accelerate the implementation of policies that align with the national priorities on sustainable development. These assessments are considered as an integrated package that shows the short and long-term priorities for climate change governance in Jordan based on gap analysis and institutional capacities. The first assessment analysed Jordan's "Vision 2025" and highlighted a number of entry points for GIZ to initiate a national dialogue to develop a national climate change legislation framework. Significant entry points to mitigation and adaptation initiatives from Vision 2025 are shown in Table 1. However, in the course of this review no further information could be found on further work that has been done to fill these gaps.

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<sup>2</sup> Information taken from <http://www.lse.ac.uk/GranthamInstitute/law/the-national-climate-change-policy-of-the-hashemite-kingdom-of-jordan-2013-2020/> [accessed 04/06/2019]

## Table 1: Entry points in Jordan's Vision 2025 for mitigation and adaptation initiatives

(Al Zoubi et al., 2015, p. 22-27).

See <http://www.greengrowthknowledge.org/national-documents/climate-change-governance-jordan-towards-policy-and-institutional-coordination>

### National Green Growth Plan

The Ministry of Environment (MoEnv) released Jordan's National Green Growth Plan in 2017 with support from the German Federal Ministry of Environment (BMUB) and the Global Green Growth Institute (GGGI) (MoEnv, 2017). This strategy identifies a short-list of 24 indicative priority projects for green growth<sup>3</sup>, which cover Jordan's six priority green growth sectors (energy, water, waste, transport, agriculture and tourism); the selection (from a long initial list) was driven by drawing upon key documents and intensive stakeholder engagement with ministries and other key stakeholders (MoEnv, 2017, p. 37). Of these 24, 8 projects were chosen by the government that represent national development priorities and require relatively large investments (MoEnv, 2017, p. 37-38):

- Aqaba - Amman Freight Rail Route: This project has the potential to improve connectivity, reduce costs and to improve the environmental impacts of freight transportation. The railway has the potential to hugely improve the productivity of the transport sector and the Port of Aqaba by providing lower freight rates. Benefit cost ratio: 3.5. Capital investment: USD 4.2 billion over 5 years. Economic rate of return: 27.2%. Net present Value: USD 17.61 billion. Economic payback period: 9.9 years (MoEnv, 2017, p. 43).
- Amman - Zarqa Bus Rapid Transport: The project's objective is to improve connectivity, public transport usage rates and customer satisfaction and reduce air pollutants and GHG emissions. Benefit cost ratio: 2.6. Capital investment: USD 176m over 3 years. Economic rate of return: 20.0%. Net present Value: USD 437m. Economic payback period: 12.4 years (MoEnv, 2017, p. 44-45).
- Ma'an Dry Port: The project objective is to improve attractiveness of Jordan as a transit hub for the region by increasing connectivity, providing commercially competitive trade routes from South East Asia to Iraq and limiting the environmental impacts of freight transport. Benefit cost ratio: 1.8. Capital investment: USD 50m. Economic rate of return: 21.6%. Net present Value: USD 104m. Economic payback period: 9.5 years (MoEnv, 2017, p. 43).
- Aqaba – Al Zarqa Oil Pipeline: Imported oil is currently transported over road from the port city of Aqaba to the Jordan Petroleum Refinery in Al Zarqa, near Amman. Some 1,700 trucks are involved in the process of moving crude and refined oil around Jordan. A

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<sup>3</sup> The 24 projects were (MoEnv, 2017, p. 39): Energy: Eco-Villages Tafilah; Oil Pipelines; Fujeij Wind Farm; Public Buildings Renewable Energy. Transport: Aqaba - Amman Freight Rail Route; Electric Vehicles; Amman - Zarqa Bus Rapid Transport; Ma'an Dry Port. Water: Biogas from Wadi al Arab WWTP; Pump Efficiency Upgrades; Solar PV Desalination; Talal al-Dahab Dam Construction. Waste: Landfill Rehabilitation at Al-Aqaba; Landfill gas collection and reuse at Al-Aqaba; MRF and RDF at Al Ekerder landfill; Industrial waste water treatment plant Al Halabat. Agriculture: Roadside Afforestation; New Crop Variety Introduction; Livestock Healthcare; Drip Irrigation. Tourism: Eco Lodges; Public Park (Dead Sea Development Zone); Zara Hot Springs (Dead Sea Development Zone); Aqaba Blue Flag Beaches.

pipeline has been proposed to shift the mode of oil transportation. Benefit cost ratio: 3.1. Capital investment: estimated USD 480m. Economic rate of return: 26.2%. Net present Value: USD 1.266 billion. Economic payback period: 7 years (MoEnv, 2017, p. 51).

- Solar PV Desalination (with added solar power component): The Sheediyya-Hasa augmentation project represents a key opportunity to increase water abstraction from non-renewable water sources and address the dire need to improve water security. This project will provide an additional 50MCM/yr to the water supply for Northern Jordan. The project has the potential to increase the country's energy independence and to reduce the GHG emissions impact associated with the Ministry's proposed project, by installing up to 214MW of solar PV capacity to power the energy intensive water desalination and pumping processes. The current desalination project design does not include solar power, and would rely on power from conventional energy sources. Benefit cost ratio: 2.3. Capital investment: USD 364m. Economic rate of return: 20.2%. Net present Value: USD 515m. Economic payback period: 10.2 years (MoEnv, 2017, p. 49).
- Materials recovery facility (MRF) and refuse-derived fuel (RDF) at Al Ekedder landfill: This project aims to improve recycling practices on the site with a materials recovery facility and reduce waste to landfill by generating energy from refuse-derived fuel. This will result in GHG, economic and social benefits through the formalisation of the recycling sector which currently poses a number of health and safety risks. Benefit cost ratio: 2.1. Capital investment: USD 147m. Economic rate of return: 19.1%. Net present Value: USD 194.2m. Economic payback period: 9 years (MoEnv, 2017, p. 47).
- Electric Vehicles and charging infrastructure in Amman: This project aims to reduce Jordan's dependence on imported energy and lower its reliance on gasoline for mobility; to increase electricity generated from renewable sources; to improve air quality in Amman and other Jordanian cities by supporting the uptake of Electric Vehicles (EVs); and to make Jordan a leader in EV integration in the MENA region. Benefit cost ratio: 1.2. Capital investment: USD 120m. Economic rate of return: 10.4%. Net present Value: USD 24.4m. Economic payback period: 19.3 years (MoEnv, 2017, p. 44).
- Biogas from Wadi al Arab WWTP (MoEnv, 2017, p. 37-38). No further details were given on the needs of this project.

## Reports to global conventions

### Third National Communication on Climate Change to the UNFCCC

*Jordan's Third National Communication on Climate Change* (TNC) (The Hashemite Kingdom of Jordan, 2014) to the UNFCCC provides a description of the projected impacts of climate change on Jordan, as well as a comprehensive mitigation assessment, and comprehensive vulnerability assessments for major developmental sectors. It also identifies cost-effective opportunities for mitigation and adaptation interventions that Jordan will pursue with the support of the international community. Investment needs and opportunities identified to implement the TNC are in Table 2 below. According to the NEEDS study that was published in 2010 and as an initial estimation, until the year 2020, about USD 3.5 billion will be needed for mitigation and a minimum of USD 1.5 billion will be needed for adaptation in Jordan (for major projects in water, industry and energy). With the public budget allocating only 0.5% to projects in environmental sectors (apart from infrastructure investments in water and energy) a considerable amount of fundraising targets are required (p. 226-227). It has not been possible in the course of this review to identify whether any of these needs and gaps have been filled by donors.

**See Table 2: Suggested measures for the implementation of TNC and development of Climate Change portfolio in Jordan (The Hashemite kingdom of Jordan, 2014, p. 231)**

<http://www.greengrowthknowledge.org/national-documents/jordans-third-national-communication-climate-change>

### **National Determined Contribution**

In their National Determined Contribution (NDC) to the UNFCCC Paris Agreement, Jordan sets out the following targets and priority areas (although not all have been assigned measurable targets) (The Hashemite Kingdom of Jordan, 2015b).

- Greenhouse gas (GHG) emissions reduction: Jordan nationally determines to reduce its GHG emissions by 14% until 2030. This contribution of GHGs reduction will be unconditionally fulfilled at, maximally, 1.5% by the Country's own means compared to a business as usual scenario level. The other 12.5% is conditional upon availability of finance and enhanced support.
- Identified sectors for mitigation action: Energy (including transport), waste, industrial processes, agriculture and land-use, land-use change and forestry (LULUCF) and solvents.
- Identified Sectors for Adaptation Action: Agriculture, Disaster Risk Management (DRM), Environment, Health, LULUCF/Forestry, Social Development, Water.

Al-Zu'bi (2018) highlights the funding requirements within Jordan's NDC:

- The GHG emissions reduction targets will be achieved based on implementing at least 70+ projects (43 sectoral projects resulted from the mitigation scenario assessment articulated in the 2014 TNC Report to UNFCCC and another 27+ sectoral priority projects proposed concurrently or newly planned, so proposed after the development of the TNC).
- USD 5,700,000,000 is the total financing needs from which Government has already secured USD 542,750,000 to meet the unconditional target, which means the Country is in need of USD 5,157,250,000 to fulfil its conditional target.

### **First Biennial Update Report to the United Nations Framework Convention on Climate Change**

Jordan's First Biennial Update Report was coordinated by the Ministry of Environment and prepared in partnership with UNDP and the Royal Scientific Society (The Hashemite Kingdom of Jordan, 2017b). The report highlights the constraints and gaps identified in previous national climate change communications, and identifies newly arising constraints and needs. The Ministry of Environment has completed a climate change technology needs assessment (TNA) for Jordan for the period 2015-2017. The TNA for Jordan highlighted energy and transport as the priority mitigation sectors, and water and agriculture as the priority adaptation sectors. The TNA prioritised the top three technologies for each targeted sector, and highlighted key barriers. The top three rankings for each sector were (The Hashemite Kingdom of Jordan, 2017b, p. 146):

- Mitigation technologies for the energy sector were: (1) Solar thermal, (2) PV for electrification, and (3) PV for water pumping.

- Mitigation technologies for the transportation sector were: (1) Bus Rapid Transit, (2) Improving pedestrian infrastructure, and (3) Ticketing systems to improve the quality and the attractiveness of public transport services.
- Adaptation technologies for the water sector were: (1) Roof-top rainwater harvesting, (2) Augmenting and expansion of Water Users Association (WUAs), and (3) Desalination and brackish water treatment and re-use.
- Adaptation technologies for the agricultural sector were: (1) Water saving technologies, such as drip or subsurface irrigation, (2) Farm-level water harvesting, and (3) Plant varieties resistant to climate change.

### **First National Voluntary review on the implementation of the 2030 Agenda for Sustainable Development**

In their First National Voluntary review on the implementation of the 2030 Agenda for Sustainable Development (The Hashemite Kingdom of Jordan, 2017a), Jordan highlights the following as the priorities in relation to the “planet” theme of the Sustainable Development Goals (SDGs) framework:

- Water Availability and Sustainability: The “Water for Life: Water Strategy in Jordan” for (2016-2025) has captured national efforts to manage the water sector and ensure optimal service levels. The key areas of the Strategy are: 1. Integrated Water Resources Management; 2. Water, sewage and sanitation services; 3. Water for irrigation, energy and other uses; 4. Institutional reform; 5. Sector information management and monitoring. The Strategy would also address crosscutting issues of climate change adaptation; trans-boundary/shared water resources; humanitarian-WASH sector coordination; public/private partnerships; and the economic aspects of water. Under the new strategy, the Government is working towards a target of 84% of wastewater service coverage by 2030 and will continue expanding the sewage network. The re-use of the water from sewage plants (effluent) reached 93% in 2015 and is forecasted to reach approximately 96% in 2030. These are expected to increase to 373.22 million cubic meters by 2030, an increase of 150% compared to the current measurements which were 147 million cubic meters in 2015 (The Hashemite Kingdom of Jordan, 2017a, p. 47-48).
- Affordable and Reliable Energy: Jordan currently imports 95% of its total primary energy mix, mainly crude oil and its derivatives and natural gas, used to generate 88% of the country’s generated electricity. This has significantly contributed to reducing the emissions of CO<sub>2</sub> over the previous years. As part of the country’s drive to strengthen partnership with the private sector, the Government has provided incentives to the private sector to invest in infrastructure projects by establishing electricity generation projects. Build-Own-Operate (BOO) and Build-Own-Transfer (BOT) power generation projects have been expanded with international and local companies alike. Jordan aims to increase the contribution of renewable energy to its total primary energy mix to reach 10% in 2020, equivalent to about 20% of the total electricity generated; the Government is working on setting higher targets by 2030. Jordan also intends to expand the use of natural gas, which contributed 35.3% to the total energy mix in 2016. Furthermore, nuclear energy will contribute about 43% of electricity generated by 2030, which is equivalent to 22% of the total primary energy mix, leading to a significant reduction in GHG emissions. The Government set the target to decrease its energy consumption from



296 to 276 kg of oil equivalent to USD 1,000 at constant prices in 2030, and to strengthen its partnership with the private sector in achieving this goal. In order to further rationalise and optimise the efficiency of energy consumption intensity, Jordanian building codes (energy efficient buildings code and solar energy code) and the Jordan Green Building Manual have been issued to promote green buildings. *The Jordan Renewable Energy and Energy Efficiency Fund*, established in 2012, has played a supportive role by providing citizens with green financing to increase the efficiency of the energy being used and for the shift towards renewable energy technologies (The Hashemite Kingdom of Jordan, 2017a, p. 49).

- **Environment and Climate Change Action:** One of the most important steps taken by the Government of Jordan was the mainstreaming of objectives related to climate change within the various sectoral policies in the country. A National Commission on Clean Development Mechanism was established and Jordan has developed its first, second and third National Communications as per the Climate Change Convention agreement. Jordan has also joined the Partnership for Market Readiness (PMR) to ensure its economy is ready for climate change. Jordan faces a host of challenges in achieving the commitments spelled out in its NDC document, most importantly, the need for additional funding. A series of measures are proposed in this regard, including: a) fundraising for the implementation of 73 projects incorporated in the NDC document in priority sectors such as energy, transport, waste management, industry, water and agriculture, b) preparation of a funding strategy for the implementation of projects included in the National Adaptation Programme of Action (NAPA) document; c) the development of a Measurement, Reporting and Verification (MRV) System for Green House Gas (GHG) emissions; and d) preparation of necessary legislation, including the development of a bylaw on climate change. For the medium and long-term, the Government has adopted green economy principles and applied them at all levels. Several important steps have been taken in this regard, the most recent of which is the completion of the National Plan for Green Growth (2017-2025). In its efforts to shift towards sustainable production and consumption patterns, the Government has recently concluded the National Strategy and Plan of Action for Sustainable Production and Consumption (2016-2025) in the transport, waste management and agriculture/food sectors. A draft waste management framework law was prepared which would provide a legal umbrella to increase sustainable investments in the waste management and recycling sector, where the proportion of re-processed and re-used solid waste reached 15% by the end of 2016, and is expected to increase to 40% by 2030 (The Hashemite Kingdom of Jordan, 2017a, p. 49-51).

## **Sixth National Report on Biodiversity**

The Sixth National Report on Biodiversity was submitted in late 2018, and is publically available on the UNCBD's website. The report highlights progress towards national priorities. Under implementation of "By 2015, a national biodiversity financing strategy is developed and adopted by the Cabinet", the report highlights that although

"Several interesting and innovative potential biodiversity finance solutions have already been identified[...] The government does not have at this stage financial resources to implement such process and will require donor support. The Ministry of Environment and the Ministry of Planning and International Cooperation have an strong interest in pursuing BIOFIN initiative as it is in line with national strategies and priorities.[...] The Ministry of Planning and International cooperation is proposing to explore the possibility to organise a donor round

table meeting to mobilise financial resources from locally based donors to support the implementation of BIOFIN. BIOFIN Global will recommend Jordan to its financial partners as a strong candidate new country for BIOFIN initiative” (MoEnv, 2019, p. 285).

### 3. Investment opportunities and gaps

In February 2019, the Government of Jordan and the UK Government co-hosted *Jordan: Growth and Opportunity, the London Initiative 2019*<sup>4</sup>, a major international conference to support investment, growth and jobs for Jordan. Japan, France and the UK between them pledged more than USD 2 billion in economic support over the coming years to Jordan, and multilateral financial institutions were also keen to express their support – with water often a key element.<sup>5</sup>

#### Energy sector

Jordan has realised the huge potential of sustainable energy sources and low emission technologies in the energy sector. Recent investments in renewable energy are set to add 400 MW of electricity to the national grid by 2020 reaching the national target of 10% renewable (Al Zoubi et al., 2015, p. 9).

The US’ export.gov<sup>6</sup> (2018a) analysed Jordan’s energy sector potential, highlighting it as a best prospect industry sector for US business investment. The analysis highlights the following pertinent issues:

- In 2008, the Jordanian Government approved an USD 18 billion energy strategic plan to guide the country until 2020 (it calls for USD 13.6 to USD 17.8 billion in capital investments between 2007 and 2020). The plan covers all aspects of the energy sector from generation to transmission, and from conventional power to renewable and nuclear energy.
- The energy strategic plan estimates the investment required in the power generation, transmission and distribution projects amounts to around USD 4 billion for 2020. Jordan has been adopting the Independent Power Provider (IPP) approach to build new power stations. The government privatised Central Electricity Generation Company (CEGCO) and approved four IPP projects, which are developed by the U.S. Company AES and the Korean company KEPCO. Currently, the total generation capacity in Jordan is around 4 GW. Transmission and distribution, is led by the government-owned National Electric Power Company (NEPCO) and other distribution companies with distinct exclusive territories.
- Energy Efficiency is one of the main components in Jordan’s energy strategic plan, which allocated a budget of around USD 150million to this end. Besides the steps taken by NEPCO and its partners on the national level to become more efficient, the government is conducting awareness campaigns, capacity building and reducing tariffs on energy saving lighting. In addition, the Jordan National Building Council has released the Green

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<sup>4</sup> See <https://www.londonjordan.co.uk/londonjordan/> [accessed 10/06/2019]

<sup>5</sup> Information taken from <https://www.water-technology.net/comment/jordan-water-supply/> [accessed 07/06/2019]

<sup>6</sup> Export.gov is run by the US Commercial Service of the US Department of Commerce and helps US companies plan, develop and execute international sales strategies. Analysis is prepared by US Embassies and other US agencies.

Building Code guide to be used in real estate development projects as to become more environmentally friendly and energy efficient.

- The renewable energy share of Jordan's energy production will increase from 1% in 2007 to 10% by 2020 with estimated investments of USD 1.7 billion. To achieve these goals, the Renewable Energy and Energy Efficiency Law was approved, and an energy efficiency fund established. Furthermore, a Feed-in-Tariff schedule for renewable energy resources was established, which is revised as needed. As of August 2016, 19 wind and solar projects were approved with a total generation capacity of over 700MW. A third round for renewable projects was released recently.
- Jordan's nuclear energy strategy aims to generate electricity through nuclear reactors for electrical load and water desalination. The Jordan Atomic Energy Commission (JAEC) is focused on purchasing between 200-700 megawatts of power from Small Modular Reactors (SMR) to come online between 2025-2030. JAEC would like to construct large-scale nuclear power plants in the long term after it shifted away from a plan to purchase two 1,000-megawatt (MW) nuclear power plants from Russian state-owned firm Rosatom.
- In addition, the by-laws and regulations related to renewable energy projects for electricity generation have been issued by the Energy and Mineral Regulatory Commission providing the "Reference Price List" which includes the indicative prices for each type of renewable source.
- The article highlights solar energy as being one of the best prospects. Currently, 716 megawatts of solar photovoltaic (PV) power are in operation, and an additional 636 megawatts of solar PV are under construction. Jordan is on pace to exceed 20% of generated electricity from renewable sources by 2020.
- Wind energy: Jordan has significant wind energy resources that could be exploited for power generation. A 117-megawatt wind farm in Tafileh was implemented in 2015. Currently, 279 megawatts of wind power are in operation, and an additional 334 megawatts of wind power are under construction.
- Waste to Energy: Jordan aims to generate 30-50 megawatts of power from waste-to-energy (WtE) projects by 2020. WtE projects in Jordan have primarily focused on landfill gas capture.
- The transmission and distribution companies are working to upgrade their grids. The Discos conducted a smart grid/smart metering feasibility study funded by the U.S. Trade and Development Agency (USTDA). NEPCO is also looking for ways to increase its grid capacity to meet the extra power that will be generated by conventional and renewable energy projects which are under construction. There will be a need for smart grid systems, smart metering devices and load management systems as well.

## **Water and waste management sectors**

The analysis by export.gov (2018b) also highlights the following pertinent issues to the water and waste management sectors in Jordan:

- Solid Waste Management: Treated wastewater is an important component of the Kingdom's water resources. Currently, sewage services are available to around 70% of Jordan's urban population. In Jordan there are 27 wastewater treatment works operating to international standards. They treat around 122 billion litres of water, providing more

than 115 billion litres for different purposes in industry and agriculture involving crops and fodder, especially in alfalfa and corn fodder, which generate a large economic reward for farmers and livestock breeders.

- In response to its water issues, Jordan is developing more immediate water sources and rehabilitating inefficient water networks. Still, more action is needed on the demand side to conserve and allocate water resources efficiently. Solutions must link awareness, incentives, behaviour change, and conservation to more sustainable strategies for economic development.
- The government has also launched a water use plan spanning 2013 – 2020, aimed at improving the water sector to levels that will realise the Kingdom’s vision to become sustainable by 2020.
- Energy efficiency is an important part of the New Energy Strategy to reduce energy’s overall budget impact, including in the water sector. There are also other projects underway to develop pumping stations in various regions and to make use of renewable energy for the water sector using bio, solar and hydro energies, as well as organic waste. These projects should help reduce the financial pressure on the water sector due to huge energy costs, currently accounting for 60% of the water sector’s total running costs.

## 4. Key donors in priority sectors

### Development Banks and Funds

#### Abu Dhabi Fund for Development

Abu Dhabi Fund for Development is an autonomous institution owned by the Government of Abu Dhabi. It was established on July 15th 1971 to help developing countries achieve development through providing assistance in the form of concessionary loans, direct development investment, and grants.<sup>7</sup> The Abu Dhabi Fund for Development is currently funding a number of projects in Jordan related to the agricultural sector, water sector, and energy sector.

*Examples of ongoing projects include:*

- Rehabilitation of Irrigation Projects: Being implemented since 2013. Jordan is seeking to devise effective strategies to develop the **water** sector and ensure enough supplies of water for drinking and **agriculture**. Rehabilitating irrigation projects will in turn help improve the performance of irrigation networks and reduce water losses through rehabilitating networks, replacing calcified pipes with new ones, installing water mains for agricultural units, installing sedimentary docks, storing pools, sand filters, and pumping stations, in addition to building walls that protect from floods.<sup>8</sup>
- Renewable Energy Projects: Implemented since 2013. In the past few years, the Jordanian economy’s accelerated growth has led to a surge in the demand on electricity,

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<sup>7</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=126> [accessed 06/06/2019]

<sup>8</sup> Information taken from <https://www.adfd.ae/english/Projects/ProjectMap/Pages/newProjectDetails.aspx?name=793> [accessed 05/06/2019]

which in turn has increased pressure on the national power grid. **Energy** projects have become a key priority in the UAE's contribution to the Gulf Development Fund for Jordan. Securing energy alternatives through renewable energy sources has become a development priority in the country's efforts to deal with the rise of prices in oil derivatives. It is also especially important for conserving the environment and reducing CO<sub>2</sub> emissions. This vital necessity led to the establishment of a solar energy farm in Al Kwairah area. The farm uses photovoltaic panels to generate between 65 to 75 megawatts of power, and is linked to the national power grid.<sup>9</sup>

- **Wildlife:** Phase 1 (2012) and 2 (2017). The project protects resettlement of wild animals and safeguards wildlife against threats especially endangered species exposed to illegal trade. The 1,400-acre shelter is considered one of the leading natural reserves in the Middle East.<sup>10</sup> The second phase of the project sought to rehabilitate and further develop the reserve. The initiative, rescued and relocated an estimated 1,814 animals and fostered opportunities, at the facility's training centre, for students and veterinarians across Jordan to gain experience and knowledge on wildlife protection and breeding.<sup>11</sup>

## Adaptation Fund

The Adaptation Fund was established under the Kyoto Protocol of the UN Framework Convention on Climate Change (UNFCCC), and finances projects and programmes that help vulnerable communities in developing countries adapt to climate change, based on national priorities<sup>12</sup>.

*The Adaptation Fund is currently financing one ongoing project in Jordan:*

- **Increasing the resilience of poor and vulnerable communities to climate change<sup>13</sup>:** Funded by the Adaptation Fund and implemented by the Ministry of Planning and International Cooperation, this project is running from 2016 for 4 years. The main goal of the proposed expansion of the **waste water** reuse project at Wadi Mousa is to maximise the reuse of waste water treatment plant effluent as a community adaptation method to climate change where the reuse of reclaimed water can be demonstrated to be a productive, economical, reliable, environmentally safe for sustainable irrigated agriculture that can replace the use of fresh water supplies (as ground water aquifers are already under stress in Jordan due to over abstraction). The primary aim of this project is to develop the sustainability of wastewater reuse activities and on-farm integrated

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<sup>9</sup> Information taken from <https://www.adfd.ae/english/Projects/ProjectMap/Pages/newProjectDetails.aspx?name=794> [accessed 06/06/2019]

<sup>10</sup> Information taken from <https://www.adfd.ae/english/Projects/ProjectMap/Pages/newProjectDetails.aspx?name=799> [accessed 06/06/2019]

<sup>11</sup> Information taken from <https://www.adfd.ae/english/Projects/ProjectMap/Pages/newProjectDetails.aspx?name=933> [accessed 06/06/2019]

<sup>12</sup> See <https://www.adaptation-fund.org/about/> [accessed 10/07/2019]

<sup>13</sup> Information taken from <https://www.adaptation-fund.org/project/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-4/> [accessed 05/07/2019]

**agriculture** in Wadi Mousa as a mean of climate change adaptation. The project is implemented with a grant of USD 9.23million

## European Bank for Reconstruction and Development

EBRD focuses on supporting sustainable energy in Jordan through investments that promote energy efficiency throughout the economy, the development of new sources of **renewable energy** and Jordan's transition to a liberalised, efficient and sustainable **energy sector**. Promoting **infrastructure reform** and facilitating non-sovereign financing, where feasible, in order to develop efficient delivery of infrastructure services. Supporting PPPs and private sector participation in the infrastructure sector. The EBRD will also aim to support **water** and **energy efficiency** in the municipal sector.<sup>14</sup> The EBRD currently has 41 active portfolio projects to date, amounting to EUR 1,066 million investment, with the majority of investments focused on the “Power and energy” and “Municipal and environmental infrastructure” sectors.<sup>15</sup>

*Some examples of ongoing projects include:*

- **GAM Solid Waste Project:** Since 2015, the EBRD, with support from the European Union (EU), the UK, the EBRD's Southern and Eastern Mediterranean Multi-Donor Account (SEMED MDA) and Taipei China, has taken several steps to upgrade Amman's solid **waste management** system. A total of JOD 87 million of EBRD loans and grants to the Greater Amman Municipality (GAM) are helping improve the city's infrastructure.
- **Shobak Wind Farm:** Provision of up to USD 52 million to Shobak Wind Energy PSC to finance the construction of a 45 MW **wind farm** (the Project) near the Shobak town municipality, 46 km northwest of Ma'an, and 160 km south of Amman in Jordan.<sup>16</sup> Project will be financed joint with Islamic Development Bank (see below).
- **MR3: West Irbid Wastewater Project:** EBRD loan of EUR 25 million, to be co-financed by investment grants of EUR 20 million from the EU's MADAD Fund, USD 2.5 million the Global Concessional Finance Facility and EUR 5.9 million from the EBRD Shareholders Special Fund. The funding will finance the construction of a **wastewater** network in 15 towns in West Irbid governorate, enabling the towns to connect to the wastewater network including to existing wastewater treatment plant.<sup>17</sup>

## Islamic Development Bank

The Islamic Development Bank is providing co-funding for a number of projects in Jordan, most are related to agriculture, but energy sector also takes a large share.

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<sup>14</sup> Information taken from <https://www.ebrd.com/where-we-are/jordan/overview.html> [accessed 10/06/2019]

<sup>15</sup> Information taken from <https://www.ebrd.com/jordan.html> [accessed 10/06/2019]

<sup>16</sup> Information taken from <https://www.ebrd.com/work-with-us/projects/psd/shobak-wind-farm.html> [accessed 10/06/2019]

<sup>17</sup> Information taken from <https://www.ebrd.com/work-with-us/projects/psd/mr3-west-irbid-wastewater-project.html> [accessed 10/06/2019]

*Examples of ongoing projects include:*<sup>18</sup>

- About 49.5MW Wind Farm Project (Xenel):<sup>19</sup> The objective of the project (running 2018-2019) is to promote **renewable energy** sources in Jordan that would reduce power generation costs and provide a more environmental friendly power generation method compared with conventional fuel power generation methods. The project is a 50-megawatt capacity wind-powered electrical generating facility located in Tafila Governorate of Jordan about 140 km south of Amman.
- Shobak Renewable Energy Project:<sup>20</sup> Shobak **Renewable Energy** Project Sector: Energy (Leasing). Status is active, but project dates are October 2017 until March 2018. Joint financing with EBRD See EBRD information on this project.

## Bilateral donors

### France<sup>21</sup>

Bilateral relations between Jordan and France were first initiated in 1965 with the signing of the Cultural and Technical Cooperation Agreement. Since then, Jordan and France have enjoyed extensive relations, which have led to comprehensive collaboration between both countries in key areas of mutual interest. Areas of focus include **Energy, Water and Irrigation, Environment**, Telecommunications, Trade development, Microfinance Sector, and Local development. AFD has been present in Jordan since 2006 and is one of the country's main bilateral partners. In a recent press statement, AFD renewed its support for Jordan and committed EUR 1 billion over the period 2019-2022, focusing on a number of sectors: water and sanitation (45%), energy transition (25%), urban development (24%) and social cohesion (justice and youth vocational training) (AFD, 2019).

*Examples of ongoing support includes:*

- Supporting the energy transition: AFD finances **solar and wind renewable energy** projects and **energy efficiency** projects, strengthens distribution infrastructure and supports public policy reforms. 25% of the country's total renewable energy capacity, i.e. 141 MW, has been cofinanced by AFD, including by its private sector financing arm, PROPARGO.<sup>22</sup>
- Improving access to water and sanitation: Since 2006, AFD has been supporting the **Ministry of Water and Irrigation** and its two authorities, the Water Authority of Jordan and Jordan Valley Authority, through technical and financial assistance. AFD contributes to financing large-scale **infrastructure** projects, which increase production, transfer drinking water to inhabited regions and treat wastewater; and support public water policy

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<sup>18</sup> See IDB projects database for other projects in Jordan.

<https://www.isdb.org/projects/data?loc=JO&sector=&status=Active> [accessed 07/06/2019]

<sup>19</sup> Information taken from <https://www.isdb.org/projects/data/uid-pj0032978> [accessed 06/06/2019]

<sup>20</sup> Information taken from <https://www.isdb.org/projects/data/serial-9221> [accessed 06/06/2019]

<sup>21</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=157> [accessed 07/06/2019]

<sup>22</sup> Information taken from <https://www.afd.fr/en/page-region-pays/jordan> [accessed 10/06/2019]

reforms. Due to the Disi project (2014-2018), the duration of water distribution in Amman has risen from 45 hours a week to 60 hours.<sup>23</sup>

- Supporting local and urban development: AFD finances **transport infrastructure** projects both at national and municipal level (BRT – Bus Rapid Transit in Amman). AFD are also supporting public policy reform in this sector.<sup>24</sup>

## Germany<sup>25</sup>

Jordan has long had close political relations with Germany, dating back to 1962. Jordan and Germany first signed a Technical Cooperation agreement in the economic sphere in 1960, which was followed by a Technical Cooperation Agreement, signed in 1977, covering a broader sphere. GIZ has a long-term relation with the Jordanian Government, working in Jordan for over 40 years, and has an office within the Ministry of Environment, which is the GIZ political partner. Areas of cooperation include Water and Environment, Institution and Capacity Building and Economic Development, Agriculture and Rural Development. Poverty Alleviation, Education and Higher Education, and Renewable Energy.

Since 2001, **water** has been the priority in Jordanian-German cooperation. **Waste management** is another priority focus. The huge influx of Syrian refugees in Jordan has placed tremendous burden on the hosting local governorates to accommodate the increased demands on waste management. GIZ is fostering improvements to the management of waste in different governorates to provide technical support to municipal staff with the aim of enhancing the organisation of a waste-collection mechanism. GIZ is also promoting **environmental protection** and **resource conservation** in Jordan.<sup>26</sup>

*Examples of ongoing projects in the water sector, waste management and sustainable infrastructure.*<sup>27</sup>

- Waste to (positive) energy in Jordan: **Waste** collection and recycling of materials is providing employment, in particular for disadvantaged members of the population. The project offers Syrian refugees and Jordanians employment for at least 50 days and also aims to create long-term jobs. As part of a participatory process, a cash-for-work system is being established in 12 municipalities and at 2 refugee camps. In addition, **recycling** centres are being established in a total of nine municipalities.<sup>28</sup>
- Climate and resource protection through circular economy in Jordan: The Project supports the goals of the **National Solid Waste Management Strategy** and the strategic **waste** plan for Greater Amman Municipality (GAM), and lays the foundation for a circular

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<sup>23</sup> Information taken from <https://www.afd.fr/en/page-region-pays/jordan> [accessed 10/06/2019]

<sup>24</sup> Information taken from <https://www.afd.fr/en/page-region-pays/jordan> [accessed 10/06/2019]

<sup>25</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=158> [accessed 07/06/2019]

<sup>26</sup> Information taken from <https://www.giz.de/en/worldwide/360.html> [accessed 07/06/2019]

<sup>27</sup> GIZ has many ongoing projects in Jordan related to climate and environment, see here for a full list: <https://www.giz.de/en/worldwide/360.html> [accessed 07/06/2019]

<sup>28</sup> Information taken from <https://www.giz.de/en/worldwide/75211.html> [accessed 05/06/2019]



economy in Jordan. The project focuses on the separation and treatment of recyclables and reduction of GHG emissions.<sup>29</sup>

- Improvement of Energy Efficiency in the Water Sector by optimising operations and maintenance: The project aims to develop and integrate an **energy management** system within Jordan's **water sector**.<sup>30</sup>
- Decentralised wastewater management as a measure for climate change adaptation in Jordan: The project is helping the Jordanian partner organisations to develop and implement strategies for **decentralised wastewater management** and the efficient use of available **water resources**. The project focuses on climate change adaptation, reuse of treated wastewater, adjustment of national limits for small sewage treatment plants as well as the development of suitable operator models. The German non-governmental organisation BORDA Worldwide is helping to carry out various activities as the cooperation partner.<sup>31</sup>
- Water and Wastewater Companies for Climate Mitigation (WaCCliM): Funded by IKI and implemented by GIZ in partnership with the **Ministry of Water and Irrigation** between 2013 and 2022, this project is helping to reduce the **carbon footprint** of water and wastewater utilities. The project also works in other countries. It is implementing technologies in pilot companies that reduce GHG emissions, such as water loss reduction systems, energy-efficient pumps, biogas generation and fertiliser production from wastewater. At national level, the project advises the countries in developing financial mechanisms and political frameworks for replicating demonstration projects.<sup>32,33</sup>
- Improvement of communal water efficiency through cooperation with religious authorities: EUR 4.5 million, sector: Water and Sanitation, location: Amman 2018 (Ministry of Planning and International Cooperation, 2018). The project team works with the Jordanian **Ministry of Water and Irrigation** and the Ministry of Awqaf Islamic Affairs to encourage the population to use **water** responsibly by tapping into their religious value systems and beliefs. The project team develops information and teaching materials on resource and water protection with religious leaders and education experts.<sup>34</sup>

#### *Ongoing support for mainstreaming and national climate change plans*

- National Adaptation Plan for Jordan: GIZ with the support of the NAP-Global Support Programme (NAP-GSP) and UNDP held a stock taking workshop in 2017 for launching the **NAP** process in Jordan (UN Environment, UNDP & GEF, 2017). The NAP is ongoing.
- Establishment of an effective NDC governance for the NDC revision and implementation in Jordan: Funded by the German *International Climate Initiative (IKI)*<sup>35</sup>, the project aims

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<sup>29</sup> Information taken from <https://www.giz.de/en/worldwide/75116.html> [accessed 06/06/2019]

<sup>30</sup> Information taken from <https://www.giz.de/en/worldwide/69100.html> [accessed 06/06/2019]

<sup>31</sup> Information taken from <https://www.giz.de/en/worldwide/32153.html> [accessed 06/06/2019]

<sup>32</sup> See [https://www.international-climate-initiative.com/en/nc/details/project/water-and-wastewater-companies-for-climate-mitigation-wacclim-13\\_1+\\_023-352/?cookieName=search\\_results&source=single](https://www.international-climate-initiative.com/en/nc/details/project/water-and-wastewater-companies-for-climate-mitigation-wacclim-13_1+_023-352/?cookieName=search_results&source=single) [accessed 07/06/2019] & <http://wacclim.org/jordan/> [accessed 07/06/2019]

<sup>33</sup> See also <https://www.giz.de/en/worldwide/28499.html> [accessed 05/06/2019]

<sup>34</sup> Information taken from <https://www.giz.de/en/worldwide/31932.html> [accessed 07/06/2019]

<sup>35</sup> IKI is also currently funding a number of multi-country and regional initiatives that include Jordan, ranging from *Political dialogue and knowledge management on low emission strategies in the MENA region* to *Conservation of*

at enhancing Jordan's capacities for implementing, revising and tracking their **NDC**. Technical capacities of the MoEnv and other partners will be strengthened. In order to track the progress of NDC implementation, the project supports the preparation of a national transparency system. The project further supports the mainstreaming of the NDC in national planning processes, in particular on a subnational level.<sup>36</sup> It is implemented by GIZ and runs from 2018 until 2020.

## Japan<sup>37</sup>

Jordan and Japan enjoy longstanding ties, extending since 1954 when Jordan and Japan first established diplomatic relations. Cooperation on the technical level was initiated in 1985. Since then, Japan has played a significant role in providing financial and technical assistance to Jordan. Japan's financial and technical assistance has helped Jordan implement priority projects in key sectors including **Water**; **Environment**; Health; Infrastructure; Industrial development; Tourism; Poverty alleviation; and Education.

*The following are examples of ongoing projects:*<sup>38,39</sup>

- The Project for Rehabilitation and Expansion of the Water Networks in Balqa Governorate (Phase II) 2017-2019. Installation of total length of 10,144m transmission mains; Installation of total length of 5,927m distribution mains; Construction of Abu Nussair reservoirs; Piping with Al Baqa'a reservoir.<sup>40</sup> The project will upgrade and expand the **water networks** in 'Aīn al-Bāshā District, Balqa Governorate, to correct the water pressure, extend the water supply hours, improve the water quality, reduce water losses, make energy consumption more efficient and otherwise improve water services.
- Project Finance for the Largest Solar Power Generation Project in Jordan:<sup>41</sup> In January 2018, JICA signed a loan agreement with Baynouna Solar Energy Company ("BSEC") for a **solar power** generation project in Jordan. The loan is co-financed by the International Finance Corporation and the OPEC Fund for International Development. BSEC will construct and operate a 200-megawatt solar power plant in Al-Muwaqqar District, Amman Governorate, which will be the largest photovoltaic (PV) plant in Jordan.

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*pollinator diversity for enhanced climate change resilience. See <https://www.international-climate-initiative.com/en/projects/> [accessed 07/06/2019]*

<sup>36</sup> Information taken from [https://www.international-climate-initiative.com/en/nc/details/project/establishment-of-an-effective-ndc-governance-for-the-ndc-revision-and-implementation-in-jordan-18\\_I\\_314-2951/?cookieName=search\\_results&source=single](https://www.international-climate-initiative.com/en/nc/details/project/establishment-of-an-effective-ndc-governance-for-the-ndc-revision-and-implementation-in-jordan-18_I_314-2951/?cookieName=search_results&source=single) [accessed 07/06/2019]

<sup>37</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=192> [accessed 06/06/2019]

<sup>38</sup> Information taken from [https://libportal.jica.go.jp/library/Data/PlanInOperation-e/MiddleEast/424\\_Jordan-e.pdf](https://libportal.jica.go.jp/library/Data/PlanInOperation-e/MiddleEast/424_Jordan-e.pdf) [accessed 05/06/2019]

<sup>39</sup> Also, see here for a list of committed capital projects for the years 2018 – 2020 from Japan, many of which come under the Water Authority and National Electric Power Company. [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=2ahUKEwis8LGbqd3iAhUqUBUIHXLOBM8QFjALegQICRAC&url=http%3A%2F%2Fwww.gbd.gov.jo%2FUploads%2FFiles%2Fgbd%2Faw-unit%2F2018%2Fen%2F3.pdf&usg=AOvVaw18ZHcl4IbY\\_MWcoD2fUp4s](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=2ahUKEwis8LGbqd3iAhUqUBUIHXLOBM8QFjALegQICRAC&url=http%3A%2F%2Fwww.gbd.gov.jo%2FUploads%2FFiles%2Fgbd%2Faw-unit%2F2018%2Fen%2F3.pdf&usg=AOvVaw18ZHcl4IbY_MWcoD2fUp4s) [accessed 07/06/2019]

<sup>40</sup> Information taken from [https://www.jica.go.jp/english/news/press/2017/170815\\_01.html](https://www.jica.go.jp/english/news/press/2017/170815_01.html) [accessed 05/06/2019]

<sup>41</sup> Information taken from [https://www.jica.go.jp/english/news/press/2017/180125\\_01.html](https://www.jica.go.jp/english/news/press/2017/180125_01.html) & <https://www.powerengineeringint.com/articles/2018/01/japan-bank-to-finance-200-mw-jordan-solar-plant.html> [accessed 07/06/2019]

- The Programme for Urgent Improvement of Water Sector for the Host Communities of Syrian Refugees in Northern Governorates (Phase 2):<sup>42</sup> In May 2017, JICA signed a grant agreement with the United Nations Office for Project Services (UNOPS) in Amman, to provide grant aid of up to 2.412 billion yen. The programme will renovate the **water distribution** pipe network, install new distribution pipes, reduce the amount of water leakage, and adjust the water supply pressure in Huwwarah District, Irbid Governorate, in the northern part of Jordan where there is a large influx of Syrian refugees.

## Switzerland

*Examples of ongoing projects include:*

- JOR Sanitation Solutions for Underserved Communities in Jordan: The project will contribute to the much needed decoupling of population and economic growth from **resource consumption** and **pollution** of the environment. Running from 2017 to 2027 with funding of CHF 11,000,000 from SDC<sup>43</sup>. Phase I (Sanitation Solutions for Underserved Communities in Jordan) will run from 2017 to 2021,<sup>44</sup> the objective includes safe treated waste water is available for agriculture in Azraq, and public awareness of Sustainable Sanitation Solutions is increased, leading to better living conditions and strengthening the resilience of Azraq community.
- Reduce vulnerability in Jordan in the context of water scarcity and increasing food/energy demand:<sup>45</sup> **Water** for agriculture and food Integrated water resource management (watershed), running from 2015 to 2019, funding of CHF 2,050,000 from SDC and project partners include FAO and the relevant ministries. The project pilots a three-pronged, community-based approach, combining water harvesting, conjunctive use of groundwater, and solar power for lifting irrigation water. Medium-term outcomes include the provision of sustainable agricultural water resources and their efficient management.

## United States<sup>46</sup>

Jordan and the US share a strong relationship dating back to 1949 when the two countries established diplomatic relations. Two years later, the US began providing assistance to the Kingdom, and in 1957, an agreement of Economic and Technical Assistance was signed. The United States' assistance has widened to include many of Jordan's top priority sectors, including: Water; Economic Development; Governance; Health; Education; **Environment; Energy;** Tourism; Youth. The US Government is partnering with the Government of Jordan and the private sector to address the challenge of **water scarcity** in Jordan. During the 60-year

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<sup>42</sup> Information taken from [https://www.jica.go.jp/english/news/press/2017/170523\\_01.html](https://www.jica.go.jp/english/news/press/2017/170523_01.html) [accessed 07/06/2019]

<sup>43</sup> Information taken from <https://www.eda.admin.ch/countries/jordan/en/home/international-cooperation/projects.filterResults.html/content/dezaproyects/SDC/en/2016/7F09372/phase99.html?oldPagePath=/content/countries/jordan/en/home/internationale-zusammenarbeit/projekte.html> [accessed 07/06/2019]

<sup>44</sup> Information taken from <https://www.eda.admin.ch/countries/jordan/en/home/international-cooperation/projects.filterResults.html/content/dezaproyects/SDC/en/2016/7F09372/phase1?oldPagePath=/content/countries/jordan/en/home/internationale-zusammenarbeit/projekte.html> [accessed 07/06/2019]

<sup>45</sup> Information taken from <https://www.eda.admin.ch/dezaproyects/SDC/en/2015/7F09468/phase1.html?oldPagePath=> [accessed 07/06/2019]

<sup>46</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=168> [accessed 07/06/2019]

partnership with Jordan, the U.S. has invested more in the water sector than any other sector. Since 2000, USAID's support in the water sector has totalled to more than USD 700 million<sup>47</sup>.

*Current USAID **water** programmes:*<sup>48</sup>

- Improve Water and Wastewater Infrastructure: 1) USAID is currently supporting large **infrastructure** projects including the Red-Sea Dead-Sea Project, Zara Ma'in Pumping and Treatment Station, Jerash and Tafileh **Wastewater** Treatment plants; 2) Introduce affordable technologies for utilities, communities, and households to reduce **water losses**; 3) Increase private sector participation in infrastructure investments.
- Strengthen Water Management and Governance: 1) Reduce water losses, which has the potential to provide water for 2 million Jordanians; 2) Work with the Government of Jordan to strengthen water sector **institutions** and policies; 3) Encourage best commercial practices in water **utilities**.
- Increase Water Conservation: 1) Promote behavioural change amongst the public and decision makers that support policy reform and increase water use **efficiency**; 2) Demonstrate and scale water **conservation** and reclaimed water programs in the agriculture sector, which consumes 50% of Jordan's water; and 3) Cultivate community-based **alliances** for stewardship of shared regional water resources.
- Upgrading the Mafraq Wastewater Treatment Plant: USAID supported the feasibility study and design for upgrading the existing **wastewater** treatment plant, and is currently funding construction and construction management to upgrade the plant to a capacity of 6,550 m<sup>3</sup> per day through simple, low-tech improvements. Treated water from the facility will be used mainly for irrigating farms in the vicinity of the plant. The plant is designed to serve the city of Mafraq until the year 2025.<sup>49</sup>
- USAID Water and Wastewater Infrastructure Project: Not clear if this is still ongoing. With the objective of improving how **water resources** are utilised and wastewater facilities are managed over the next 25 years, the Water and Wastewater Infrastructure Project (WIP) is responding to dire improvements needed in the water sector. The project seeks to deliver critically needed water and wastewater infrastructure facilities and provide training and capacity building to the WAJ and water companies throughout Jordan. Commenced in 2010 and was initially a five-year investment programme.<sup>50</sup>
- USAID Hydroponic Green Farming Initiative (HGFI): A three-year project implemented by ECO Consult that aims to introduce a model that integrates **hydroponic** farming and renewable energy generation for large commercial farms and small rural households.

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<sup>47</sup> Information taken from <https://www.usaid.gov/jordan/water-and-wastewater-infrastructure> [accessed 07/06/2019]

<sup>48</sup> Information taken from <https://www.usaid.gov/jordan/water-and-wastewater-infrastructure> [accessed 07/06/2019]

<sup>49</sup> Information taken from <https://www.usaid.gov/jordan/fact-sheets/upgrading-mafraq-wastewater-treatment-plant> [accessed 10/06/2019]

<sup>50</sup> Information taken from <https://www.usaid.gov/jordan/fact-sheets/water-and-wastewater-infrastructure-project> [accessed 10/06/2019]

This aims to demonstrate the major advantages of adopting a national campaign to promote hydroponics in Jordan. Example of water conservation project.<sup>51</sup>

USAID's **Energy Sector Capacity Building** project applies a broad, adaptable approach to meet the energy sector's evolving needs, and includes.<sup>52</sup>

- Successful development and adoption of a utilities incentive mechanism to promote **energy efficiency**, including a robust monitoring, evaluation, and validation system;
- Increased **institutional capacity** of Jordanian energy sector partners, including the Ministry of Energy and Mineral Resources, Electricity Regulatory Commission, and electricity production, distribution, and transmission companies;
- Strengthened presence, capacity and regulation of **energy services companies** through market research, business development services, accreditation of such companies, and the creation of an energy services association; and
- A flexible response mechanism for **emergent energy sector** needs and opportunities on a demand-driven basis.

## Intergovernmental organisations

### United Nations<sup>53</sup>

The United Nations Country Team (UNCT) in Jordan consists of 12 agencies, funds, and programs namely UNDP, UNIFEM, UNFPA, UNICEF, UNHCR, UNRWA, UNHABITAT, UNESCO, UNOPS, FAO, WFP, and WHO. In addition to these 12 resident agencies, the UNCT in Jordan works closely with a number of non-resident UN agencies including UNODC, UNIDO, ILO, and IFAD.

*Examples of ongoing projects from UN related institutions include:*

- **FAO:** Regional Collaboration Platform of the Water Scarcity Initiative, USD 50,000, Sector: **Water**, signing date: 25/2/2018 (Ministry of Planning and International Cooperation, 2018)
- **UNEP:** Development of Cleaner and Efficient Fuels and Vehicle Policies for Jordan, USD 81,294, Signing date: 25/2/2018, Sector: **Environment**, Location: Nationwide (Ministry of Planning and International Cooperation, 2018).

### UNDP<sup>54</sup>

UNDP has provided financial and technical assistance to Jordan since 1976. UNDP's focus is to help Jordan build and share solutions to the challenges of: Reducing Poverty: Promoting Good Governance: Protecting the Environment and Natural Resources; and Reducing Risks. In the

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<sup>51</sup> Information taken from <https://www.usaid.gov/jordan/fact-sheets/usaid-hydroponic-green-farming-initiative-hgfi> [accessed 10/06/2019]

<sup>52</sup> Information taken from <https://www.usaid.gov/jordan/energy-resources-management> [accessed 10/06/2019]

<sup>53</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=167> [accessed 07/06/2019]

<sup>54</sup> Information taken from <http://www.mop.gov.jo/Pages/viewpage.aspx?pageID=161> & <http://www.jo.undp.org/content/jordan/en/home/projects.html> [accessed 07/06/2019]

area of protecting the environment and natural resources, UNDP's interventions include four major components: Compliance with global environmental conventions; Sound water resources management; Safe management of hazardous waste; and Energy efficiency. UNDP-GEF also have an ongoing strategic partnership with the Ministry of Environment in the implementation of global environmental **conventions** (The Hashemite Kingdom of Jordan, 2017b, p. i).

*Examples of ongoing projects include:*

- Reduction and Elimination of PoP's and other chemical releases through implementation of environmentally sound management of E-Waste, healthcare waste and priority U-POPS release sources associated with general waste management activities: GEF-funded. USD 5,240,000, Signing date: 30/5/2018, Sector: **Waste Management**, Location: Nationwide (Ministry of Planning and International Cooperation, 2018)
- Mainstreaming Conservation of Migratory Soaring Birds into Key Productive Sectors along the Rift Valley/Red Sea Flyway (regional programme): GEF-funded. USD 2.1 million (to Jordan of USD 14.1 million total project cost), 2018-2022 (Ministry of Planning and International Cooperation, 2018). The project aims at mainstreaming **conservation** of migratory soaring birds into the key productive sectors of hunting, energy, waste management, tourism and agriculture along the Rift Valley/Red Sea flyway.<sup>55</sup>
- Improving Solid Waste Management & Income Creation in Host Communities - Rehabilitation of Al Ekaider Landfill: UNDP will provide support to the Joint Services Council in the Northern governorate of Irbid and in Mafraq and North Shouneh, to improve **solid waste management** at the Al Ekaider Landfill and Hussainiyat Landfill, and at old dumpsites in west Irbid that would become MSW Transfer Stations, while offering durable solutions for improvement of social service delivery to the affected populations through ensuring that the assistance provided in the current context complements, governmental development efforts. Implemented between 2015-2019.<sup>56</sup>
- Mainstreaming Rio Convention Provisions into National Sectoral Policies of Jordan: RIO Project aims at **mainstreaming** Rio Convention provisions into key national sectoral policies and/or legislation in Jordan, and strengthening the national **drought** governance system in Jordan, in addition to promoting more systematic approach to drought response planning and management. Implemented between 2014-2019.<sup>57</sup>
- Mainstreaming biodiversity conservation in tourism sector development in Jordan: The aim of the project is to reduce the impact of tourism on **biodiversity** in Jordan. 2014-2018.<sup>58</sup>

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<sup>55</sup> Information taken from <http://www.jo.undp.org/content/jordan/en/home/projects/mainstreaming-conservation-of-migratory-soaring-birds-into-key-p.html> [accessed 06/06/2019]

<sup>56</sup> Information taken from <http://www.jo.undp.org/content/jordan/en/home/projects/SWM.html> [accessed 04/06/2019]

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## World Bank

Jordan joined the World Bank Group in 1952, and received its first International Development Association credit in 1961. However, in 1979, the Kingdom graduated from the group of low-income countries, and thus became ineligible for the International Development Association credit. Since then, World Bank support to Jordan was channelled through loans, based on the terms of the International Bank for Reconstruction and Development.

Current projects include support to Jordan in its overall efforts to meet its first Montreal Protocol HCFC phase-out obligations between 2013 and 2017.<sup>59</sup>

## Red Sea-Dead Sea Water Conveyance Project

The Red Sea-Dead Sea Water Conveyance Feasibility Study was supported by Japan, France, Netherlands, US, South Korea, Sweden and Italy. It was aimed at preparing an environmental, economic, and social feasibility study to maintain the Dead Sea water level, generate hydroelectric power and provide fresh water through desalination. Jordan signed a memorandum of understanding with Israel and Palestine in December 2013 to implement the first phase of the Red Sea-Dead Sea Water Conveyance Project (Miller, 2019). The plan was to pump water from the Red Sea to a desalination centre in the Jordanian port of Aqaba. The brine by-product was to be piped 125 miles north to the Dead Sea. The project has been hit by environmental and political issues and it is not clear when implementation will begin. The project is estimated to cost about USD 10 billion (Miller, 2019).

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<sup>60</sup> A number of website references have been used throughout this report and these have been added as footnotes within the main report.

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## About this report

*This report is based on six days of desk-based research. The K4D research helpdesk provides rapid syntheses of a selection of recent relevant literature and international expert thinking in response to specific questions relating to international development. For any enquiries, contact [helpdesk@k4d.info](mailto:helpdesk@k4d.info).*

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