KONRAD ADENAUER STIFTUNG

Environment and politics in Jordan: the need for action

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Introduction: the challenge

A healthy environment based on effective policies is a prerequisite for a strong economy and a thriving society. The conservation and wise use of environmental resources are considered a basis for the well-being of any society and lead, for instance, to poverty reduction and the improvement of health conditions, especially in rural areas. Particularly affecting the poorest members of society, a reciprocal relationship between the environment and poverty can be detected.

It is no secret that Jordan faces several environmental issues, which impact climate, desertification, agriculture, sustainability, human settlements, and poverty negatively. Amongst the poorest countries regarding capita water availability, Jordan's most prominent challenge is water scarcity. Other challenges include Solid Waste Management, air pollution, and loss of biodiversity. Heavily debated in Jordan, the copper mining project in the Dana Biosphere Reserve shows how environmental protection supposedly competes with economic interests.

This paper aims to identify the environmental challenges in Jordan and outlines ideas to confront them. By raising public awareness, steps to improve the Jordanian environmental situation can be taken by decision-makers and the broader public. As a result, the economic and other sectors related to the well-being of society will be strengthened.

Water scarcity

Having a mean annual water supply of 100 m³, Jordan is the second most water-scarce country in the world.[1] The United Nations considers any nation with a mean annual water supply below 500 m³ per resident to experience "absolute scarcity."[2] The kingdom meets its demand for water by replenishing its water reserves with rain. However, due to climate change, the precipitation rate has fluctuated in recent years. Unfortunately, most of the so far implemented solutions have been temporary. The Disi basin at the Jordan-Saudi border can be seen as an example. Despite its estimated costs of $1.1 billion, it is expected to run dry in the next fifty years.

The challenge of water security has been exacerbated by increased water demands due to population growth, refugees, agricultural, and industrial capacity. Long-term groundwater monitoring in Jordan's main aquifers suggests that water levels are falling, with annual declines of more than ten meters in some aquifers. The situation in informal settlements is of particular concern due to high rates of open defecation and

[1] UNICEF (2021), www.unicef.org/jordan/water-sanitation-and-hygien

[2] Ibid.

the insufficient access to safe water. Vulnerable households are forced to spend a large portion of their small incomes on limited and poor-quality services.

Inherent to the issue of water scarcity is that it increases day by day at an incalculable rate. Many of the water systems that keep ecosystems flourishing and provide for a growing human population have come under pressure. Rivers, lakes, and aquifers are drying up or becoming too polluted to use. Agriculture consumes about 54% of groundwater[3] more than any other sector and wastes much of it through inefficiencies. In addition, climate change is altering weather and water patterns around the world, causing shortages and droughts in some areas and floods in others. For instance, flash floods in Petra last years have killed 11 people and forced the evacuation of nearly 4,000 tourists from the ancient city.[4]

Solid waste mismanagement

Growing annually by 5%, 2.2 million tons of municipal waste is generated each year in Jordan.[5] The majority is diverted to unsanitary landfills and dumpsites. Regrettably, until now there is no specific legal framework or national strategy for Solid Waste Management (SWM) in Jordan which hampers efforts to resolve the situation. Municipalities do not have enough funds to build up modern waste collection infrastructure, recycling facilities, waste disposal systems, and waste to energy plants. Recycling is still at early stages even though it was introduced as the third solution on the Solid Waste Management hierarchy.[6] Also, the role of the private sector continues to be limited.

The tasks of SWM present complex technical challenges. They also pose a wide variety of legal, economic, and social questions that must be resolved. This can be achieved as a result of effective policies and management and by involving new technologies and innovation in this sector.

Air pollution

The air quality in Jordan is considered "moderately unsafe"[7]. The recent data indicates that the annual mean exposure to very fine particular matter PM2.5 is 33 microgram per cubic meter (µg/m^3) which surpasses the advised maximum of 10 µg/m^3.[8] Contributors to poor air quality in Jordan include the apparel and mining industries and vehicular emissions. Also, the gas emissions of factories and power plants exceed the amount permitted by international standards.

Although Jordan is a non-industrial country, this fact does not negate the growing problem of air pollution. The large and widespread use of vehicles and engines of all kinds and the extensive use of air conditioners significantly affect air quality negatively. This comes as a result of the direct increase in relative humidity and the percentage of greenhouse gases.[9] According to the Real-time Air Quality Index, locations

[3] IWG-ENV, UNSD, www.millenniumindicators.un.org/unsd/ENVIRONMENT/envpdf/pap_wasess4a3jordan.pdf.
[4] BBC News, www.bbc.com/news/world-middle-east-46161276.
[5] UNDP in Jordan, www.jo.undp.org/content/jordan/en/home/ourwork/our_stories/new-municipal-solid-waste-recovery-and-recycling-contract-improv.
[6] Solid Waste Management Hierarchy contains waste prevention, as the preferred option followed by reuse, recycling, recovery, and as a last option, safe disposal.
[7] IAMAT, www.iamat.org/country/jordan/risk/air-pollution.
[8] Ibid.
[9] The average annual percentage of humidity in 2021 in the capital Amman is 48% (Source: Weather & Climate, www.weather-and-climate.com/average-monthly-Humidity-perc,Amman,Jordan). Annual CO_2 emissions in Jordan in 2020 were 25.49 million tons (Source: Global Carbon Project, www.doi.org/10.18160/gcp-2021).

in Amman and Al-Zarqa are considered unhealthy with fewer amounts of pollutants in Irbid that are deemed moderate.

Desertification

Desertification is one of the most important environmental problems in Jordan, as the percentage of already decertified regions is about 81% of the country and the area threatened by desertification is about 16%.[10] Next to the rate of rainfall, increasing temperatures, mining and overgrazing add to the severity of the issue. These desertification factors expose the soil to erosion, water, and air erosion, overgrazing, forest fires, and the use of agricultural chemicals, which results in soil and water salinization. This is particularly alarming in areas with intensive agricultural activity such as Al-Azraq and the Jordan Valley.

The results of desertification in Jordan have led to the deterioration of plant and animal life, shrinkage of the agricultural lands, a shortage of water resources, and an increase in salinity due to the overuse of these resources.

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Loss of biodiversity

Jordan has great biodiversity in the components of wildlife, both in habitats and species. This can be attributed to several factors. Most important is Jordan's outstanding geographical location at the junction of three continents: Asia, Africa, and Europe, in addition to the diverse geological structures, which were reflected in the multiplicity of vital geographic areas as well as its diverse landscapes. Jordan is divided into four different biogeographical regions: The Mediterranean, Iranian Turanian, Arabian Desert, and Equatorial regions.

The amplified population in the central mountainous regions with a high concentration of productive land and biodiversity has caused habitat degradation in areas surrounding major cities, including both terrestrial and aquatic habitats. In this context, the Al-Azraq oasis can be seen as an example. Population growth and an increasing demand for drinking water led to the overpumping of water from the oasis which was followed by the deterioration of wetlands in Al-Azraq.

Some suggestions for change

Environmental challenges in Jordan are diverse and interrelated at the same time. Water scarcity, solid waste mismanagement, and air pollution are not only related to climate change mitigation, but they are also related to each other. For example, better management of solid waste means reducing air pollution. As a next step, the reduction of air pollution will save our water. By achieving better results in each of those subject areas, we can move closer to protect our health and environment and towards a process of establishing the sustainability which we ultimately need.

Politics will play the most important role in solving the water scarcity in Jordan. The peace treaty with Israel could be amended to ensure that Jordan receives an adequate amount of water annually, which is originally its right as stated in the Wadi Araba Treaty of 1994. This compensation comes

[10] Jfra News, www.jfranews.com.jo/article/146311.

as a result of the damage that Israel has inflicted on the Jordanian water resources. More concretely, Israel commits itself to providing Jordan with 50 million cubic meters (MCM) annually in addition to what it needs and according to Israeli availability. However, in 2021, when Netanyahu still was Israel's Prime Minister, Jordan's request for additional water was rejected and only approved after the Bennet-Lapid government took over. In contrast to the strained relations between the two countries under Netanyahu, the new Israeli government pledged to provide Jordan with 50 MCM of additional purchased water.[11] An amendment of the peace treaty would prevent Jordan from becoming subject to political uncertainties when water is essential for the prosperity of its communities. A similar agreement could be reached with Jordan's neighbor Syria over the Al Wahda Dam, whose capacity Jordan has not yet fully utilized.

Due to the water scarcity in Jordan new water conservation technologies need to be promoted.[12] The improvement of irrigation and agricultural practices and the development of energy-efficient desalination plants present an opportunity to battle Jordan's water scarcity. In particular, the desalination of seawater can serve as a solution. The issue needs to be studied from a political perspective to ensure fairness in the use of seawater but also from a technological point of view to develop environmentally friendly, effective, and inexpensive methods. Considering water conservation, children and youth should be acknowledged as agents of change in communities and school environment clubs.

Regarding the mismanagement of solid waste, the Jordanian government should focus on the legal, economic and social aspects, besides recourse recovery, waste prevention, methods of biological waste management such as anaerobic waste digestion to produce biogas. Additionally, a strong relationship with the private sector is crucial to tackle this challenge. Extending from developing a national strategy and legislation to educating Jordanian communities, great efforts are required to reduce the negative effects of solid waste.

Children and youth should be acknowledged as agents of change.

The air pollution dilemma can be solved by using clean technologies[13] that reduce industrial smokestack emissions, ensuring access to affordable clean household energy solutions for cooking, heating, and lighting, shifting to clean modes of power generation; prioritizing rapid urban transit, walking and cycling networks in cities, improving the energy efficiency of buildings and making cities more green, not to mention that the SWM solutions can help in reducing air pollution. The Central Traffic Department and the Ministry of Environment should take action against drivers without a catalytic converter on their vehicle's exhausts. Alongside researchers who should study this topic, decision - makers need to establish strong regulations in addition to raising public awareness. There are many factors involved in the air pollution dilemma and until now there are no tangible results in Jordan.

Identifying the causes and controlling the environmental changes resulting from desertification is essential for decision-makers to manage natural resources, as monitoring desertification and working to combat its causes will restore the environmental balance to acceptable levels, which will result

[11] Reuters, https://www.reuters.com/world/middle-east/israel-sell-jordan-additional-water-this-year-minister-says-2021-07-08/.
[12] Examples given for water conservation technologies: WaterSense Labeled Irrigation Controllers, Rainfall Shutoff Devices, Rain sensors, Micro-Irrigation, and Sprinkler Heads.
[13] For instance: Energy Management and Analytics, Industrial processes advancements, Pure manufacture methodologies, Waste heat recovery, Smart plugs, and LED lighting.

in raising the productive capacity of the land. Desertification undoubtedly affects food security and the country's ability to produce food. Despite realizing the danger of desertification, the means of combating the phenomenon have not yet risen to the level of threat, which targets environmental, economic, social, cultural, political, and security levels. Combating desertification requires the development of clear-cut plans that include direct objectives of stopping the progress of desertification and reclamation of decertified lands, and others that include the restoration and maintenance of soil fertility in areas prone to desertification.

To preserve Jordan’s biodiversity a national program to plant trees and preserve reserves, forests, bird species, animals, and plants in Jordan should be implemented. Here, it needs to be noted that the copper mining project in the Dana Reserve should be studied from an environmental and water impact review before taking any further steps.

Working on sustainable development, enhancing the environmental situation, and ensuring sustainability is an integral part of Jordan's modernization.

Dedicated to finding solutions, Jordan will undoubtedly contribute to improve its environmental and economic situation, which as a result will have a positive impact on the Jordanian people. The suggested plans must be evaluated and reviewed continuously to provide a long-term view and rational management of the natural resources that allow environmental progress and development in Jordan. Working on sustainable development, enhancing the environmental situation, and ensuring sustainability is an integral part of Jordan's modernization. It is no less important than the modernization of the political and economic system, as it goes hand in hand with them. Improving the environmental situation will ensure the continuity of future generations and the improvement of economic and social conditions in Jordan.

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Jordan. The next chapter – أفكار أردنية

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