

Jordan and Climate Change

EFFECTS, PERCEPTIONS AND ADJUSTMENT MEASURES IN JORDAN

In comparison with Europe or Germany, climate change and its consequences only take up a secondary role in the Jordanian public debate. There is, however, a certain level of awareness, especially among a more highly educated population. The central environmental issue in Jordan is sufficient water supply for the population and the agricultural sector - an issue that is perceived rather as an ongoing local phenomenon conditioned by the natural environment but unrelated to global climate change. This perception has not been shattered even by the heat waves in the summer 2010 and the drought during the winter 2010/2011.

The current debate on climate change in the media and scientific publications is comparatively limited and shows that there is a lack of empirically secure data, which would prove or rather demonstrate climate change and its consequences in Jordan. At the same time, Jordan has started to play an active role in international negotiations on environmental and climate policies particularly as water problems increasingly became the key issue in development cooperation for the past years. However, regional cooperation in dealing with climate-related problems has clearly not been used to its full potential, the reason behind that being the difficult political conditions, particularly with Israel.

According to the Jordan Meteorological Department (JMD) 2010 was the driest year since 1992.¹ In Jordan, one of the four most

arid countries in the world², drought, heat waves, lack of rain and water scarcity are no new phenomena: heat waves and late-ness or sheer absence of rain have become normalcy during the past six years, inter alia due to natural events such as the Red Sea Troughs (RST)³ and, according to the Director of the JMD, the phenomena have no direct connection with climate change.⁴ Other Jordanian experts have reached similar conclusions. As part of a study published by the renowned "American Journal of Environmental Sciences", a team of Jordanian and Arab authors undertook the attempt to investigate the link between the development of precipitation in Jordan and the global phenomena of climate change. They assessed data from six meteorological stations in Jordan in order to compare the changes of temperature, precipitation and relative humidity of the last decades in order to be able to make a statement on climate change in Jordan. The authors reached the conclusion that there is no evidence of a visible trend in an above-average increase or decrease of precipitation but there appears to be a clear reduction of temperature range.

the present article from German into English.

² „Water for Life Jordan's Water Strategy 2008-2022", http://www.idrc.ca/uploads/user-S/12431464431JO_Water-Strategy09.pdf [02/24/2011].

³ Red Sea Troughs are violent whirlwinds that form over the Mediterranean Sea, see <http://www.advgeosci.net/12/137/2007/adgeo-12-137-2007.pdf> [02/24/2011].

⁴ Oamri, Raed (2011): "Too early to declare water emergency", Jordan Times, December 1 2010, <http://jordantimes.com/index.php?news=32238> [02/24/2011].

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Thus scientific proof of a link to climate change could not be met by the authors. There are, however, several clues that this could be due to the fact, that sufficient data generation and analysis cannot be achieved in Jordan simply because of limited meteorological infrastructure.⁵ These estimations reflect in the public perception of climate change: The Jordan Times, the most important English speaking daily newspaper with close links to the government, interprets in its few articles on climate change the drought and the absence of rain as a result of natural climate variations.⁶ Jordanian Arabic-speaking newspapers do actually point out that climate phenomena like the drought during the winter 2010/2011 have wide and serious effects, especially on the agriculture, but these findings are generally seen as being unrelated to the consequences of climate change.⁷

Nevertheless the opinion poll "Arab Public Opinion and Climate Change" in the annual report of 2009 of the Arab Forum for Environment and Development encompassing the opinions of 2322 inhabitants of the Arab World clearly shows that there is a level of awareness about climate change within the Jordanian population: 96% of Jordanian respondents indicated that they consider climate change primarily as the result of human activity and 88% considered climate change a serious problem for their country.⁸

⁵ Hamdi, Moshrik; Abu-Allban Mahmoud; Al-Shayeb Ammar; Jaber Mohammed; Momani Naili (2009): „Climate Change in Jordan: A Comprehensive Examination Approach“, American Journal of Environmental Sciences 5 (1), 58-68, <http://www.scipub.org/fulltext/ajes/ajes5158-68.pdf> [02/02/2011].

⁶ See e.g. Omari, Raed (2011): "Climate change may be to blame for delayed rains", Jordan Times, November 23 2010, <http://jordantimes.com/index.php?news=31991> [02/24/2011].

⁷ See e.g. "The specter of drought: The Kingdom threatened by the worst water crisis in 10 years" [„Eaba½u 'l-°afAfi yuhaddidu 'l-mamlakati bi-azmatin mÁyÍyatin™ayra mas-bÚqatin munªu 10 sanawÁtin“], Al-Ghad, December 2 2010, [http://www.alghad.com/?news=545225\[02/24/2011\]](http://www.alghad.com/?news=545225[02/24/2011]).

⁸ "Arab Public Opinion and Climate Change, 2009", Arab Forum for Environment and Development, 2009, 9.

The problem awareness, which is above the average of the Arab World, goes hand in hand with a high degree of satisfaction concerning the government's policies in the combat of climate change: only 26% consider it insufficient, 42% see it as positive - the average across the Arab world lies at a mere 30% of government satisfaction in this policy field. The results of this study surely only have limited meaningfulness: It is not a representative study, as questionnaires had been sent out to the public in leading newspapers (in the Jordanian case the renowned Al-Dustour) and everyone who was interested could fill out and send in the form. This methodical approach brings with it certain distortions – respectively three quarters of respondents were men and/or had a degree of higher education – and it can be supposed that readers were more likely to respond if they already considered climate change to be an important issue. At the same time, the results of the study admit the conclusion that it would be wrong to generally attribute to the Jordanian population a low level of awareness about climate change and its consequences for Jordan.

Jordan has shown itself relatively active in the context of international efforts in the combat of climate change and its consequences. In 2009 the "Second National Communication report" was launched within the United Nations Framework Convention on Climate Change (UNFCCC) to focus especially on sectors where climate, environment and adjustment measures are deemed important, i.e. agriculture, energy, waste, industry, land-use change and forestry. Moreover, it has been stressed that the vulnerability in terms of climate change is particularly high in the agricultural, the water and the health sector.⁹ The majority of adjustment measures are thus taken in these areas.

<http://www.afedonline.org/afedreport09/Full%20English%20Report.pdf> [02/24/2011].

⁹ "Jordan", United Nations Development Programme: http://demo.batelco.jo/undp/index.php?page_tupe=projects&cat=3&page_id=475&templatelD=0 [02/24/2011].

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Jordan tries to implement, with international support, the mechanisms of the UNFCCC and the Kyoto Protocol and to reform particularly the water, the agricultural and the energy sectors. For example, the government has been able to undertake first steps in promoting a sustainable water supply and an improved health and food security with the help of the UNDP and three other UN organizations as well as the UNDP/Spain MDG Achievement Fund within the "Adaptation to Climate Change to Sustain Jordan's MDG Achievements" program.¹⁰ Moreover, Jordan is the first Arab country that tries to integrate gender aspects into its climate policy. This should be documented in the "Third National Communication" report which will stress the socioeconomic effects of climate change on the Jordanian society.¹¹ A study carried out over twenty years by the International Union for Conservation of Nature has shown that women are important socio-economic actors and, owing to their competencies and knowledge, they can achieve change in society. These skills should be used in the future for different projects in order to carry out adjustment measures to climate change in a better way.¹² During the 16th Conference of the Parties of the United Nations Framework Convention on Climate Change (COP16) in Cancún 2010, Faris Mohamad Al- Junaidi, the Jordanian Deputy Minister of Environment, stressed the gender aspect in the Jordanian climate policy and underlined that Jordan had already undertaken important steps in order to fully support climate protection. He also referred to the fact that in-

¹⁰ "Adaptation to climate change to sustain Jordan's MDG Achievements", MDG Achievement Fund
<http://www.mdgfund.org/sites/default/files/Jordan%20-%20Environ%20-%202010%201st%20Semester%20-%20JP%20Fact%20sheet.pdf> [02/24/2011].

¹¹ "Jordan", United Nations Development Programme:
http://demo.batelco.jo/undp/index.php?page_type=projects&cat=3&page_id=475&templateID=0 [02/24/2011].

¹² Faouri, Rania (2010): "Jordan first country to mainstream gender in climate change policy – press release",
http://cms.iucn.org/about/work/programmes/gender/gender_news_and_events/?6444/Jordan-first-Arabcountry [01/27/2011].

ternational support is necessary for developing countries so as to enable them to reduce the effects and consequences of climate change through adjustment measures and technology transfer.¹³

The measures undertaken by the government until now have shown that risk perception about water scarcity has been increasing amongst the population and the political elite. Jordan's water strategy for the period 2008-2022 assumes that the availability of fresh water per capita has decreased from 3600m³ per year (1946) to 145m³ per year (2008), which is far below the absolute water shortage limit of 500m³ per capita per year.¹⁴ There are predictions according to which the water deficit will increase from 692 million m³ (2010) to 1368 million m³.¹⁵ The United Nations Development Assistance Framework (UNDAF) for Jordan from 2008 to 2012 states that Jordan's socio-economical development progress of the past decades will be highly threatened by the water shortage in the country.¹⁶

Global climate change only plays a secondary role within the National Water Strategy from 2008 to 2022.¹⁷ However the Jordanian government has undertaken steps towards a strategy that perceives the water

¹³ Statement Jordan during the COP 16 UN climate Conference
http://unfccc.int/files/meetings/cop_16/statements/application/pdf/101209_cop16_hls_jordan.pdf [02/24/2011].

¹⁴ "Jordan's Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC)", Framework Convention on Climate Change, 2009, 30.

¹⁵ Namrouqa, Hana (2011): "Water can be an opportunity for peace in region – report", Jordan Times, January 24 2011,
<http://www.jordantimes.com/?news=33796> [02/24/2011].

¹⁶ "Jordan's Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC)", Framework Convention on Climate Change, 2009, 29.

¹⁷ Climate change is mentioned only twice in the strategy, p 5-2 und 7/1,
http://www.idrc.ca/uploads/user-S/12431464431JO_Water-Strategy09.pdf [02/24/2011].

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issue not just as conditioned by a natural scarcity but as a central management problem within the environmental policy of the Jordanian State. The Water Strategy 2008 to 2022 intends to reduce the use of ground water from 32% to 17% and to increase the use of sewage in agriculture from 10% to 13%. The use of desalinated water should also be increased from 1% to 31% by 2022.¹⁸ The government led by Prime Minister Samir Rifa'i had undertaken concrete first steps in order to adjust the price of water to maintenance and investment expenditures: consumers who use more than 60 liters a day would pay 9% or 33 piastres/m³ (0,034€/m³) more from 2011.¹⁹

Experts say that, despite the programs conducted to combat climate change, the establishment of climate saving and adjustment measures in policies at national level has not been receiving enough support from most of the ministries.²⁰ Like for many initiatives of the Jordanian government, there is a gap between planning and implementation. The German Development Cooperation, comprised of the DED and the GTZ or the GIZ, respectively support the various responsible ministries in designing more effective climate and resource protection policies, for example through the monitoring and implementation of precautionary measures for ground water resources²¹ at the Ministry for Water and Irrigation as well as the promotion of better rationing of water resources²² and the improvement of energy

efficiency at the Water Authority of Jordan.²³

The most serious problem in effective and efficient water management in Jordan appears to be the agribusiness sector. While irrigated agriculture represents less than 5% of the GDP, it consumes nearly 75% of the national water resources.²⁴ This disproportion is supported by gigantic state subsidies in favor of irrigated agriculture: in 2009 alone about 10 million Jordanian Dinar have gone to the water sector for the irrigation of the Jordan Valley.²⁵ The socio-political background of this policy, which is aggravating the environmental and water problems in Jordan, is the fact that irrigated farming is one of the few productive sectors in Jordan providing employment: in 2007, 6% of the entire workforce, i.e. 107,000 Jordanians worked in the agricultural sector.²⁶ The danger exists that the imbalance between water consumption in the agricultural sector and its contribution to the GDP will increase in the next years because of population growth as well as rising water demand. Therefore, there are gradual attempts to adjust the agricultural sector to climate-related problems such as water shortage and periods of drought. The introduction of drip irrigation achieved a clear decrease of water consumption in Jordan.²⁷ Furthermore, the agricultural sector has partly changed over to less water-intensive products such as dates and grapes, and a considerable amount of farmers are switching to ecological farming.²⁸

¹⁸ "The Report, Jordan 2009", Oxford Business Group, 139.

¹⁹ Abou-Ragheb, Laith (2011): "The Price is Wrong", Jordan Venture Issue 58, January 2011, 54.

²⁰ Namrouqa, Hana (2011): "Kingdom's efforts to adapt to climate change 'unorganised'", Jordan Times, February 18 2011, <http://jordantimes.com/index.php?news=34613> [02/24/2011].

²¹ <http://www.ded.de/de/partnerlaender/laenderuebersicht/jordanien.html> [02/24/2011].

²² <http://www.gtz.de/de/weltweit/maghreb-naherosten/jordanien/18151.htm> [02/24/2011].

²³ <http://www.gtz.de/de/weltweit/maghreb-naherosten/jordanien/28552.htm> [02/24/2011].

²⁴ "The Report, Jordan 2009", Oxford Business Group, 160.

²⁵ Abou-Ragheb, Laith (2011): "The Price is Wrong", Jordan Venture Issue 58, January 2011, 54.

²⁶ "The Report, Jordan 2009", Oxford Business Group, 160.

²⁷ "Human Development Report 2006", United Nations Development Programme, 152 <http://hdr.undp.org/en/media/HDR06-complete.pdf> [02/24/2011].

²⁸ "The Report, Jordan 2009", Oxford Business Group, 160 ff.

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Measures such as the increase of the water price and the restrictions of water allocation for the agricultural sector show that the Jordanian government also pursues the goal of responsible usage of scarce water resources by the society. However, in an article of Venture magazine, the Coordinator for Water of the German Development Service (DED), Dietrich Osswald, expressed his concerns of whether the awareness for the need of water-saving measures was deep-seated within the Jordanian population.²⁹ Government adjustment measures have thus to actively contribute to strengthening awareness in the fields of environment, energy and resources within the Jordanian population, in order to support the willingness for change in societal lifestyles and thus in the long term to stop the usage of natural resources beyond the level of harmfulness.

In the energy sector, the Jordanian government tries to react to climate-related problems by diversifying the energy mix. According to estimations, the electricity demand should rise to 6000 Megawatts by 2020. Currently, Jordanian energy consumption mainly relies on imported oil from Saudi Arabia and Iraq as well as natural gas from Egypt.³⁰ Better usage for national resources such as oil shale and uranium should be found in the future. The set goal is the increase from 4% to 39% of the part of national energy sources in the entire electricity production by 2020.³¹ In that sense the planned nuclear power plant will cover 30% of energy demand until 2020.³² Also, the opening of the energy sector to national and foreign investors should gradually be pushed forward. The new en-

ergy and mineral law of 2009 provided for the creation of a Renewable Energy and Energy Efficiency Fund, which should give out subsidies to make the price of electricity from renewable energies economically viable. Wind and solar power should be strongly promoted in the next few years. By 2015, 600 Megawatt should be generated through wind farms. The new energy strategy provides that by 2020 10% of the energy demand will be covered by renewable energies.³³

Within the Jordanian political elite there is a certain awareness that problems of water supply (and climate change) need measures that are more innovative and that lie beyond the borders of the state. Prince Hassan Ibn Talal is particularly committed to designing not only national but also regional strategies for a sustainable usage of water resources. During the conference of the West Asia/ North Africa Forum (WANA) in May 2010 he suggested to build 'Concentric Circles of Cooperation'. The countries of the Middle East should be classified into groups according to their needs and their political structures in order to handle issues of water and environment management more efficiently through an independent regional institution.³⁴ Prince Hassan has on various occasions underlined the necessity for a representation of the WANA region as a unity on the international scale.³⁵ In the preface to the white paper "Clean Power from Deserts – the DESERTEC Concept for Energy, Water and Climate Security", that Prince Hassan presented to the European

²⁹ Abou-Ragheb, Laith (2011): "The Price is Wrong", Jordan Venture Issue 58, January 2011, 54.

³⁰ "The Report, Jordan 2009", Oxford Business Group, 137.

³¹ "The Report, Jordan 2009", Oxford Business Group, 138.

³² "The Report, Jordan 2009", Oxford Business Group, 139.

³³ "The Report, Jordan 2009", Oxford Business Group, 138-139, Lina Hindi, "Jordan active in global effort to curb climate change – official", Jordan Times April 8 2008, <http://www.jordantimes.com/?news=7001> [02/24/2011].

³⁴ "Amman Aspirations: Creating Concentric Circles of Cooperation", Strategic Foresight Group, 2010 http://www.strategicforesight.com/Amman_Aspirations.pdf [02/24/2011].

³⁵ E.g. during the international conference "Food Security and Climate Change in Dry Areas" February 1-4 2010, <http://www.jordantimes.com/?news=23667> [02/24/2011].

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Parliament on November 28th, 2010, he refers to the idea of a community for water and energy management of the EUMENA³⁶ states, resembling the European Coal and Steel Community, in order to promote stronger cross-border cooperation in the water sector.³⁷

The tensed political relations between Jordan and Israel since Prime Minister Netanyahu's accession into power have significantly deteriorated the prevailing conditions for cooperation between the two countries. This hinders, for instance, the realization of the ambitious Two Seas Canal project, which had been contemplated in the Israel-Jordan Peace Treaty of 1994. The canal would transport water from the Gulf of Aqaba up to the Dead Sea, because nearly 95% of the southern part of the Jordan River, which originally supplied the Dead Sea in water, is used for industrial and agricultural means.³⁸ Only in 2008 the World Bank started an extensive feasibility study, as for a long time the project had been laying fallow because of the politically difficult situation in the triangle between Jordan, Israel and Palestine. The international interest in this project shows that the construction of the 'peace canal' is seen as a potentially important instrument of cooperation in the region.³⁹ The canal as a regional cooperation model would promote collaboration in different sectors such as energy, agricul-

ture and water between Israel and Jordan and would strongly link the economies of the two countries. Although environmentalists go by the fact that the construction of the canal would also bring environmental problems and although the implementation of the project is still uncertain, several experts concluded that the "Two-Sea-Canal" project has already lead to a harmonization between Israel and Jordan in terms of environment protection and water management.⁴⁰

Despite the low frequency of subjects such as climate protection and climate change in the current public debates, there is a clear tendency towards an increase in climate consciousness within the Jordanian government and population. Although the heat waves of the summer 2010 and the droughts during the winter 2010/2011 did not advance the issue of climate change and its consequences, nor achieved any importance in the eyes of many Jordanians, a general trend towards stronger resource and environment protection is apparent. Since the submission of the "First National Communications" report to the UNFCCC in 1998 the government has carried out important first measures to reform the water, agricultural and energy sectors and to actively promote resource protection. Still, regional cooperation in the fields of water and climate protection as well as raising a climate and environment consciousness amongst the population should be promoted in the future.

³⁶ EUMENA stands for Europe, Middle East and North Africa.

³⁷ "Clean Power from Deserts - The DESERTEC Concept for Energy, Water and Climate Security", White-Book 4th Edition, February 2009, 7-8, http://www.desertec.org/fileadmin/downloads/DESERTEC-WhiteBook_en_small.pdf [02/24/2011].

³⁸ Sharp, Jeremy (2008): "The "Red-Dead" Canal: Israeli-Arab Efforts to Restore the Dead Sea", CRS Report for Congress, May 13 2008, 3 <http://www.fas.org/sgp/crs/mideast/RS22876.pdf> [02/24/2011].

³⁹ Sharp, Jeremy (2008): "The "Red-Dead" Canal: Israeli-Arab Efforts to Restore the Dead Sea", CRS Report for Congress, May 13 2008, 1 <http://www.fas.org/sgp/crs/mideast/RS22876.pdf> [02/24/2011].

⁴⁰ Sharp, Jeremy (2008): "The "Red-Dead" Canal: Israeli-Arab Efforts to Restore the Dead Sea", CRS Report for Congress, May 13 2008, 6 <http://www.fas.org/sgp/crs/mideast/RS22876.pdf> [02/24/2011].