

Young Voices: Jordanian Youth in Public Policy-Making 2020



Foreword by HRH Prince El Hassan bin Talal

The Hashemite Kingdom Of Jordan
The Deposit Number at The National
Library
(2021/6/2964)

323.4

Young Voices: Jordanian Youth In Public Policy Making 2020/
Hala Mohammad Walid Mohammad ALHamawi ... [etc.al].-
Amman:Konrad Adenauer Stiftung, 2021

(100) p.

Deposit No.: (2021/6/2964)

Descriptors: /Human Security//Public Policies//Human Rights/

يتحمل المؤلف كامل المسؤولية القانونية عن محتوى مصنفه ولا يعتبر هذا المصنف عن رأي دائرة
المكتبة الوطنية أو أي جهة حكومية أخرى.

ISBN: 978-9957-8745-2-0 (ردمك)

**Young Voices: Jordanian Youth
in Public Policy-Making 2020**

These policy papers are part of the project entitled "Jordan-EU Dialogue on Human Security Issues" implemented jointly by the West Asia-North Africa Institute (WANA) and the Konrad-Adenauer- Stiftung (KAS) – Jordan Office. The aim of the project is to raise awareness on the issues of importance and priority that Jordan must address in 2021 from a non-governmental perspective, cementing the culture of informing and enhancing exchange of knowledge that is able to influence public policies in Jordan.

Published in 2021 by the WANA Institute and KAS Jordan

West Asia-North Africa Institute

70 Ahmad Al-Tarawneh St.
P.O. Box: 1438 Amman
11941 - Jordan
info@wana.jo
www.wanainstitute.org

Konrad-Adenauer-Stiftung
Jordan Office

23 Isma'eel Haqqi Abdoh St.
P.O. Box: 831025 Amman
11183 - Jordan
info.Jordan@kas.de
www.kas.de/jordan

© WANA Institute and KAS Jordan

All rights reserved. No part of this publication may be reprinted, reproduced, or utilised in any form or by any means without prior written permission from the publishers. The views and opinions expressed in this publication are solely those of original authors. They do not necessarily represent those of WANA Institute and KAS Jordan or of the editors.

Table Of Content

Foreward	3
His Royal Highness Prince El Hassan bin Talal	
Preface	6
Dr. Edmund Ratka	
Human Security in Jordan: A Young Perspective	7
Chapter 1: Sustainable Water Supply in Jordan: Jordanian Young Water Professionals' (JYWP) Inclusion and Perspectives	19
Hala Hamawi	
Chapter 2: Mobilising Sustainable Mobility for Development	37
Amer Al Kawasmi	
Chapter 3: Liberalisation of the Electricity Market in Jordan A Human Security Perspective	48
Mustafa K. Hashem	
Chapter 4: Labour Rights, Defence Law and the Pandemic: Legal Illiteracy in Jordan	57
Tala Halteh	
Chapter 5: Renewable Energy and Cyclic Operation of Conventional Power Plants	70
Mohammad F. Zyoud	
Chapter 6: Activation of the Agricultural Development Strategies to Enhance Food Security in Jordan	89
Eng. Mazen abu Qamar	

Introductory Chapter (Foreword by His Royal Highness Prince El Hassan bin Talal)

On the 'Ethics of Neighbourhood', my latest article sheds light on how reforming the ethics of neighbourhood is a reform to the moral of the whole of society. A reform that strengthens the social fabric and diversity of societies, as societies in which the ethics of neighbourhood are weak are also societies that have a corresponding weak sense of the value of diversity.

In the spirit, the joint project between the West Asia-North Africa Institute (WANA) and Konrad-Adenauer-Stiftung (KAS) Jordan Office was developed. Entitled the "Jordan-EU Dialogue on Human Security Issues" the timely project sought to address the public policy-making gaps in Jordan and enhance Jordan-EU dialogue by devising policy recommendations and solutions to issues of relevance to the "Jordan-EU Dialogue on Human Security Issues" framework. It acknowledges the need to move away from applying a hard security prism to regional cooperation and base interventions under the broader human security umbrella. For there should be no disagreement over the fact that emerging regional priorities reflect human security concerns: hunger, injustice, rule of law, migration and displacement, the security nexus between water, energy, and food, as well as the linkages between education and health.

In this regard, dialogue is key. As the coherence of Europe slowly fades away, impacted by the rise of populism and challenging factors of globalisation, a Eurasian geopolitical order is emerging. Put simply by the words of Robert Kaplan: "as Europe disappears, Eurasia coheres." At the heart of this emergence lies our region: the Levant. What is clear about such transformation is that European, Levantine as well as West Asian/North African interests are better served when dialogue occurs on a regional basis as opposed to a bilateral one – i.e. the need to adopt a regional commons approach when looking at issues related to humanitarianism, development, and peace.

Here, the potential for our European neighbour, and the European Union as a vehicle, to play a more assertive role in ensuring that the common good prevails in global politics and development is immense. Particularly, this potential could be applied to the Mediterranean region to avoid another "Kindle Berger Trap"- as coined by Joseph Nye of Harvard University with reference to the disastrous decades in the aftermath of World War I and the American failure to provide global public good at that time.

The basis for fostering and developing such Global North-Global South cooperation is in conducting increased research and identifying policy

connections: it is evidence and collaboration that yields effective and sustainable policymaking. In supporting this cooperation, one must review and learn from historical parallels. For instance, the concept of a stability pact for Europe is concept that is required in our region, whether through a Conference for Security and Cooperation in the Middle East, a regional Marshall Plan, a regional bank for reconstruction and development, or a regional Zakat fund.

Development in our region are a critical to observe. In the 2020 World Refugee and Migration Council 'Call to Action', we called for the need for obligations to be shared by states across the development spectrum – including financial contributions and resettlement. There should be no doubt that this call is particularly pertinent between the Levant and the EU – which through the Mediterranean – have highly intertwined fates, especially through the flow of refugees and the migrants.


However, we have come to observe that the EU's 'New Pact on Migration and Asylum' prioritises border security over access to security. It has thus become abundantly clear that a majority of the so-called developed countries have adopted a lockdown, 'fortress' attitude in terms of refugees and future demographic trends, as opposed to an open, measures attitude that capitalises on resilience factors. If anything, the COVID19- pandemic must remind us how we are all connected; disturbance in global supply chain and the cut in the flow of goods and services impacted all of us, the decreased human mobility impacted all of us. Above all, the crisis has impacted the already most vulnerable amongst us, refugees and displaced persons constituting a clear case in point.

As such, failing to act collectively is likely to exacerbate the current status quo of host country distribution trends, an obstacle to the 2020 'Call to Action'. According to the Netherlands Institute of International Relations, 85 per cent of the world's refugees are hosted in developing countries. Only 3.9 million refugees were able to return to their homes between 2010 and 2019, less than half of the number were able to return over preceding decade, and less than a third of those were able to return in the 1990s.

As such, return to countries of origin can only occur when conditions on the ground are right. The European Union was thus correct in stating on the Russian-backed conference in Damascus in November 2019 that the priority is "real action to create conditions for safe, voluntary, dignified, and sustainable return". As a rather neutral party between the competing Russian and American interests, the European Union has an important, mediating leadership role to play in working towards those conditions. These conditions can only be realised through the cooperation of all stakeholders in the Syrian conflict, in a break from

the current polarity dominating the issue of refugee return along the lines of political alliances. Lastly, let us hope that the issues, agendas of the Eastern Mediterranean and of the Levant can coincide on one important element – the investment in human capital. Towards addressing the array of human loss incurred by refugees in the context of prolonged displacement, the flow of expertise from INGOs to local NGOs and policymakers is encouraging. They are an important non-governmental voice with more items in their toolbox than governments.

In this light, I am very pleased to see this round of policy papers address pressing human security issues, the implications of which will impact host states that straddle both coasts of the Mediterranean. From food security, transportation, legal protection of workers, and energy security, the following policy papers, devised by young and mid-career professionals and researchers from Jordan, contribute to raising awareness on the issues of importance and priority to Jordan over 21/2020, with the hope of cementing the culture of informing and enhancing an exchange of knowledge that can influence public policies in the country and enrich the Jordan-European Union dialogue.



HRH Prince El Hassan bin Talal

Preface

As Jordan celebrates 100 years of the founding of the Emirate of Transjordan and 75 years of its independence, the world is in a difficult and decisive period. The global Covid19- pandemic has exacerbated many existing problems and is a strain on health systems and economies worldwide. One lesson should be clear to everybody by now: In our times, no state and no people can tackle the challenges that we are facing alone.

It is in this spirit the Konrad-Adenauer-Stiftung (KAS) has established an office in Amman in 1982. Founded after the Second World War to promote civic and political education of citizens and elites in Germany, our Foundation remains deeply committed to international understanding and cooperation. We proudly bear the name of the first Chancellor of the Federal Republic of Germany, Konrad Adenauer, who led our young democracy back into the international community and on the path of European integration.

We are honored to work in Jordan with esteemed partners, such as the West Asia -North Africa Institute (WANA), to promote mutual understanding and develop fresh policy expertise. In our common project "Jordan-EU Dialogue on Human Security Issues" WANA and KAS engaged with a group of young experts to work on specific areas, including sustainable water supply, mobility and energy. The result of their commitment and talent is displayed in this publication. We firmly believe that the new generation has its word to say about how policies and politics should look like in the future!

The destinies of the Middle East and Europe are forcefully intertwined – by geographical proximity, by a shared history of both cooperation and conflict, by a vibrant culture that has emerged around the Mediterranean Sea, by the mobility of their populations, and first and foremost by the aspirations of their youth. I hope that this publication offers insights not only for Jordanian policy-makers, but for their European counterparts as well and can thus contribute to further Jordan-European collaboration.

Dr. Edmund Ratka
Resident Representative to the Hashemite Kingdom of Jordan
Konrad-Adenauer-Stiftung



Human Security in Jordan: A Young Perspective

In June 2020, the Konrad-Adenauer-Stiftung (KAS) Jordan Office and West Asia-North Africa Institute (WANA) launched a joint project entitled: “Jordan-EU Dialogue on Human Security Issues.”¹ The project sought to engage with and train young Jordanian experts and professionals from diverse backgrounds to produce public policy papers and present to Jordanian and international stakeholders, including Jordanian government and EU representatives. In total, six policy papers were produced and presented during a national roundtable of relevant stakeholders, which took place in Amman on 30 November 2020.

In essence, the project was set in motion to achieve the goal of addressing the public policy-making gaps in Jordan and enhancing Jordan-EU dialogue. This was achieved by devising policy recommendations and solutions to issues of relevance to the “Jordan-EU Dialogue on Human Security Issues” framework. Equally important, the project builds on WANA’s accumulated expertise in the field of human security² and is aligned with the institute’s guiding principles of resilience, carrying capacity and human dignity. Combined, such principles are deemed integral to addressing issues of transition and identity, human rights, and social cohesion.

Therefore, this introductory chapter consists of five sections that offer insights on the following: the overall relevance of this document; the imperatives of adopting a human security approach to address pressing challenges; the relation between the presented topics and the broader human security paradigm; an introduction of the six subsequent papers, their authors and key recommendations; as well as a fifth section presenting policy remarks and recommendations for Jordan in 2021.

The Document’s Relevance

This document consists of three key components: a foreword by WANA’s Chairman His Royal Highness Prince Al-Hassan bin Talal; this introductory chapter; and the six policy papers. The document is relevant in at least four ways:

First, it was devised through a participatory approach that solicited the insights of six young Jordanian professionals and brought their different expertise into policy action. Here, it is important to note that the six young professionals were selected after a rigorous process whereby an open call for applicants was launched, a total of 25 applications were screened and reviewed, individual

1 For more on the project’s background, kindly refer to the project’s webpage (available in both Arabic and English) at <http://wanainstitute.org/en/project/jordan-eu-dialogue-human-security-issues>

2 A complete list of WANA’s human security projects, current and past, as well as publications: http://wanainstitute.org/en/focus_area/human-security

interviews were conducted with a shortlist of 10 applicants, of which eight were selected to partake in the project and were provided training. Unfortunately, two were unable to submit papers due to extenuating circumstances, and six papers were produced.

Second, the document contributes to addressing an issue identified with public policymaking in Jordan. In simple terms, the issue is that too often, public policies in Jordan are devised with minimal consultation and/or lack of variety in perspectives. This risks the ownership of those impacted by said policies and leaves a small room for non-governmental actors to participate in the process of policymaking in the country. This formula becomes more problematic once the question of capacity of non-governmental actors is factored in. That is, their inability to formulate well-designed policy papers, or the lack of channels whereby they can communicate their contribution. As such, the process leading to the production of this document offers a great example of how this issue of exclusive public policymaking in Jordan can be tackled.

Third, the document contributes to the knowledge created around the country's priorities from a grassroots/civil society perspective. As such, it builds on the aforementioned need to challenge the culture of public policymaking in Jordan by allowing more actors to offer their input into the process. In doing so, the document captures a young, fresh, informed, and a non-governmental perspective on the corresponding issues. Further, it is the fruit of building the capacity of young professional and non-governmental actors through the training that was provided to them on policy research and drafting policy papers, and by working closely with them to identify potential channels for communicating their insights.

Fourth, the document cements the role of both the WANA Institute and the KAS Jordan Office in knowledge generation and creating evidence-based policies. It represents a renewed commitment to advancing the culture of informing and strengthening public policies by devising them based on evidence and objective research, one that is produced by capitalising on the capacities of young Jordanian professionals and researchers. Further, the document reflects the commitment of both institutions to building a mutual understanding between Jordan, Germany and the broader European Union, and substantiating the political dialogue by exchanging knowledge, experiences and cooperation.

The Relevance of Human Security

Since its popularisation as a term,³ the human security paradigm sought to challenge the traditional state-centric view of security. That is: placing the individual, as opposed to the state or its territory, at the heart of approaching security, making the individual the 'referent object' in terms of what and who to protect. The principle of protection, as a result, gave the paradigm increased relevance in light of the spike in armed conflict worldwide and the deteriorating status of global peace and security.⁴ A relevance that is best captured by three distinct characteristics of human security, all deemed to be crucially more needed as the world faces its most recent crises: the COVID-19 pandemic, which is shaping the future of security in unprecedented ways.⁵

First, human security is a preventative concept. As opposed to dealing with the resulting symptoms of gaps in development or drivers of violence, a human security approach extends to tackling the structural root-causes of vulnerabilities.⁶ As such, it is relevant in its contribution to achieving the universal value of 'leaving no-one behind', which is a central transformative promise of the 2030 Agenda for the Sustainable Development Goals SDGs.⁷ Further, it cements the principle of prevention by focusing on people and the most pressing challenges they face, accounting for the preservation and respect of their human dignity and universal rights.

Second, human security is relevant through its mutual inclusivity. That is, any improvement to one of its seven key pillars (economic, food, health, environmental, personal, community, and political)⁸ is inevitably an improvement to the remaining pillars. Likewise, any demise in one given pillar leads to the demise of all others. Therefore, in a world characterised with

3 The term was first introduced in the United Nations Development Program UNDP – 1994 Human Development Report. The report introduced this new concept for the first time, equating security with people rather than territories, with development rather than arms. It examined both the national and the global concerns of human security, and sought to deal with these concerns through a new paradigm of sustainable human development, capturing the potential peace dividend, a new form of development co-operation and a restructured system of global institutions.

http://hdr.undp.org/sites/default/files/reports/255/hdr_1994_en_complete_nostats.pdf

4 For more, see this short synthesis and commentary of the 2018 Global Peace Index, produced by the Institute for Economics and Peace: <https://www.visionofhumanity.org/global-peace-index/>

5 Tardy, Thierry, ed. COVID-19: NATO in the Age of Pandemics. Report. NATO Defense College, 2020. 13 - 20 Accessed February 19, 2021. www.jstor.org/stable/resrep25148.8

6 A recent Soufan Group report articulates the nexus between human security and preventing/countering violent extremism, and sheds light on said structural issues.

<https://thesoufancenter.org/research/the-nexus-between-human-security-and-preventing-counterling-violent-extremism/>

7 For more on the principals of the universal values, see:

<https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind>

increased complexities and interlinkages between its issues, the notion of mutual inclusivity is not only promising but also important to ensuring sustained development and peace.⁹ No longer does the world have the luxury of addressing needs in silos; rather, the nature of shifting security threats calls for increased collaboration and integration in policy action. This makes human security an all more relevant approach to today's complexities.

Third, human security is relevant given the undeniable shortcomings of the existing approach to security. For it has not only led to increased securitisation, but equally raised risks as opposed to limiting them. In no more obvious case was this captured than in the region's way of responding to the COVID19-pandemic. The existing response has arguably led to compounding the current economic and political crises in Lebanon and Iraq,¹⁰ granted exceptional powers to the state without the proper corresponding checks and balances in Tunisia,¹¹ and has further galvanised the public in Jordan.¹² As a result, a human security approach is more relevant today given the pressing need to rethink the way non-security issues, such as a health pandemic or a global climate change and energy crisis, are becoming increasingly securitised. In simple words: the existing security approach is not delivering on the promise of med-and-long term stability.

Comprehensive Policy Papers

In this light, the six papers presented in this document are of direct relevance to ensuring effective human security in Jordan. They relate to human security by engaging with its aforementioned pillars: from sustaining water supply and mobility; electric market security; economic security through labour rights against the backdrop of the COVID19- pandemic; on to food security, renewable energy and the operation of conventional power plants. The issues presented by these papers go beyond the traditional focus on the country's economic hardships, manifesting in high levels of poverty and unemployment. Rather, they expand the pool of priorities by highlighting the urgency of said issues and promoting informed, evidence-based solutions to address them.

8 1994 UNDP Human Development Report:

http://hdr.undp.org/sites/default/files/reports/255/hdr_1994_en_complete_nostats.pdf

9 More on this importance: <https://www.trilateralresearch.com/why-is-human-security-important/>

10 For more, see this analysis by Oxford Analytica:

<https://dailybrief.oxan.com/Analysis/DB254157/Securitized-Middle-East-COVID-19-responses-raise-risks>

11 Jrad, Eya. Coronavirus and Securitization in Tunisia: A Slippery Slope? Middle East Eye, accessed on February 13, 2021. <https://www.middleeasteye.net/opinion/coronavirus-and-securitisation-slippery-slope>

12 Al-Sharafat, Saud. Securitization of the Coronavirus Crisis in Jordan: Successes and Limitations.

Washington Institute. Accessed on February 17, 2021.

<https://www.washingtoninstitute.org/policy-analysis/securitization-coronavirus-crisis-jordan-successes-and-limitations>

As such, there is a direct link between the aforementioned topics and the applications of human security. For, as mentioned earlier, human security entails addressing different pillars and drawing linkages between them. The issue of water supply, for instance, cannot be separated from ensuring energy security given the high level of dependency on water for energy use. To elaborate, former Minister of Water, Raed Abul Saud, reported that the water sector consumes some %14 of the total energy used in Jordan.¹³ Likewise, legal illiteracy in Jordan has unevenly disrupted the way labour rights were impacted by the pandemic-driven defence laws, which ended up having clear negative ramifications on economic security in the country.¹⁴

To this end, the papers promoted solutions by utilising the researchers' expertise and hands-on knowledge – having worked on their respective issues in the field. Each of the six researchers works directly in their respective domain and possesses a solid policy research experience that was further sharpened by the training provided throughout the project's cycle. Combined, this practical and professional background, coupled with the scholarly knowledge and policy research skills, inspired the proposed recommendations. Such recommendations relate to human security by the nature of their multidisciplinary focus and cross-cutting targeting of relevant stakeholders. That is: the solutions were not directed to a single specific stakeholder, they were devised pro-actively rather than re-actively, and they were fresh in their approach to tackling the issues. For instance, one paper highlights the sustained mobility and transport nexus with violent extremism. Another is forward-looking in proposing a structure for formulating an inclusive Jordanian Young Water Professionals programme, whilst a third seeks to reflect on the pros and cons of liberalising the energy market in Jordan. They are big picture solutions with considerable heed to the small picture dynamics.

Introduction of Papers

As mentioned earlier, this document presents six papers. The following is a brief introduction to each paper, goals, authors and key recommendations.

13 Jordan Times. Accessed on February 10, 2020.

<https://jordantimes.com/news/local/water-energy-security-tied-sustainable-development-%E294-%80%a-bul-saud>

14 Badarin, Emile. Jordan's economic, security and political challenges under covid-19. Mediterranean Politics (2020). Accessed February 10, 2020.

<https://www.tandfonline.com/doi/full/10.1080/13629395.2020.1850624/>

(1) Sustainable Water Supply in Jordan: Jordanian Young Water Professionals' (JYWP) Inclusion and Perspectives.

Authored by Hala Hamawi, the paper aims to advocate the necessity of formalising a JYWP committee to inform officials water stakeholders and policymakers in their efforts towards addressing water scarcity in Jordan. To doing so, the paper captures their capabilities, willingness and perspectives on management and available data on the water sector by commissioning a survey designed to this end. Survey results are presented in the paper, along with a corresponding analysis of its findings, which revealed high agreeability on the need to involve JYWP in addressing water concerns, high willingness to volunteer to be part of a JYWP committee, and spotted light on stages that need greater attention for solving water scarcity in Jordan. Among other, the paper recommended prioritising, formalising, and legitimising the JYWP committee and placing it on the agenda of policymakers, as well as developing the existing public databases on the Ministry of Water MoW's website for easier access.

Ms. Al-Hamawi is an expert in Water, Sanitation and Hygiene (WASH) with more than four years of experience. She holds an MSc in Advanced Engineering Management from the University of Birmingham, United Kingdom. She worked in developing and fragile states in Jordan and Iraq, and has experience working with International Organisations such as ACF, UNOPS, GGGI, Her expertise covers climate response, green growth and sustainable development.

(2) Mobilising Sustainable Mobility for Development.

Authored by Amer Qawasmi, this paper aims to increase the share of trips made by the Jordanian population using sustainable forms of mobility. It does so by advocating for a multi-modal sustainable mobility system having cycling and walking at its core, whilst making the case through a multi-sectoral approach. It starts by giving an overview of the multi-modal system and presenting key issues and analysis from the transport sector. It draws its analysis from existing national policies and strategies, such as the Amman Climate Plan (ACP) and Amman Resilience Strategy (ARS) and advocates a multi-dimensional approach towards having sustainable mobility modes in place. Later, it explores the socio-environmental, economic-environmental and socioeconomic nexuses, before highlighting the Jordan-EU common interest in doing so. In its recommendations, the paper lays out specific measures to increase the rates of sustainable modes of transport, reduce the number of polluting vehicles, increase the use of public transport, and sheds light on the policy and legislative developments needed to promote effective sustainable transport in Jordan.

Mr. Al Qawasmi is a young environmental activist who is passionate about

innovative ideas to make cities sustainable, preserve natural resources, and push-back against climate change. Throughout his one-year Local Pathways Fellowship, he was investigating the transportation system in Jordan, and currently works as a Researcher of Sustainable Development. Amer holds a BS in Civil Engineering from the Jordan University of Science and Technology.

(3) Liberalisation of the Electricity Market in Jordan: A Human Security Perspective.

Authored by Mustafa Hashem, the key objective of the paper is to shed light on key issues that the policymakers might face during the introduction of a newly liberalised Jordanian electricity market. It lays out considerations and arguments that are essential for policymakers in Jordan and relevant EU stakeholders to include in their agendas by demonstrating a cornerstone in creating an action plan aiming to reform the Jordanian energy sector in general, and the electricity sector in specific, bearing in mind the significance of a human security approach to doing so. It unpacks issues on the demand side related to ensuring the economic security of the suppliers and retailers in the electricity market, encouraging the healthy competitiveness in said market, and facilitating the social and environmental securities. Likewise, it lays out similar considerations on the supply side: from ensuring knowledge and information accessibility and affordable subscriptions and payments plans, to ensuring supply and demanding matching mechanism to avoid disruptions.

Mr. Hashem is an experienced energy professional and engineer with a demonstrated history of working in the international development and energy industries. He is currently acting as a Consultant to the Jordanian-German Energy Partnership at the German Agency for International Cooperation (GIZ). Mustafa holds a BSc degree in Mechanical Engineering, completed his MSc degree in Sustainable Energy Systems from the University of Edinburgh, United Kingdom.

(4) Labour Rights, Defence Law and the Pandemic: Legal Illiteracy in Jordan.

Authored by Tala Halteh, the paper seeks to give a general overview of labour rights in Jordan within the context of a public health crisis that precipitated the activation of a state of emergency under the Jordanian Defence Law of 1992. The paper aims to clarify Employment and Independent-Work Contracts in Jordanian law, to discuss a number of issues related to the debate surrounding the legal status of ordinances and communiques promogulated under the Defence Law, review promogulated ordinances and communiques concerning labour rights in the private sector, shed light on the phenomenon of legal illiteracy in Jordan, and propose a number of recommendations on the subject matter. It provides a

substantial review of Jordanian laws and regulations governing the labour market and identifies the ways in which legal illiteracy has impacted the empowerment of workers as a result of issuing a number of defence orders in light of the COVID19- pandemic. In particular, it discusses the controversial Defence Order No. (6) and its impact on livelihoods and job security in Jordan.

Ms. Halteh is currently in her fourth year as a law student at the University of Jordan, landing in the top %10 in her class with a GPA of 4.00/3.77. She's an aspiring lawyer to continue being a strong voice for greater female legal empowerment and inclusion through research.

(5) Renewable Energy and Cyclic Operation of Conventional Power Plants.

Authored by Mohammed Zyoud, the paper aims to promote the use of renewable energy sources to generate electricity in a manner that preserves the safety of the conventional power plants and raises the efficiency of the electrical system as a whole. Specifically, it aims to inform the formulation of a national strategy that reduces the cyclic operation of conventional power plants through renewable energy sources, in a way that ensures the stability of the electrical network and increases the efficiency of generating stations by reducing the start-up costs of the conventional power plants. It provides a solution to maintaining a constant minimum load of generating units at all times, as well as keeping stores of surplus energy (over demand) when the load is at a minimum, in tandem with using it with the energy generated through renewable energy sources at peak times without the frequent operation of conventional power plants. The paper provides a detailed mapping of Jordan's grid, and takes the Al-Samra Power Plant as a case study for how the energy inefficiency resulting from the cyclic operation of conventional power plants could be avoided.

Mr. Zyoud holds a master degree in electrical and control engineering, and he is a senior operation and maintenance engineer at Al-Samra Electrical Power Plant Company (SEPCO.) He is a researcher in the energy and renewable energy sector, an accredited policy papers trainer with the British Council in Jordan, as well as a part-time faculty member teaching at Colleges of Electrical Engineering in several Jordanian universities.

(6) Activation of Agricultural Development Strategies to Enhance Food Security in Jordan

Authored by Mazen Abu Qamar, the paper sought to activate Jordan's agricultural development strategies towards the achievement of food security, identify relevant priorities and devising recommendations to achieve this goal. It adopted a qualitative research methodology by conducting in-depth interviews

with officials, policymakers, academic and experts. Areas of concern were identified in relation to agriculture resources, livestock, environmental considerations, natural resources, water, agriculture marketing and funding, as well as food industrialisation and rural development. Further, the paper looked into investment models within the agricultural sector.

Mr. Abu Qamar is an agricultural engineer with a master degree in economics and agricultural extension, where his thesis looked into “The Impact of Community Participation in Achieving Sustainable Development”, and his bachelor degree was in Natural Resources, Water and Environment. Currently, Abu Qamar works for the Jordan Enterprise Development Corporation (JEDCO) within the Rural Economic Development and Employment Project Management Unit. Previously, worked for the Jordanian Ministry of Agriculture as Head of Projects, Rural Development and Women Empowerment unit.

Policy Remarks and Recommendations

Beyond the specific recommendations relating to each issue, the six papers reveal a number of policy remarks that are key to enhancing Jordan’s public policymaking cycle. First, it is clear that greater youth engagement in addressing human security concerns in Jordan is needed. As shown by the researchers, not only a latent immense potential of young professional does exist, but there is a promising willingness and eagerness for them to engage. Whilst this is mainly captured in the survey commissioned in paper (1) on the Jordanian Young Water Professionals, the energy is similar across the other thematic issues as advocated for by the young professionals.

Second, the recommendations highlight a similar need to tap into human security as an effective policy-tool for Jordan in 2021. This entails reviewing existing plans and strategies to ensure their alignment with the human security approach, institutionalising greater human security awareness to both the public and amongst policymaking circles, and drawing multi-sectoral linkages between different human security concerns. For the lack of awareness and utilisation of this comprehensive security paradigm seems to characterise existing policy interventions and tools. Little presence of young professionals and voices is observed in relation to the policy discussion in Jordan. This remark confirms an earlier finding from a previous WANA research that revealed a concerning level of non-engagement with human security as a concept, forms of operationalising the context, and/or its absence from media and development discourse locally.¹⁵

15 Neven Bonokji and Barik Mhadeen. White paper: Towards More Effective Human Security Approaches in the Context of the Emerging Threat of Violent Radicalisation in Jordan, Lebanon, and Tunisia. WANA Institute (2019).

http://wanainstitute.org/sites/default/files/publications/English%20White%20Paper_0.pdf

Third, a common theme emerging from all six papers relates to the need for generating greater knowledge and thematic research on such policy concerns. This must be a top-line priority for Jordan in 2021, both in terms of generating greater policy content within the framework of human security, in addition to further building the capacity of young Jordanian professionals. In this regard, greater efforts should go into solidifying national databases and ensuring greater access and availability of data before the Jordanian public. This is applicable to all six thematic issues presented by the papers, from water, electricity, energy, transport, and legal literacy.

Moving forward, the papers signal an opportunity for enhancing the Jordan-EU dialogue by showcasing how the interests of both parties are advanced by a comprehensive human security approach that ensures the effectiveness and sustainability of the EU's support to Jordan. As shown by the papers, solutions to the corresponding thematic concerns can be organic and homegrown; all is needed is a greater heed to the interlinkages between policy concerns, an honest review of 'business as usual' in the country, and a greater inclusion of young and fresh perspectives. Echoing HRH's foreword remarks, the papers show that indeed addressing pressing issues through the lens of human security is of mutual positive gain to both shores of the Mediterranean.

1



Sustainable Water Supply in Jordan: Jordanian Young Water Professionals' (JYWP) Inclusion and Perspectives

Hala Hamawi

1 Contextual Background

In all aspects of human security (i.e. economic, food, health, environmental, personal, community and political),¹ water is an essential component. It is key to achieving the Sustainable Development Goals,² though only SGD 6 of the UN's sustainability development goals focuses explicitly on water and sanitation³. Nevertheless, it is recognised and proved that the SDGs are interdependent and correlated.⁴

It has been recognised that water scarcity is a threat to human security in the Arab states.¹ In Jordan more specifically, the issue is of a chronic nature as the National Water Strategy of Jordan (2025 –2016) supports.⁵ Over the years, with refugee influx in Jordan, water resources have come under greater strains. In meeting such increased demand, water has been extracted unsustainably and groundwater is being depleted at an alarming rate given that it is one of the primary water resources in Jordan. This is in addition to other identified causes associated with the transboundary water agreements, population growth, illegal usage, high percentage of non-revenue water, agriculture water misuse, climate change impact and drought⁶.

As shown in Table 1, water use in Jordan can be categorised according to sector type; municipal (including drinking water), tourism, industry, agriculture, remote areas and livestock. Over the last three years (2019-2017) water consumption has notably increased by 32.14 million cubic metres (MCM), while the available water quantity fluctuated during this period. Interestingly,

1 United Nations Development Programme (UNDP). 1994. Human Development Report 1994. New York: Oxford University Press.

2 Stockholm International Water Institute (SIWI). 2018. "Water: the path to Agenda 2030 implementation." Stockholm International Water Institute (SIWI) Website . June. Accessed September 9, 2020.

<https://www.siw.org/publications/water-path-agenda-2030-implementation/#:~:text=Good%20water%20governance%20is%20key,human%20health%20to%20fight%20poverty.&text=The%20ethical%20implications%20of%20the,central%20part%20of%20the%20solution>.

3 Metcalfe , Chris D., and José Esteban Castro. 2020. "Meeting the Sustainable Development Goals for water and sanitation." In *The Paraná River Basin: Protecting Ecosystem Services Through Effective Water*, edited by Chris D. Metcalfe , Mirta L. Menone, Pablo Collins and José G. Tundisi, 161180-. New York, USA: Routledge.

4 Cerf, Marlon E. 2019. "Sustainable Development Goal Integration, Interdependence, and Implementation: The Environment–Economic–Health Nexus and Universal Health Coverage." *Global Challenges* 3 (9): 1900021.

<https://doi.org/10.1002/gch2.201900021>.

5 Ministry of Water and Irrigation Official Website. 2020. 9 March . Accessed September 24, 2020.

<http://www.mwi.gov.jo/sites/en-us/Lists/Tenders/Attachments/9/AAWDCP%20RFQ%20Announcement.pdf>.

6 H ussein, Hussam. June 2016. *An Analysis of the Discourse of Water Scarcity and Hydropolitical Dynamics in the Case of Jordan*. PhD Thesis, University of East Anglia. <https://ueaeprints.uea.ac.uk/63066>.

water use in the agriculture sector is on average %51 of the total use, at a time when previous research advised the need to sustainably manage water consumption in the agriculture sector through measures such as tariff changes and water-use efficiency.⁷ Nonetheless, the trade-offs between water scarcity and sustainability of the agriculture sector need collaboration and coordination between decisionmakers, while ensuring community engagement⁸. Still, covering the demand for potable water is the priority in the country.

Table 1 Water Resources and Consumptions Quantities (2017 - 2019)

Year	2017	2018	2019
Water resources (MCM/year)			
Groundwater	418.5	418.5	418.5
Surface water – local	327.6	259.5	488.2
Surface water – regional	124.9	122.9	124.01
Unconventional sources	167.3	172.7	185.01
Total	1038.3	973.6	1215.72
Water consumption per sector (MCM/year)			
Municipal and tourism	469.7	479.5	497.37
Industry	32.1	34.5	36.88
Agriculture	544.7	555.3	564.22
Remote areas and livestock	7.1	7.1	10.07
Total	1053.6	1076.4	1108.54

Source: Data from the MWI water budget 2017 - 2019.

⁷ Ibid

⁸ Al Naber, Majd, Reem Al Haddadin, and Michael Gilmont. 2019. Water and Agriculture in Jordan: Understanding Current Water and Agricultural Priorities and Futures. Amman: WANA.

2 Introduction

In complying with Jordan-EU dialogue on human security, and the need to contribute to sustainable water supply (SWS) in Jordan, which aims to "meet the needs of the present without compromising the ability of future generations to meet their own needs",⁹ several initiatives were conducted or introduced to manage and sustain water supply such as; Jordan's Way to Sustainable Development 2030 (2015), National Water Strategy of Jordan (2016 - 2025), Water Sector Green Growth National Action Plan (2021 - 2025) and other secondary researches. Thus, a simple review reflection on the water sector in Jordan is presented as follows:

1. Extensive water projects were on the 10-year national strategic plan; Red Sea-Dead Sea Water Conveyance Project (RDWCP) as the main project beside 15 minor projects, with the aim of bringing a total of 422.5 MCM/year respectively of drinking water to the country by 2025. Moreover, an increment of treated water and alternative water resources for remote areas. Yet, the received water quantity by 2020 is supposed to be 23.2% of the total expected by 2025.¹⁰ Nevertheless, news about RDWCP vanished, with the highlighted lifesaver project being the Aqaba-Amman Water Desalination and Conveyance National Project (AAWDC) that will supply 130 MCM/year starting 2025, which still under the tendering process.¹¹
2. The immediate response to sustaining water is vital to meet the current and future demand. Perhaps this can be done through extensive research into the sustainability of water, address climate change impact and suggest achievable technical and political interventions, which can be taken up to the government for the feasibility of implementation.
3. There is a lack of data and updates about the water sector (e.g. annual reports, statistical data, SDGs reports) in the official entities' websites. This is a challenge for research and development at the time when the water sector is in need for it.

9 The United Nations (UN). 1987. Report of the World Commission on Environment and Development : Our Common Future. Geneva: UN.

10 Ministry of Water and Irrigation Official Website. 2016. "National Water Strategy of Jordan (2016 – 2025)." Accessed September 07, 2020.

[http://www.mwi.gov.jo/sites/en-us/Documents/National%20Water%20Strategy\(%2020162025-\).pdf](http://www.mwi.gov.jo/sites/en-us/Documents/National%20Water%20Strategy(%2020162025-).pdf)

11 Ministry of Water and Irrigation Official Website. 2020. 9 March . Accessed September 24, 2020.

<http://www.mwi.gov.jo/sites/en-us/Lists/Tenders/Attachments/9/AAWDPC%20RFQ%20Announcement.pdf>

4. Youth engagement and empowerment have been addressed in matters of awareness, education, employment and participation,¹² but no evidence found on young inclusion in the water sector national strategic level. However, there are efforts by non-governmental organisations for young professionals' inclusion, such as: Konrad-Adenauer-Stiftung (KAS) Jordan Office and West Asia-North Africa Institute (WANA) in 2020 called for young professionals to conduct research under the project "Jordan-EU Dialogue on Human Security Issues." Similar initiatives alongside the government to deploy the young efforts will improve our roadmap for SWS in Jordan.

With a reasonable number of published studies in the water sector, the attention is mostly about the causes of water scarcity in Jordan, refugee influx, transboundary agreements and climate change. Nonetheless, this paper focuses on the necessity of young professionals' engagement alongside decision-makers towards SWS in Jordan and raise Jordanian Young Water Professionals (JYWP) voices, specifically on points 3 and 4 above. In a contemporary manner, this paper's focus is on the available opportunities for our way towards SWS in Jordan with the water scarcity as an insecure living condition.

His Royal Highness Crown Prince Al Hussein Bin Abdullah II said in his speech at the Global Forum on Youth, Peace and Security in 2015 on the participation of young people¹³ "yet, our efforts remain largely invisible, unrecognised, and even undermined due to lack of adequate participatory and inclusive mechanisms and opportunities to partner with decision-making bodies". This underpins the importance of young participation alongside the government toward SWS in Jordan, which the paper is going to highlight based on evidence.

3 Objectives and Methodology of the Paper

This paper aims to advocate the necessity of formalising JYWP committee to be partner with decision-makers to overcome water scarcity and work toward SWS in Jordan. This can be done by highlighting their capabilities, willingness and perspective on management and available data in the water sector.

12 Ministry of Planning and International Cooperation in Jordan. 2017. "Jordan's Way to Sustainable Development-First National Voluntary review on the implementation of the 2030 Agenda."

<https://www.susana.org/en/knowledgehub/resources-and-publications/library/details/3353>

13 His Royal Highness Crown Prince Al Hussein Bin Abdullah II Official Website. 2015. Accessed September 20, 2020. HRH Crown Prince Al Hussein speech at the Global Forum on Youth, Peace and Security. August. <https://www.alhussein.jo/en/initiatives/global-forum-youth-peace-and-security-august-2015>.

The research started with reviewing the secondary research and moved to collecting primary data through a confidential electronic questionnaire. The questionnaire was developed and shared widely with JYWP, who are in the age range 24 to 35 and have experience and knowledge in water sector. This was to better understand their willingness, capability to contribute in the SWS in Jordan for a better future and their perspective regarding lack of information.

4 Analysis and Results

The questionnaire (Annex 1) was shared widely through water network professionals, where 100 responses were received over 4 days (September, 2020), but only 92 analysed as 8 responses were outside of the identified age range. Worth noting, youth age range as per the Jordan National Youth Strategy 2019/2025- is 12 to 30 years.¹⁴ However, the age range targeted in this research was identified from 24-35; it starts at 24 to ensure that participants have tertiary education and minimum experience in the water sector. The age range was expanded to cover more young professionals, which would last until 35 according to some organisations.¹⁵

The collected data was filtered, organised and analysed to produce evidence-based results. JYWP individuals hold different educational degrees; 57% bachelor, 37% masters, and 7% PhD, though diploma was an additional option but not selected. Interestingly, the dominant background of participants was engineering, however 25% of these degrees were from schools of environment and social sciences (see Figure 1).

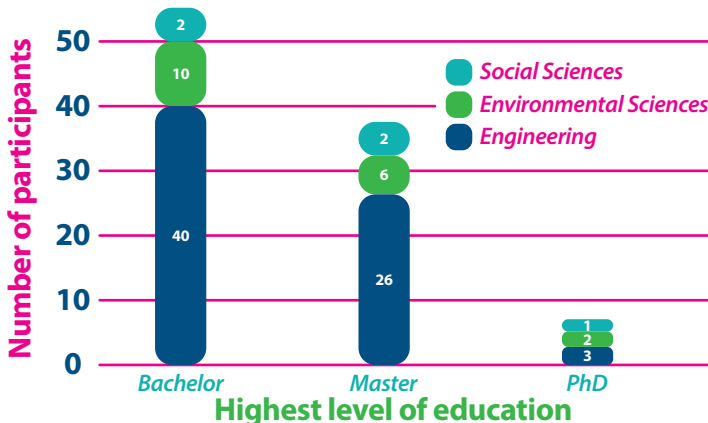


Figure 1 Participants' Highest Level of Education and Studied Field.

14 Ministry of Youth in Jordan. 2019. "The National Youth Strategy (2019/2025-):"

http://moy.gov.jo/sites/default/files/jordan_national_youth_strategy_20192025-_english_compressed_1.pdf

15 United Nation Official Website. n.d. Accessed September 15, 2020.

<https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-definition.pdf>

The JYWP work in different sectors, as Figure 2 depicts, including relief agencies, private-commercial companies, governmental and academia. However, 7% of the participants are individuals who do not relate to any official entity. When examining the number of years of experience in the water sector, the majority from three categories; less than two years, 3 - 5 and 6 - 10 years, only 5 participants have more than ten years. As a result, JYWP includes undergraduates and graduates from different schools, and relates to multisector and multilevel of experience in the water sector.

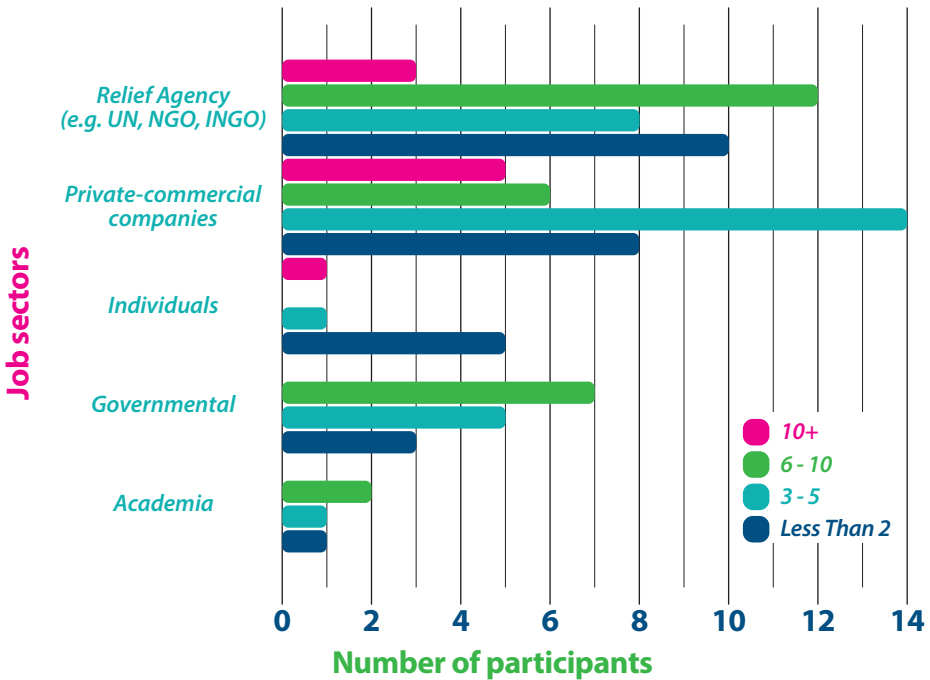


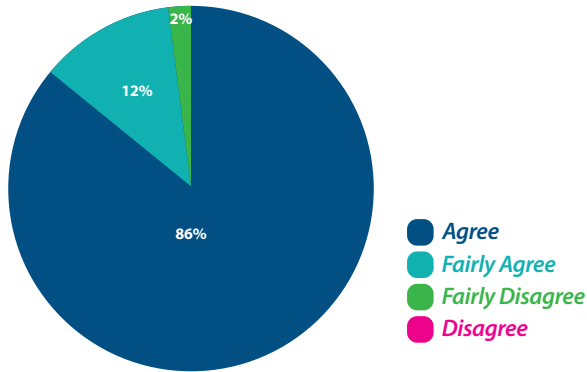
Figure 2 Participants' Job Sectors and Years of Experience.

4.1 JYWP Involvement, capabilities and willingness

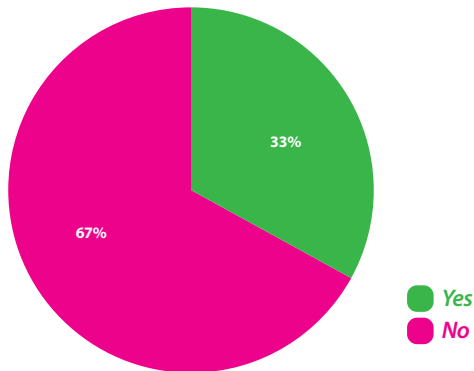
Participants were asked about the level of agreement on involving JYWP in Jordan's way towards SWS, remarkably 86% agree, 12% fairly agree, and 2% fairly disagree. Those who fairly disagree tended to hail from a governmental sector. Furthermore, they were asked about their official contribution with a governmental entity towards SWS, and only 33% got the opportunity to participate with the government.

Participants' willingness to volunteer for government for an SWS was measured, the questionnaire provided a proposed definition for JYWP committee

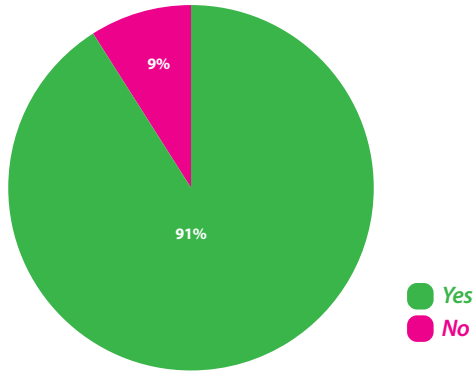
as a group of professionals in the age range 24 to 35 years, who have experience and knowledge in the water sector. The committee aims to contribute voluntarily to SWS in Jordan alongside the government. It can be extracted from the results that 91% of the participants are interested in being part of this proposed committee and 86% are willing to volunteer reasonably with their knowledge and experience alongside the government towards SWS in Jordan, knowing that all participants from the academic sector expressed their interest in volunteering. Figure 3 illustrates the result analysis.



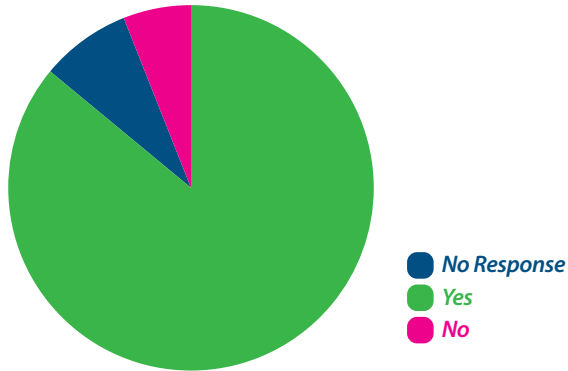
1) Level of agreement on including JYWP officially in Jordan's way towards SWS



2) JYWP contribution officially with a governmental entity towards SWS in Jordan



3) Willingness of JYWP to be a member of JYWP



4) Willingness of JYWP to volunteer for SWS in Jordan alongside the government

Moving forward, exploring participants' attention to contribute to a specific aspect (e.g. planning, implementation, operation and maintenance, monitoring and evaluation) for SWS is vital to reflect on the level of engagement needed. Therefore, participants were asked to select stage/s, where they think they are equipped with the knowledge and experience to contribute. Remarkably, results show that 57% of participants who expressed their ability to volunteer are interested in the planning stage, which covers national strategy, action plans and policies (see Figure 4). Perhaps, research is a crucial element that we need to increase and support. This is like the percentage of participants who answered planning is the first stage that requires more attention for SWS in Jordan in Figure 5.

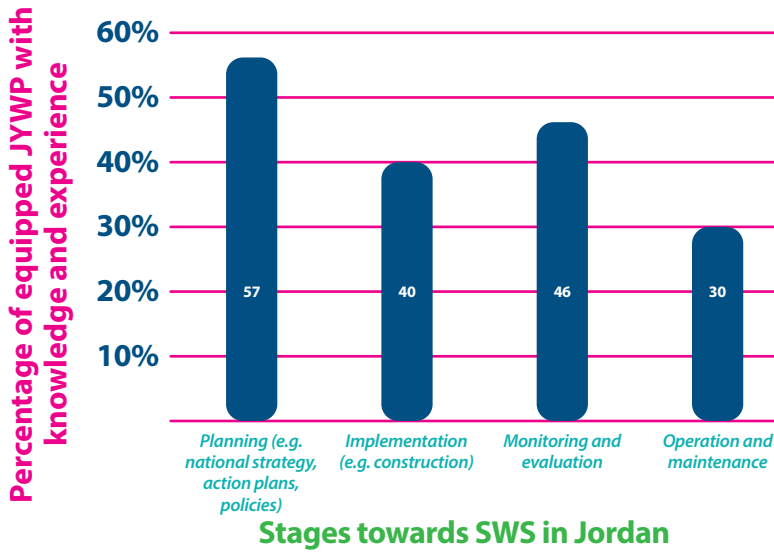


Figure 4 JYWP Areas of Interest in Contribution Towards SWS in Jordan.

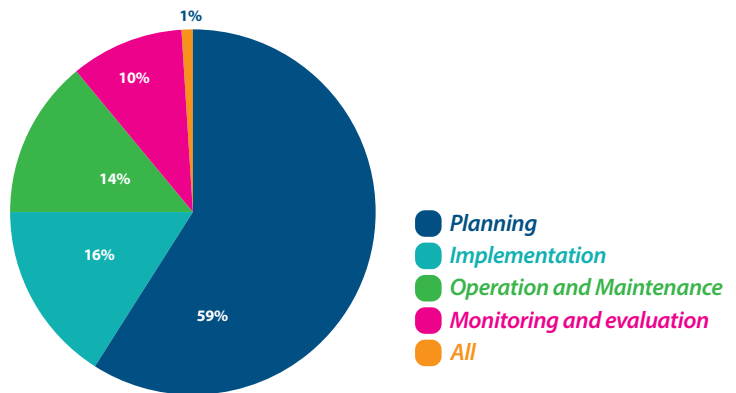


Figure 5 Consensus on the Stages that Need more Attention for SWS in Jordan.

4.2 JYWP Perspective on Water Sector Online Information

JYWP's access to water sector online information, reasons and evaluation for official accessed websites was examined. Fifty-two participants access online information regarding Jordan water sector mainly for work purposes, following academic research and personal interest. Having this interest means that accessing information online is fairly common practice for different purposes, as probably to save time and effort at the time the world is moving toward greater virtual access during COVID - 19. However, 75% of participants who do not access information online, had personal or professional connections. Furthermore, 22.5% of participants did not need information about water sector, and 22.5% declared that it is not comprehensive, nor credible; responses analysis is shown in Figure 6.

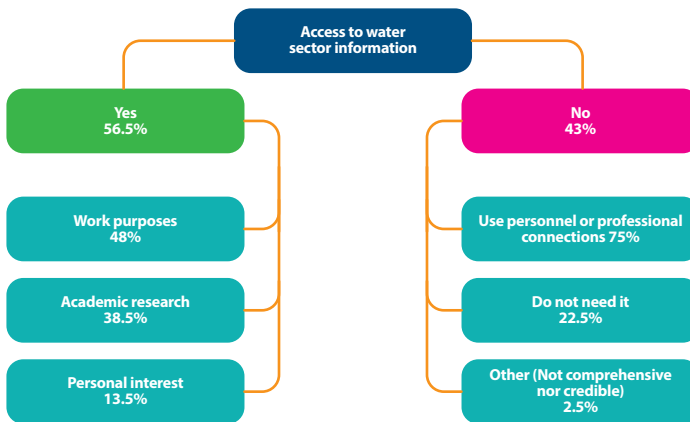


Figure 6 Percentage of Access Water Sector Information and Reasons.

Participants who access information online stated that the entities they refer to as a primary source of information are listed in Table 2. Mostly, participants access the Ministry of Water and Irrigation (MWI) website, which is an official government website. Nonetheless, others use the Water Authority of Jordan (WAJ), Jordan Valley Authority (JVA), Ministry of Agriculture (MOA), Miyahuna, National Agricultural Research Centre (NARC) and google scholar resources

Table 2 Main Websites for Water Sector Information

Source main of information (entities' websites)	Number of JYWP
Ministry of Water and Irrigation (MWI)	25
Water Authority of Jordan (WAJ)	8
Jordan Valley Authority (JVA)	1
Ministry of Agriculture (MoA)	3
Miyahuna	7
Other: All above	6
Other: Google scholar	1
Other: National Agricultural Research Center (NARC)	1
Total users out of 92	52

Participants evaluated the accessibility, updates, inclusiveness, interface and accuracy using a fourlevel scale (i.e. satisfying, fairly satisfying, unsatisfying, fairly satisfying). The analysis for the MWI website is presented in Figure 7 as it is the most cited source. Overall, users who are JYWP are more fairly satisfied to unsatisfied, and few users are satisfied. In relation to the availability of updates, only 4 out of 31 are satisfied, fairly satisfied, which confirms the reflection 3 in the introduction that highlighted the data deficiency in the sector.

Moreover, over two-thirds of respondents (77%) expressed that access to information and its inclusiveness is unsatisfying. Moreover, it can be said that there are issues with the available online information, where more than half of the participants use for various purposes. Eventually, 80% of 92 participants agreed to fairly agreed on having comprehensive information on MWI website as one source of information.

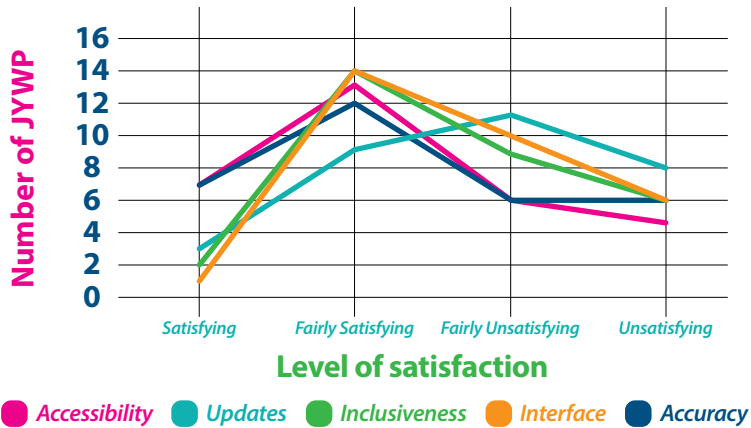


Figure 7 Level of Satisfaction of MWI Website Information.

5 Conclusions and policy recommendations

Working towards SWS in Jordan is a significant concern of the young, who have the knowledge, experience and desire to volunteer, alongside the decision-makers in the country. To arrive at evidence-based findings, the study reached ninety-two JYWP participants to examine their capabilities to work for SWS, their level of involvement with the official entities, and their willingness and perspectives regarding online information about the Jordanian water sector. Variations in JYWP backgrounds (e.g. level of education, study area) and experience (e.g. job sector, level of experience) facilitated gathering a comprehensive source of information. This led to the creation of a set of recommendations directed to decision-makers:

- Prioritise formalising and legitimising the JYWP committee on the institutional agenda of MWI. This partnership will empower young professionals, enable finding innovative solutions for water scarcity and develop the SWS in Jordan.
- Include JYWP in Jordan's way towards SWS at the planning stage, which includes setting national strategies, action plans and policies and conducting research as it is the main interest of the JYWP, and where they believe that more efforts and attention are required, whilst respecting their interest in other stages as well (e.g. monitoring and evaluation, implementation, operation and maintenance).
- Unify water sector online information sources in the MWI website and develop the existing public database on the website to make it a primary source for information regarding the water sector in Jordan. Complying with this will facilitate studies and works in the water sector for internal and

external stakeholders (e.g. researchers, investors). His Royal Highness Prince El Hassan bin Talal emphasised in 2014 during OSCE Security Days Conference on "Enhancing Security through Water Diplomacy: The Role of the OSCE" on the need for data to improve knowledge.¹⁶

Lastly, JYWP with various educational degrees (e.g. bachelor, masters and PhD), experienced in the water sector and have the desire to volunteer for SWS in Jordan are a hidden treasure. Their contribution would have a positive impact, if they got the chance to be part of SWS in Jordan.

16 The Organization for Security and Co-operation in Europe (OSCE), 2014. Security Days 2014 – Water Diplomacy: Opening Session. [Online] Available at: <https://www.youtube.com/watch?v=oUmtP5kSoU4&list=FLvISSyCsJd5C2LPtJaxlCQ&index=5&t=4435s> [Accessed 22 September 2020].

Annex 1

The questionnaire is targeting Jordanian Young Water Professionals, who are in the age range 24 to 35 and have experience and knowledge in water sector. This is to better understand their willingness and capability to contribute in the Sustainable Water Supply in Jordan for better future and their perspective regarding water specific issues.

1. Are you in the age range 24-35- years?

- Yes No

2. What is your highest level of education/degree?

- Diploma Bachelor
 Master PhD

3. In which school have you studied?

- Engineering Environmental Sciences
 Social Sciences Others: _____

4. How many years of professional experience do you have in water sector?

5. What type of entities do you work in?

- Private-commercial companies Governmental
 Relief Agency (e.g. UN, NGO, INGO)
 Individuals
 Others: _____

6. To what extent do you agree on that Jordanian Young Water Professionals should be included officially in our way towards Sustainable Water Supply in Jordan?

- Agree Fairly agree Fairly disagree Disagree

7. As a Jordanian Young Water Professional, have you got the chance to contribute officially with any governmental entity towards Sustainable Water Supply in Jordan?

- Yes No

8. If there is a Jordanian Young Water Professionals committee, would you like to be a member in it?

- Yes No

9. Are you willing to volunteer reasonably with your knowledge and experience for Sustainable Water Supply in Jordan alongside the government?

- Yes No

10. In which stage do you think you are equipped with the knowledge and experience to contribute towards Sustainable Water Supply in Jordan?

- Planning (e.g. national strategy, action plans, policies)
 Implementation (e.g. construction)
 Operation and Maintenance
 Monitoring and evaluation

11. In your opinion, which stage requires more attention to move toward sustainable water supply in Jordan?

- Planning (e.g. national strategy, action plans, policies)
 Implementation (e.g. construction)
 Operation and Maintenance
 Monitoring and evaluation

12. Do you access information about Jordan water sector online?

- Yes No

13. If No, why?

- Do not need it Use personal or professional connections
 Others: _____

14. If Yes, why?

- Academic research Personal interest
 Work purposes Others: _____

15. Which of the following entities' websites is your main source for information?

- Ministry of Water and Irrigation (MWI)
 Jordan Valley Authority (JVA)
 Water Authority of Jordan (WAJ)
 Miyahuna
 Ministry of Agriculture (MoA)
 Others: _____

16. What do you think about the information in the website you approached in the following aspects?

	Satisfying	Fairly Satisfying	Fairly Unsatisfying	Unsatisfying
Accessibility				
Updates				
Inclusiveness				
Interface				
Accuracy				

17. To what extent do you agree on having comprehensive information about water sector on

Ministry of Water and Irrigation (MWI) website as one source of information?

- Agree
- Fairly agree
- Fairly disagree
- Disagree



Mobilising Sustainable Mobility for Development

Amer Al Kawasmi

1 Introduction

This policy paper is part of the project entitled "Jordan-EU Dialogue on Human Security Issues" implemented jointly by the West Asia-North Africa Institute (WANA) and the Konrad-Adenauer- Stiftung (KAS) Jordan Office.¹ The aim of the project is to raise awareness on the issues of importance and priority that Jordan should address in 2020, from a non-governmental perspective, cementing the culture of informing and enhancing exchange of knowledge that is able to influence public policies in Jordan. It further seeks to enhance the dialogue between the European Union and Jordan on security and human security issues.

Over the past recent years, Jordan has witnessed a high rate of population growth along with influx of refugees from different neighbouring countries, both have put a serious pressure on the transportation system. For instance, Jordan's population has grown to 10.7 million in over just the last decade.² Yet, the transportation sector has been developing very slowly and with very hesitant steps, whilst the population growth has been unprecedentedly increasing. The direct result has made car ownership the easiest way to move around at an increasing rate of %5.3 per year.³

The current transportation situation is not only causing roads to be congested, but it concurrently has a profound impact on sustainability, economics, health and quality of life. The inability to move efficiently and affordably results in inequity by low access to jobs and education.

Although there is a lack of data on the modes of mobility used in Jordan, it is still clearly witnessed that Jordan has low walkability and almost a complete absence of cycling, as active mobility practices. On the other hand, a less transit-oriented community is formed by the absence of public transit (e.g. Metros, Trams, Bus Rapid Transit BRT, etc.), for example, about %59 of Amman's area is currently unserved by public transit and approximately %37 of the total population has low access to public transport services.⁴ Moreover, the lack of charging infrastructure is turning people away from electric vehicles.

1 <http://wanainstitute.org/en/project/jordan-eu-dialogue-human-security-issues>

2 Department of Statistics website, <http://dosweb.dos.gov.jo/>, Accessed 25/20/20/9/

3 "Jordan Traffic Accidents Annual Report 2018". Public Security Directorate. 2019.

<https://www.psd.gov.jo/images/jti/2018.pdf>

4 Al-Masaeid, Hashem R, and Amir Shtayat. "Performance of Urban Transit in Jordan." Journal of Engineering Research and Applications 6, no. 83 (2016): 7–12.

Some policymakers still see massive expansion of roads as the key to prosperity and economic growth.⁵ This over-prioritisation of road building is generally driven by the assumption that fossil fuels are unlimited and profitable, notwithstanding that Jordan imports most of its fossil fuel energy needs.

2 Purpose of The Paper

The paper aims to increase the share of trips made using sustainable forms of mobility by advocating for a multi-modal sustainable mobility system having cycling and walking in its heart, while making the case through a multi-sectoral approach.

3 Overview

A multi-modal mobility system that is integrated, interconnected, more energy efficient, and less motorised offers an opportunity for sustainable and resilient urban mobility. Such multi-modal system could take the form of a high-volume, high-frequency urban Bus Rapid Transit (BRT) network integrated together with a feeder bus network, a bike sharing scheme, and a network of shaded pedestrian links at BRT stations. Although a BRT system is being implemented in very few parts of Jordan, the best way to ensure effective use of it is to ensure accessibility to stations. Yet, the complementing cycling and walking modes which would enhance accessibility and address the last mile issue seems to be placed low on the agenda of policymakers.

Acknowledging that the fossil fuel industry still looks profitable to the government, while they are convinced that investment in a sustainable mobility system has low value of return, it stands crucial to emphasise the multi-dimensional benefits of a sustainable mobility system, which goes beyond the mere movement of people.

3.1 Key Issues and Analysis of Findings

The Ministry of Transportation has aligned its strategy with Jordan's vision 2025 intending to reduce the environmental negative impacts.⁶ Therefore, the Ministry has a programme named "Provision of Environmentally Friendly Mobility Systems"⁷. Interestingly, the only project has been proposed by the

5 Engineers: ignoring governments to plan the future of roads creates traffic crisis, Al-Ghad News, Accessed on 2020/9/27

6 The Jordan 2025 vision could be viewed via this link: <http://www.pm.gov.jo/upload/files/Jordan-2025ar.pdf>

7 National Long-Term Transport Strategy Phase Two Executive Plan (2020-2018), Ministry of Transportation, 2018

ministry in this category was the Bus Rapid Transit system (BRT), which is a project that originates back to 2008 and has experienced several hiccups with implementation.

Moving on to Greater Amman Municipality (GAM) strategy of 2018,⁸ the strategy aimed to provide efficient and safe roads, as well as raising the efficiency of public transportation. However, most of the projects have been proposed prioritised the use of private cars without any noticeable enhancements on the public transportation. Yet, some enhancements have been noticed on the level of walkability in some places, these include Downtown and Jabal AL Hussein. Worthy of mentioning that GAM has joined C40 and 100RC⁹, which have led GAM to develop "The Amman Climate Plan" and "Amman Resilience Strategy", respectively. Both of which only propose what should be done theoretically without any commitment for implementation on the ground.

The public transportation situation in the other municipalities is no better than Amman, if not arguably less developed. The development gap between governorates is identified by Jordan's vision 2025 as a key challenge,¹⁰ which is leading people to internally move to places of better transportation services to have a better access to jobs and opportunities. Consequently, this is putting high pressure on the networks of the main urban areas of Amman, Zarqa, Irbid and Aqaba, causing supply to fall below demand as described in the National Green Growth Plan for Jordan (NGGP).¹¹

Surprisingly, the multi-dimensional approach is not taken into consideration. The Ministry of Transport has developed a national strategy 2012-2014- for the transportation sector, although the projects that were proposed have a great impact on Greenhouse Gas (GHG) emissions, the strategy does not refer to climate change in its existing format. It is very crucial to acknowledge the effects accompanied with the sustainable mobility system to ensure a multi-sectoral approach that emphasise the idea of sustainability. Environmental, social and economic perspectives should be addressed simultaneously.

There are many institutional gaps in the transportation sector including several entities have authority over public transportation in Jordan. These include Central Traffic Department, GAM and Ministry of Transport. Furthermore,

8 GAM Strategic Plan 2020-2018, GAM, 2018. https://ammancity.gov.jo/site_doc/statigicplan2018.pdf

9 C40 is a network of the world's megacities committed to addressing climate change. 100RC is dedicated to helping cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century.

10 Jordan 2025: A National Vision and Strategy, Prime Ministry, 2015

11 A National Green Growth Plan for Jordan, Ministry of Environment, P.2017 ,31

all these entities should undergo a structural reform, and develop the competencies needed for improvement. They also need to undergo a level of restructuring that simplifies and consolidates the divisions of authority over public transport between them.¹²

More broadly, there are institutional barriers to recognising new economic models as well as a need to carefully manage the transition to new models of growth and trade-offs in the short-term. This constitutes a particularly inherent challenge to Jordanian decision-making as it is often characterised by an inclination towards immediate results rather than longer term investments.¹³

3.2 Making the Case for Sustainable Mobility

Accounting for social, environmental and economic aspects of the case would be essential to ensuring multi-sectoral approach. Fostering communication, bringing different stakeholders together and highlighting common interests are key to tackle the issues within the transportation sector and across other sectors simultaneously.

3.2.1 Socio-Environmental Nexus

Equity, health, well-being and resources security have been among the several aspects of Jordan's 2025 vision. Achieving them will require a collaboration on multiple dimensions, sustainable mobility sits in the heart of them, as it ensures equal access to different opportunities in one hand and reduces the environmental effects on the other.

According to Jordan's Third National Communication of Climate Change Report, the transportation sector in Jordan is the second largest contributor to total GHG emissions.¹⁴ Air pollution is responsible for thousands of deaths every year, as it has been linked to cancer, asthma, stroke and heart disease, diabetes, obesity, and changes linked to dementia.¹⁵ Air pollution is closely linked to GHG emissions, fuelling dangerous climate change¹⁶, therefore, exacerbating human security issues, particularly from an environmental and a health vantage.

12 CSBE, Public Transportation in Jordan, FES, 2017, <http://library.fes.de/pdf-files/bueros/amman/13222.pdf>

13 A National Green Growth Plan for Jordan, Ministry of Environment, P.2017 ,12

14 Jordan's Third National Communication of Climate Change, Government of Jordan, 2014, <https://unfccc.int/resource/docs/natc/jornc3.pdf>

15 Report of a working party. London: RCP, Every breath we take: the lifelong impact of air pollution, Royal College of Physicians, 2016

16 Report of a working party. London: RCP, Every breath we take: the lifelong impact of air pollution, Royal College of Physicians, 2016

A study done by The Friedrich Ebert Stiftung (FES) and SADAQA shows that 47% per cent of women in Jordan have refused a job offer due to the lack of transportation.¹⁷ Therefore, developing a well-established public transportation system that ensures access for all is key to gender equality and increasing the share of women employment as one of the targets for Jordan's vision 2025. On the other hand, 78% of youth, for example, point to the lack of access to public transport as a top justification for not participating in the workforce.¹⁸

Furthermore, the great health benefits mentioned previously which would result in less diseases and illnesses would result in less expenses on health issues on an individual level. As it stands, healthcare expenditures constitute 10% of Jordan's GDP.¹⁹ This holds a great opportunity for health-related costs on the national level (e.g. building more hospitals, needing more medicines, etc.), as well as decreasing the net value spent by insurance agencies.

Further, a research published in Preventative Medicine in 2018 estimated that one kilometre of cycling generates health benefits of \$0.62. This number is translated into millions of dollars saved each year in some countries, at a time when Jordan still lacks a single cycling lane. This is both a missed opportunity and one with potential benefit for the country.

The National Green Growth Plan for Jordan states that "Transport is a vital sector for the Jordanian economy"²⁰, which clearly highlights how a well-integrated sustainable public mobility system has great positive effects on the national economy. A UN report titled 'Mobilizing Sustainable Transport for Development' also states that "Public transport is central to reducing road congestion and the associated costs in cities. It also creates value for individuals, businesses and public authorities by increasing the competitiveness of cities in terms of: economic strength, by allowing higher job density and productivity; human capital, by providing opportunities to build competences and skills more quickly; physical capital, by supporting urban regeneration efforts; global appeal, by increasing the attractiveness of the city for business and tourism; and quality of life by addressing congestion and improving public health."²¹

In other words, the current status-quo of severely congested roads is resulting in great time waste and low productivity, which in turn increases the cost of end products for businesses, making it hard for them to compete on the national and international levels.

17 SADAQA, Gender in Public Transportation, Friedrich Ebert Stiftung, 2018

18 "Transport Services and Their Impact on Youth Employment and Development in Jordan," International Youth Foundation, 2014

19 Healthcare: Sector profile, Jordan Investment Commission, 2018,

<https://www.jic.gov.jo/wpcontent/uploads/12/2018/Healthcare-Sector-Profile.pdf>

20 A National Green Growth Plan for Jordan, Ministry of Environment, 2017

21 Mobilizing Sustainable Transport for Development, UN, 2016

3.2.3 Economic-Environmental Nexus

Transportation makes up 52% of Jordan's energy bill.²² Knowing that fossil fuel is being imported, decarbonising the sector would play a significant role in energy security for the country. Additionally, decarbonising the sector holds within it a great opportunity for a new market that would generate more jobs. Reducing Jordan's reliance on energy imports and greening the transport sector will increase the country's resilience to external shocks, such as fluctuating commodity prices and global/regional economic challenges.

Sustainable mobility objective aims to reduce transport sector GHG emissions as consistent with limiting the global average temperature increase to well below 2 degrees Celsius above preindustrial levels by 2050, which Jordan is committed to by signing the Paris Agreement. Furthermore, it aims to strengthen resilience and adaptive capacity to transport system to climaterelated hazards and natural disasters, which might cause many losses in lives and assets, such as the flooding Jordan witnessed in recent years.

On the macroeconomic aspect, the better air quality would result in less illnesses and diseases, which therefore would reduce the government's economic burden of spending on public health sector. It is estimated that air pollution costs the economy roughly 1.15% of the country's GDP, which includes the cost of treating related illnesses and productivity losses in urban areas (Amman, Zarqa, Aqaba, Fuheis, and Rashadeia) at approximately JD 7 million annually, as well as the cost of mortality associated with atmospheric particulate matter that have a diameter of less than 10 micrometers (PM10), PM2.5, and Sulfur dioxide (SO2) pollutants (approximately JD 26–198 million), and the cost of discomfort in urban areas due to the landscapes' loss of aesthetic value (approximately JD 2.7–3.3 million).²³

3.2.4 JO-EU Common Interest

Jordan is geographically situated in an unstable region, migrants came to Jordan from many neighbouring countries, while Jordan is facing many internal and external pressures, as well as playing a vital role in stabilising the region.

Many of these refugees along with some local citizens migrate to western counties looking for a better quality of life, others remain in Jordan but lack equal opportunities, while some others may be influenced by extremist groups

22 Shbeb, Lina. "Jordan: Public Transportation through Hybrid Cars to Save Energy." Watan News Agency, 29 January 2015. <http://watananews.com/jonews/watana/104541.html>, 2017

23 Ababsa, Myriam. "Air Pollution." In Atlas of Jordan, 2013, 49–448. <https://books.openedition.org/ifpo/5069?lang=en>

due their vulnerability as well as the bad economic situation and the lack of opportunities.²⁴

In July 2016, the EU and Jordan agreed to simplify the rules of origin that Jordanian exporters use in their trade with the EU. Both sides reviewed and improved this initiative in December 2018.²⁵ The initiative is part of the EU's support for Jordan in the ongoing Syrian refugee crisis and intends to make it easier for Jordan to export to the EU, encourage investment and create jobs both for Jordanians and for Syrian refugees.

Previously, this paper discussed the projected positive effects of developing a sustainable mobility system that is equitable and accessible for all to ensure equal access to opportunities. What this paper advocates for is that the said system would enhance the connectivity across the country resulting in a stronger and more coherent communities, which thwarts off the attempts and appeal of extremism. Therefore, this would maintain the stability of Jordan and help incubate its residents while ensuring them with a high quality of life on the bases of freedom and equity.

Accessibility would foster investments. Jordan acts as a perfect location in the region for external investments, particularly with the high number of educated youth and high skilled workers. Sustainable mobility would pave the way as a great foundation to flourish the economic situation, while it would be a great opportunity for European investors to enter the regional market.

4 Conclusion and Recommendations

It has been apparent for some time that the existing modern culture of mobility in Jordan is unsustainable. It has detrimental effects on the climate and human health, consumes national and global resources, and is characterised by extreme inequality between richer and poorer social groups, car owners and non-car owners, as well as urbanised and rural settings.

The future will bring a transportation landscape in which pedestrian, bicycle, private car, freight, rail and bus traffic will be woven into a connected network, saving time and resources, producing lower emissions and congestion, and promoting efficient land use and improved safety.

²⁴ From Politics to Policy: Building Resilience in West Asia and North Africa, WANA, FES, 2017, <http://wanainstitute.org/en/publication/politics-policy-building-regional-resilience-west-asia-and-north-africa>

²⁵ Supporting Jordan in the context of the Syrian refugee crisis: a joint initiative on rules of origin, European Commission website, accessed on September 19,2020. <https://ec.europa.eu/trade/policy/countries-and-regions/countries/jordan/>

The only solution which offers a genuine prospect of success is an integrated package of measures aimed at avoiding unnecessary travel, reducing distances, providing the most sustainable forms of passenger and goods transport, and maximising the efficiency of transport systems with technological innovations and alternative technologies. Strategies to change public attitudes and encourage acceptance of sustainable forms of mobility have a key role to play. Without a radical change in people's behaviour, sustainable, future-proof mobility cannot be achieved.

Based on best practices implemented in places with advanced sustainable mobility, the following set of recommendations are deemed fitting for the Jordanian context:

1. Increase the rates of walking, cycling and e-bikes.
 - Develop a master plan for walking and cycling;
 - Rapidly develop cycling and e-bike infrastructure on a large scale;
 - Implement bike-share programmes in large and medium-size cities, prioritising connections to transit.

2. Reduce the number of polluting vehicles on our streets and transition away from vehicles powered by fossil fuels.
 - Adopt electric vehicles for public transport fleets (e.g. busses, taxis, etc.);
 - Invest in electric vehicles charging infrastructure;
 - Encourage carpooling through implementing technology-based programs;
 - Implement ride sharing programs in large cities with high densities.

3. Increase the use of public transport that is accessible to all citizens.
 - Foster cross-country national integration through investing in heavy rail system;
 - Invest in Bus Rapid Transit system (BRT) and light rail system beyond the capital.

4. Policy and legislation development to promote effective sustainable transport.
 - Revise laws and enforcement practices to better protect people cycling and walking;
 - Encourage cycling and active transport via pricing policies and information campaigns;
 - Adopt policies such as congestion pricing and vehicle kilometres travelled (VKT) fees,
 - Incentivise electric vehicles;
 - Subsidise public transportation tickets making sure it is more competitive

to car ownership;

- Dedicate fuel taxes, driving fees, and other transport-system revenues toward investment in sustainable transport.



Liberalisation of the Electricity Market in Jordan A Human Security Perspective

Mustafa K. Hashem

1 Introduction

This policy paper is part of the project entitled "Jordan-EU Dialogue on Human Security Issues" implemented jointly by the West Asia-North Africa Institute (WANA) and the Konrad-Adenauer- Stiftung (KAS) Jordan Office. The aim of the project is to raise awareness on the issues of importance and priority that Jordan should address in 2021 from a non-governmental perspective, cementing the culture of informing and enhancing exchange of knowledge that is able to influence public policies in Jordan. It further seeks to enhance the dialogue between the European Union and Jordan on human security issues.

1.1 Overview of the Electricity Sector in Jordan

The economic activities associated with the electricity sector in Jordan began in 1937 by renting a simple 70 horse-power private mill engine. The engine was used to electrify the newly replaced street electrical lamps during nights, back at that time. Later, the electricity industry in Jordan would pass through various developments and reforms; then in 1996, the National Electricity Power Company (NEPCO) was established as a public shareholding company owned completely by the Jordanian government.¹

Following that era, restructuring the electricity industry became necessary to follow the modern international electricity systems and ensure optimal delivery as well as wide consumer accessibility. The electricity sector was divided into: Generation, governed by the Central Electricity Generation Company (CEGCO); Transmission, governed by the National Electricity Power Company (NEPCO); and finally, Distribution, governed by the Electricity Distribution Company (EDCO). The current existing structure of the Jordanian electricity is described and illustrated in Figure 1 .1.

As per Figure 1 .1, the current existing total power generation installed capacity are from both fossil fuel power stations. Renewable energy power stations in Jordan reached 5658 MW. Furthermore, NEPCO's 2019 annual report² indicates that the interconnected transmission network consists of 1376 Km-Circuit of 400 kV lines and 3826 Km- Circuit of 132 kV Lines. With respect to the international interconnections with neighbouring countries, the electricity grid of Jordan is currently connected with the Egyptian electrical system by a submarine cable

1 NEPCO. n.d. Development of Electricity. National Electric Power Company . Accessed 10 1, 2020. http://www.nepco.com.jo/en/electricity_improve_en.aspx.

2 NEPCO. 2019. National Electric Power Company Annual Report. Technical and Financial Report , Amman, Jordan: National Electric Power Company. https://www.nepco.com.jo/store/docs/web/2019_ar.pdf

with a capacity of 550 MW, and the Syrian electrical system by cable with a capacity of 800 MW. However, the interconnection with Syria is currently on hold due to the unstable circumstances. In addition, there is an interconnection between Jordan and the Palestinian Territories on the distribution level with 132 kV a cable between Jordan and Jericho. Besides, some technical plans have been discussed to develop an interconnection on the transmission level between Jordan and the West Bank which, however, have yet to emerge. Moreover, Jordan has signed a memorandum of understanding as well as a contract with Saudi Arabia and Iraq, respectively, to link their electricity networks for trading purposes. These links with the neighbouring countries are considered a crucial aspect of exporting electrical energy and promoting energy trade, accordingly.

Regarding the distribution level, the electricity distribution network covers all the governorates of Jordan and offers an electricity accessibility to 99.9 % of the Jordanian population, thus providing wide coverage to all Jordanians living in the urban and rural areas of the country.

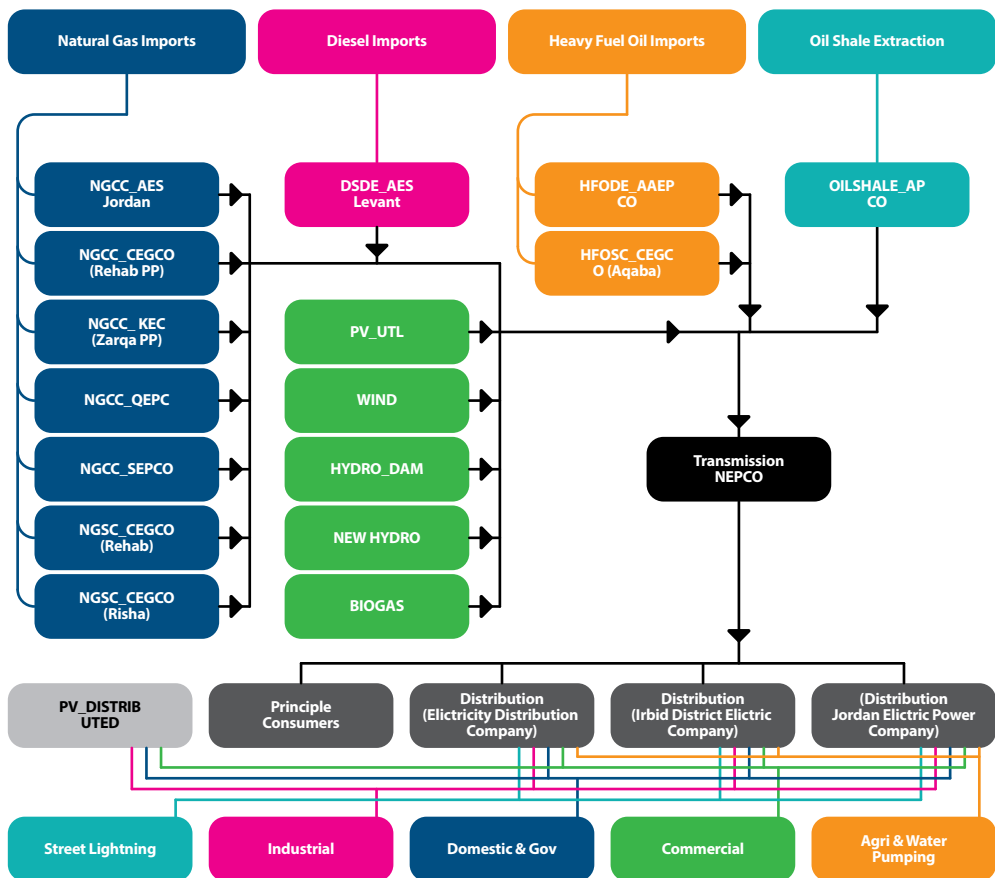


Figure 1. 1. The Reference Electricity System Structure in Jordan

The electricity market in Jordan has a unique type of integration between its segments, compared to other electricity markets in the MENA region. Muller-Jentsch ³, and Khatib ⁴ have mentioned that Jordan is following the principle of 'Ownership Separation' which demonstrates a complete separation between the entities representing the Generation, Transmission, and Distribution activities of the electricity industry. This is contrary to other electricity markets, which only have separation in legal or accounting aspects. Therefore, the Generation entity is majorly privatised with only one company owned and operated by the government (CEGCO) and another one that has a public-private partnership (SEPCO). The private companies have long term fixed-tariff power purchase agreements (PPAs) with the state under an Independent Power Producers (IPP). The Distribution segment is completely privatised as well, but it forms an oligopoly; where there are only three privately-owned companies, each of them controlling one single part of the country with interconnections between them. Finally, the transmission segment is a pure monopoly of one company (NEPCO) owned and operated by the state ⁵. The balancing, unbundling, and monitoring of these segments are under the duty of an independent entity in administration and finance called the Energy and Minerals Regulatory Commission (EMRC) ⁵

1.2 Electricity Liberalisation

From a microeconomic perspective, linking the term "liberalisation" with the Electricity market insinuates a process of transforming the electricity supply stages from monopolistic state ownership into multi-private ownership that allows for competition in the electricity market⁶, hence, aiming to bring lower electricity prices to end-consumers. The privatisation trend usually targets the generation stage of the electricity supply chain as well as the retail stage, as the liberalisation concept aims to eventually enable customers to choose from different electricity suppliers to cover their consumption and offer them better services.

3 Muller-Jentsch, Daniel. 2001. "The Development of Electricity Markets in the Euro-Mediterranean Area." World Bank

Technical Papers (62-1):(491.

4 Khatib, Hisham. 2003. Economic Evaluation of Projects in the Electricity Supply Industry. London, UK: Institution of

Engineering and Technology.

5 Vagliasindi, Maria, and John Besant-Jones. 2013. Power Market Structure: Revisiting Policy Options. Washington, DC: World Bank Group.

6 Proost, Stef, and Guido Pepermans. 2016. Energy Economics. Leuven, Belgium : Uitgeverij Acco.

2 Study Objectives and Aims

The key objective of this policy paper is to shed light on key issues that the policy maker might face during the introduction of a newly liberalised Jordanian electricity market. Those considerations and arguments are essential for the policy makers in Jordan and relevant EU stakeholders to include in their agendas. From there, demonstrating a cornerstone in creating an action plan aiming to reform the Jordanian energy sector in general, and the electricity sector in specific, bearing in mind the significance of human security first and foremost.

3 Key Considerations in Liberalising the Electricity Market

What proceeds represents the range of arguments, the understanding of which is necessary to showcase the key considerations needed to be investigated and studied in depth. Such key considerations will be the base of the policymaker agenda, which aims at establishing a national project mostly interested in developing research and investigation, and is needed for transforming the energy market from a monopolised into a liberalised system. This firmly connects with the vision of the National Comprehensive Energy Sector Strategy 2020-2030⁷, which expressed serious intentions of beginning this transformation in 2021. This became evident by revealing its intentions to study the transformation from the Single-buyer Model to Wholesale Competitive Market Model under the section of (Ensuring the Electrical Energy's Economic Stability and Sustainability).

The previously mentioned policy paradigm is a set of various considerations correlated to the aspects of human security, which will be looked at from two standpoints: the electricity supplier side, and the electricity consumer side. Hence, demonstrating together a form of detailed representation on how to further proceed with this restructuring in the electricity sector.

3.1 Key Considerations on the Supply Side

a. Ensuring the economic security of the suppliers and retailers

The current electricity-generating companies in Jordan are private companies that hold the management, operation, and maintenance of the electricity generation activities. However, the process of liberalisation includes that the supplier is accountable for providing the services of direct selling and retailing the electricity to the end-consumers. The expected role of the policy maker is to

7 MEMR. 2020. National Comprehensive Energy Sector Strategy 2030-2020. Strategy, Amman, Jordan: Ministry of Energy and Mineral Resources.

reconsider the existing contracts and agreements between the private companies and the National Electricity Power Company NEPCO, whereas the supplier is able to supply the consumer directly, either through a sub-business that manages and coordinates the process of direct selling, in cooperation with transmission and distribution operators, or via separate retailers.

One point a policy-maker should consider crucial is that they should not negatively affect the economic and financial levels of suppliers/retailers instead they should encourage their sustainable investment. Meanwhile, not putting extra financial burdens that might weaken their economic activity and outcomes within the market. Hence, not to be reflected adversely on the final prices accounted for consumers.

b. Encouraging the competitiveness in the electricity market

Transforming to a liberalised market necessitates the existence of many suppliers with variations in their investments, facilities, the level of development of their business models, and finally their size. Therefore, it should result in having big and small suppliers in the market, many of the small ones are local. With that, a phenomenon might come to existence that will result in the deviation from the main purpose, which is promoting competitiveness. Instead, the big supplier will make it harder for the small ones to enter the retailing market. Hence, the monopoly that was played by the governmental sector, will take a new shape, and exist even stronger between private companies.

What is needed from the policymaker's side to safeguard the small suppliers, and particularly the local ones - especially those working in renewable energy supply (intermittent energy resources) - is the creation of committees that are specialised in regulations, policy formulations, and economics of scale that are able to form a set of schemes, incentives, and strategic regulatory design, that firmly ensures the ability of entrance for small suppliers to the market, their sustainability and ability to compete, as well as their capability to reach end-consumers in order to provide services.

c. Facilitating the social and environmental securities

Promoting competitiveness in a liberalised market is firmly grounded on social, environmental, and climate considerations that cement the concept and application of human security. Thus, the policy maker's role is to enable the establishment of corporations and partnerships between the suppliers and governmental entities and directorates with NGOs and international organisations, where they facilitate an insightful dialogue that reinforces economic outcomes and competitiveness. Meanwhile, the government should work on sustaining social and environmental values, in addition to its

commitments. And it should not hold suppliers responsible for burdens that do not conform to political, social, economic, and environmental orientations. Jordan will probably experience such orientations in the upcoming years, hence avoiding an adverse reaction that forces the supplier to raise the selling prices, under the umbrella of covering their societal and environmental externalities.

3.2 Key Considerations on the Demand Side

a. Ensuring knowledge and information accessibility

This complex market transformation into liberalisation will likely introduce a range of new, complicated procedures to consumers. These might include subscription procedures, payment plans, wholesale market regulations, as well as simply the basic principle of electricity market liberalisation. In addition, the majority of the population are normal people without extensive knowledge of electricity and energy economics. That lack of knowledge will result in creating public opposition. This is not because the public necessarily opposes the idea, but rather because of the lack of information and transparency needed for the public to be convinced and accept the change. Thus, the policymaker should use efficient instruments such as awareness campaigns, transparency & simplified language, as well as clarity in showcasing the mechanism of subscriptions, billing systems, and the economic benefits that they will have in order to understand the rationale behind this transformation.

b. Ensuring affordable subscriptions and payment plans

In a survey carried out by EDAMA organisation in July 2020, the results showed that 91 % of the Jordanian public think that the electricity prices are expensive⁸. Therefore, the transformation to a multi-privatised electricity market, should not only increase the suppliers' competitiveness, but also cut costs from the consumers' electricity bills. That is to say, the role of the policy maker is to encourage the supplier to offer competitive, affordable, and suitable subscriptions and payment plans based on their consumption styles, rather than fixed, unified tariff scales.

c. Ensuring supply and demand matching (avoiding disruptions)

As mentioned earlier, the accessibility to electricity grids in Jordan reached 99% with very limited outage durations. For instance, the outage duration during 2019, reached only 31 hours according to NEPCO's annual reports⁹, therefore, transforming into a liberalised market means the existence of many competing companies, thus better service. At some points, technical, political, or economic

8 EDAMA. 2020. Survey: 91% of Jordanians are not satisfied with electricity prices. Amman, July 12. <https://www.ammonnews.net/article/549759>.

9 NEPCO. 2019. National Electric Power Company Annual Report. Technical and Financial Report, Amman, Jordan: National Electric Power Company. https://www.nepco.com.jo/store/docs/web/2019_ar.pdf

problems and conflicts of interest might occur. As of now, that is probably one of the most alarming issues that policy makers should be aware of. As such, they must draw a rigorous framework that ensures effective matching between the supply and demand, and full electricity accessibility for consumers without disruptions by having monitoring entities supervise the dynamic interchange between generation and demand amongst all suppliers and consumers.

4 Recommended Further Steps

- Conducting a detailed comprehensive study of transforming to liberalisation, based on quantitative analysis and energy modelling, in partnership with the public sector, existing and potential suppliers, as well as academia and specialised think-tanks.
- Benefit from the diverse European experiences in such transformation to liberalisation, through inviting experts to take advantage of best practices, learn from lessons, and pay attention to the cracks through which they might fall. In addition, to benefit from their pioneering encounters in liberalising their energy markets.
- The exigency to include all segments of consumers in this transformation process, through surveys, questionnaires, media polls, seminars, webinars, and different types of interviews, and not only to confine it to specialists and decision-makers.



Labour Rights, Defence Law and the Pandemic: Legal Illiteracy in Jordan

Tala Halteh

1 Introduction

This policy paper was written as part of the Jordan-EU Dialogue on Human Security Issues project held jointly by the Konrad Adenauer Foundation (KAS) Jordan Office and the West Asia-North Africa Institute (WANA).¹ The paper aims to shed light on the impact of the decision by the government to activate Defence Law No. 13 of 1992 on livelihood and job security in Jordan within the context of the COVID19- while outlining a series of measures designed to enhance resiliency as well as better protect both labour rights and the national economy in the future.

Jordan recorded its first case of the COVID19- on the 2 March 2020 and other cases were recorded shortly thereafter on 15 March.² In response, the executive branch activated Defence Law No. 13 of 1992 on 17 March³ and a whole-of-country lockdown was announced on 20 March by Prime Minister (PM) Omar al-Razzaz under Defence Ordinance No. 2. Citizens were prohibited to move and roam in all regions and cities in the Kingdom and all shops and stores were closed for a period of 4 days. The measures were then reduced on 25 March: Movement was allowed between the hours of 6 a.m. and 10 p.m. and all grocery stores, bakeries, and pharmacies were allowed to operate within those hours. The majority of restrictions were then lifted on the 30 April, but at that point the lockdown already had a negative impact on the economy. Day labourers and other employees in the formal and informal sectors whose work required a physical presence at the workplace were among those most affected by the restrictions.

Although the government issued Defence Ordinance No. 6 on 8 April in order to “reduce the negative economic effects [of the lockdown] on employers, private sector companies, and employees,”⁴ the Defence Law and ordinances published under the Law have been met with widespread confusion (and some criticism) among the general public, the labour force, the media, trade unions, and political parties, revealing a level of widespread legal illiteracy in the country.

1 WANA, Institute. “Jordan-EU Dialogue on Human Security Issues.” WANA Institute, June 1, 2020.

<http://wanainstitute.org/en/project/jordan-eu-dialogue-human-security-issues>.

2 Al-Ghad, Newspaper. “ي الأردن إلى 12 ارتفاع عدد حالات الإصابة بـكورونا” ف. Alghad, March 16, 2020.

<https://alghad.com/%D8%A7%D8%B1%D8%AA%D981%D8%A7%D8%B9-%D8%B9%D8%AF%D8%AF-%D8%AD%D8%A7%D984%D8%A7%D8%AA-%D8%A7%D984%D8%A5%D8%B5%D8%A7%D8%A8%D8%A9-%D8%A8%D980%D983%D988%D8%B1%D988%D986%D8%A7-%D981%D98%A/>.

3 Jordanian Official Gazette. “Announcement of the Activation of the Defence Law.” Jordanian Prime Ministry, March 18, 2020.

4 MENAFN - Jordan News Agency. “Jordan- Prime Minister Issues Defense Order No. 6, 2020 (Full Text).” menafn. <https://menafn.com/1099992683/Jordan-Prime-Minister-issues-Defense-Order-No-62020-Full-Text>, April 8, 2020. MENAFN - Jordan News Agency.

2 Paper Objectives

This paper intends to give a general overview of labour rights in Jordan within the context of a public health crisis that precipitated the activation of a state of emergency under the Defence Law of 1992. The paper aims to clarify Employment and Independent-Work Contracts in Jordanian law, discuss a number of issues related to the debate surrounding the legal status of ordinances and communiques promulgated under the Defence Law, review promulgated ordinances and communiques concerning labour rights in the private sector, shed light on the phenomenon of legal illiteracy in Jordan, and propose a number of recommendations on the subject matter.

3 Employment and Independent-Work Contracts and the Law

Article (2) of Labour Law No. 8 of 1996 defines 'work' and a 'contract of employment' as follows:⁵

Work: Any intellectual or manual effort made by a worker for remuneration, be it for an indefinite period, or on a casual, temporary or seasonal basis.

Contract of Employment: An explicit or implicit, verbal or written agreement under which the Employee undertakes to work for the Employer under his supervision and Management against remuneration. The employment contract can be for a limited or unlimited period, specific or nonspecific work.

Article (805) of the Civil Code defines a 'contract of employment' as follows:

The contract of employment is a contract that one party of which undertakes to perform work for the benefit of the other under his supervision or control in consideration of wages.

Pursuant to these articles, the Jordanian legal system treats an employment contract thus as a nominated, commutative, bilateral, consensual contract.⁶ Nominated contracts are those contracts with a special designation attached to them in name (e.g. employment contracts, purchase and sale contracts, lease contracts etc.) and whose provisions are regulated by the Civil Code.

5 Hammouri Law Firm. "Jordanian Labor Law No. (8) of 1996." hammourilaw , n.d. https://www.hammourilaw.com/Hammouri_Resorces/Articals/labor_law__2.pdf.

6 Al-Mughrabi , Jaafar. "Characteristics of Employment Contract ." Essay. In Provisions of Labour Law1, 1st ed., 1:79–81, 2018.

Commutative employment contracts are those contracts under which an employee undertakes to perform work in return for remuneration. Civil Servants are governed by the Civil Service Bylaw and are excluded explicitly from the provisions of the Labour Law as per Article (3) of the Law.⁷ The Labour Law does not however define informal labourers.

The parties to an employment contract are therefore the employer and the employee. If a dispute concerning remuneration arises between an employee and his/her employer, the employee can resort to the Remuneration Authority, a judicial body equal to a Magistrate's Court, but not a court per se. The provisions of the Labour Law however stipulate that an employee is only entitled to a settlement of claims by way of the Remuneration Authority only if s/he remains in the service of his/her employer during the summary process. If the employee was not in service of his/her employer at the time, then, pursuant to Article (54) of the Labour Law, the employee must resort to a Magistrate's Court.⁸

Article (19) of the Labour Law stipulates that an employee is obliged to: Perform his/her work by him or herself, comply with directives concerning carrying out work within the limits that do not expose him/her to danger, or violate provisions of the law and public morality. The Law also stipulates that an employee may not disclose trade secrets even after termination as agreed upon in the contract or in accordance with custom. The employee is also obliged to take care of the things s/he receives to perform his/her work and must undergo a medical check-up. On the other hand, the employer is obliged to pay a wage to the employee in accordance with Labour Law provisions, ensure that working hours do not exceed eight hours per day and forty-eight hours per week, give the employee his/her entitled leaves, and ensure the provision of safety measures and precautions. The employer is also obliged to pay for medical treatment in the case of work-related injuries and occupational diseases.⁹

A contract of independent-work is most similar to a contract of employment and is defined by Article (780) of the Civil Code as:

[...] a contract by virtue of which one of its two parties undertakes to manufacture an object or to perform work for a consideration which the other party undertakes.¹⁰

7 Hammouri Law Firm. "Jordanian Labor Law No. (8) of 1996." hammourilaw , n.d. https://www.hammourilaw.com/Hammouri_Resorces/Articals/labor_law__2.pdf.

8 Jordanian Cassation Court Ruling, No.23552005/

9 Hammouri Law Firm. "Jordanian Labor Law No. (8) of 1996." hammourilaw , n.d. https://www.hammourilaw.com/Hammouri_Resorces/Articals/labor_law__2.pdf.

10 Hashem , Hisham R. "Contracts of Work ." Essay. In The Jordan Civil Code of Moslem Jurisprudence Translated and Annotated . Amman , Jordan : Al-Tawfeeq Printing Press , 1990.

Independent-work contracts and employment contracts are thus alike in that they are both nominated and commutative contracts; they however differ in that employment contracts are subject to the provisions of the Labour Law while contracts for independent-work are subject to the provisions of the Civil Code.¹¹ The relationship between the parties to an employment contract is a subordinate relationship whereas the relationship between the parties of an independent contract is not¹² while labour lawsuits are heard expediently and before Magistrate's Courts while disputes related to a contract of independent-work are heard before a Regular Court this is pursuant to article .¹³

4 The Defence Law – Legal Considerations

The Defence Law in question was promulgated in 1992 and has a constitutional foundation in Article (124) of the Constitution, which states:

In the event of what necessitates the defence of the country in the case of emergencies, a law in the name of the Defence Law shall be enacted by virtue of which power shall be given to the person specified by the law to take the necessary actions and measures including the power of the suspension of the ordinary laws of the State to ensure the defence of the country. The Defence Law shall come into force when this is declared by a Royal Decree to be issued on the basis of a decision by the Council of Ministers.¹⁴

The Prime Minister, pursuant to Article (3) of the Defence Law, practices his/her eligibilities in the form of a written Ordinance. And as of this writing, 17 Ordinances have been issued. A Communique may be issued in order to amend, add, suspend or terminate the provisions, rules, and instructions of an Ordinance although, in current circumstances, the promulgation of an Ordinance or Communique appears to depend in large part on the epidemiological and economic situation in the Kingdom. For example, Defence Order No. 9 included an amendment to Defence Order No. 1 that allowed new groups in need of social assistance to benefit from the suspension of some of the provisions of the Social Security Law. Pursuant to Article (6) of the Defence Law, violations of the Law are heard by the Court of First Instance. And, pursuant to Article (1) of the Law, any and all existing laws that contradict the provisions enacted under the Defence Law are suspended for the duration of the Law.

11 Al-Mughrabi , Jaafar. "Distinguishing Employment Contract from Independent Work Contract ." Essay. In Provisions of Labour Law1, 1st ed., 1:83, 2018.

12 Jordanian Cassation Court Ruling, No.21732020/.

13 Hammouri Law Firm. "Jordanian Labor Law No. (8) of 1996 ." hammourilaw , n.d.

https://www.hammourilaw.com/Hammouri_Resorces/Articals/labor_law__2.pdf.

14 "Jordan's Constitution of 1952 with Amendments through 2016." constitutionproject , July 20, 2020.

https://www.constituteproject.org/constitution/Jordan_2016.pdf?lang=en.

The application of Defence Law raises important legal questions. The Law was promulgated by the legislative branch, but its activation, ordinances and communiques are enacted by the executive branch. By law, legislation normally enacted by the executive branch is to be considered in the form of a legislative regulation. And, although ordinances enacted under the Defence Law are enacted by the executive branch, those ordinances are not considered legislative regulations; instead, and pursuant to Article (8) of the Defence Law, the ordinances are considered as administrative regulations, as per the formal criteria used by the Cabinet, and are subject to oversight by the administrative judiciary.¹⁵ And while the Constitution gives the Prime Minister the power to suspend legislative provisions by way of a Defence Ordinance, as was done to some of the provisions of the Labour Law and Social Security Law, Article (5) of the Civil Code stipulates that:

“no legislative provision shall be repealed except by a subsequent legislative provision [emphasis added] which expressly provides for the repeal or contains a provision repugnant to the former provision or again regulates the matter which has been regulated by the former provision.”¹⁶

Moreover, and under the Defence Law, social gatherings of over 20 people were banned (Defence Ordinance No. 16) while restaurants and cafés were prohibited from serving hookah indoors (Defence Ordinance No. 19). Such ordinances also provided for legal sanctions not provided for in the existing laws of the Kingdom and thus introduced new regulations that enjoy the legal weight of legislative enactments if one considers the general characteristics of laws (general, abstract, and accompanied by sanctions).¹⁷

Legal jurists have argued that Ordinances cannot have a legislative function according to both the Constitution and, in specific, to Jordanian Cassation Court Ruling No. 288 of 1967, which reads:

15 Nasrawin , Laith Kamal. “The Legislative Function of the Prime Minister.” Alrai , April 2020.

<http://alrai.com/article/10534962/%D983%D8%AA%D8%A7%D8%A8/%D8%A7%D984%D988%D8%B8%D98%A%D981%D8%A9-%D8%A7%D984%D8%AA%D8%B4%D8%B1%D98%A%D8%B9%D98%A%D8%A9-%D984%D8%B1%D8%A6%D98%A%D8%B3-%D8%A7%D984%D988%D8%B2%D8%B1%D8%A7%D8%A1>.

16 Hashem , Hisham R. “General Provisions .” Essay. In The Jordan Civil Code of Moslem Jurisprudence Translated and Annotated . Amman , Jordan : Al-Tawfeeq Printing Press , 1990.

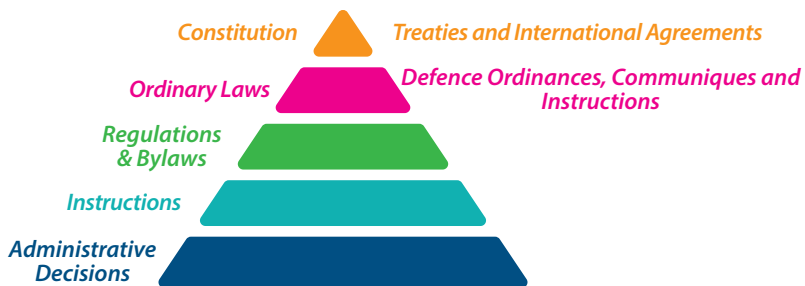
17 Nasrawin , Laith Kamal. “The Legislative Function of the Prime Minister.” Alrai , April 2020.

<http://alrai.com/article/10534962/%D983%D8%AA%D8%A7%D8%A8/%D8%A7%D984%D988%D8%B8%D98%A%D981%D8%A9-%D8%A7%D984%D8%AA%D8%B4%D8%B1%D98%A%D8%B9%D98%A%D8%A9-%D984%D8%B1%D8%A6%D98%A%D8%B3-%D8%A7%D984%D988%D8%B2%D8%B1%D8%A7%D8%A1>.

The purpose of enacting a defence ordinance is for a regulatory purpose that aims not to impede or tarnish the general appearance whereas the eligibility given to the [PM] pursuant to the Defence Law and its bylaws authorises him to enact orders to ensure the general safety and defence of the Kingdom and therefore the order ... which was not enacted for the aforementioned purpose is considered illegal and shall not have effect.¹⁸

An argument for considering ordinances promulgated in 2020 under the Defence Law as having a general safety and defence function and therefore of a legislative character can however be made. The Defence Law does not expressly prohibit the PM from amending legal provisions that already exist or adding to legal provisions through ordinances. Article (3) and Article (4) of the Defence Law may also be interpreted as allowing the PM to enact and amend legal provisions to ensure livelihood and health security as long as those provisions do not infringe upon civil and political rights.¹⁹ Having suspended other ordinary laws, the Defence Laws may also be considered de facto ordinary laws according to Article (5) of the Civil Code, which also stipulates that an ordinary law can only be suspended either by way of another ordinary law or superior legislation such as a treaty or the Constitution.

Ordinances may thus be considered in the form of regulatory administrative decisions because the contestation of said ordinances is subject to the administrative courts. Ordinances may also suspend and enact new legislative provisions although, and if considered in terms of regulatory administrative decisions ordinances enacted under the Defence Law, ordinances do not have such a legislative function. Ordinances may thus be considered as neither administrative decisions nor in terms of ordinary laws although they do appear to rank on the same level of ordinary laws.



¹⁸ AlMajali, Mohammad. "Legal Review on the Defence Ordinances." Ihqaq, April 2020. <https://ihqaq.com.jo/ar/%D985%D8%B7%D8%A7%D984%D8%B9%D8%A9-%D982%D8%A7%D986%D988%D986%D98%A%D8%A9-%D8%AD%D988%D984-%D982%D8%A7%D986%D988%D986%D98%A%D8%A9-%D8%A3%D988%D8%A7%D985%D8%B1-%D8%A7%D984%D8%AF%D981/>
¹⁹ The Royal Hashemite Court. Royal Decree approves Cabinet decision to proclaim Defence Law, March 17, 2020. <https://rhc.jo/en/media/news/royal-decree-approves-cabinet-decision-proclaim-defence-law>.

5 Defence Ordinance No. (6)

An overview of the impact of Defence Ordinance No. (6) on livelihood and job security is crucial as thousands of Jordanians have lost their jobs and tens of thousands have filed official complaints concerning service termination and delayed wages.

Ordinance No. (6) pertains to private sector employment contracts between the months of March and April and suspended some provisions of the Labour Law as well as some provisions of the Flexible Working Bylaw. In essence, the suspensions undertaken by Ordinance No. (6) prioritised the immediate-term livelihood security of employees by obliging employers to pay wages in full for the two-week period during which Kingdom-wide mobility restrictions were in place (18 March to the 31 March). The termination of several clauses in Article 21 of the Labour Law also meant that the government prioritised job security by way of restricting the legal right afforded to employers to terminate employment contracts. The Ordinance also stipulated that employers must re-employ individuals who were either forced to resign or whose services had been terminated while considering null any and all waivers of rights signed by employees. The Ordinance, however, attempted to strike a balance between employer and employee. Section (1) of Clause (4) of Defence Ordinance No. (6) allows employers to cut back wages by 30 per cent with the consent of the employee provided that the reduction is also applied to senior management wages. Other sections under Clause (4) also obliged employers to pay wages in full to those working full-hours remotely while reducing wages paid to those working reduced hours remotely provided that the wage paid does not fall below the minimum wage rate or is not reduced in excess of 50 per cent of a full wage (whichever is higher). As for sectors either operating under full or partial restrictions, Defence Order No. (6) allowed employers to reduce wages by up to %50 provided that the reduced wage is no less than the minimum wage and that case-by-case Ministry of Labour approval is secured.

Communique No. (7) was issued by the PM under Defence Order No. (6) on the 3 May 2020 in order to regulate employee-employer relationships for the months of May and June 2020. The Communique notably included a provision regarding informal day labourers, which urged labourers to subscribe to Social Security through a specific mechanism to be published in the future. Neither the Communique nor the Labour Law nor the ordinances promulgated under the Defence Law defined informal day labourers, and it remains unclear which individuals are now also eligible to receive government support under the Communique. The Communique also allowed employers to reduce by up to 60 per cent wages paid to employees not assigned to a work process or work task

even in the hardest hit sectors while allowing employers to reduce wages by up to 50 per cent without employee consent and without approval by the Ministry of Labour, provided that reduced wages do not dip below JDs 150 per month in the most vulnerable sectors and below the minimum monthly wage in other sectors.

Communique No. (7) also restricted the number of legal avenues available to employees to file labour complaints against their employers with the Ministry of Labour and completely prohibited non-Jordanians from filing said complaints. Although the Communique stipulated that limited employment contracts will be renewed automatically provided that said contracts expire on the 30 April 2020 or on any date thereafter until the Defence Law is terminated, the Communique also stipulated that said contracts had to have been renewed for at least three times in the past. Moreover, the Communique also reactivated several clauses under Article (28) of the Labour Laws and thus allowed employers greater latitude in terminating employment contracts.

Communique No. (8) was later issued by the PM to regulate employee-employer relationships for the months of July and August. The communique articulated that employees working in fairly stable sectors are entitled to receive wages in full regardless of whether employees have been working remotely or not and even if employees have not been assigned any work. Under this communique, employers in all sectors were however allowed to decrease employee wages regardless of whether employees were working remotely or not and provided that employee consent is secured, that the reduction in wages was also applied to senior management, and that wage reductions do not exceed a maximum threshold of 20 per cent. Employers in the hardest hit sectors were also allowed to cut back wages for employees not assigned to any work task or process by up to 50 per cent provided that the cuts do not result in a monthly wage lower than the minimum wage set forth by law; Ministry of Labour approval and employee consent were not required of said employers. As for employees working part-time whether remotely or not, the Communique allowed employers to link wages to working hours as long as the paid wages did not dip beneath the minimum wage per hour set forth by law or reduce wages provided that the reduction did not exceed 50 per cent (whichever is higher).

Communique No. (8) was followed by Communique No. (9) once area-specific lockdowns were put into practice by the authorities following localised outbreaks of disease. Given that area-specific lockdowns may have included employee residences, places-of-work, or both, Communique No. (9) allowed employers in all sectors to reduce employee wages by up to 50 per cent. Communique No. (9) was then followed by Communique No. (10) that stipulated

that the provisions of Communiqué No. (8) apply to employers and employees for the months of September and October.

6 Legal Illiteracy in Jordan

The activation of the Law of Defence and the Ordinances and Communiqués promulgated under the Law has indicated widespread legal illiteracy in Jordan. Generally speaking, neither the general public, nor civil society actors such as professional associations, trade unions, and political parties, nor journalists exhibited high rates of legal literacy. Although Jordan is ranked as a country with a very high literacy rate, general literacy differs from legal literacy. Legal literacy according to the Canadian Bar Association is “the ability to understand words used in a legal context, to draw conclusions from them, and then to use those conclusions to take action.”²⁰

Legal literacy is an essential skill especially for the most vulnerable adult groups of society including women and informal labourers as well as a sizeable number of employees in the formal sector. In Jordan, legal literacy rates must be increased not only to provide protection for the most vulnerable but also to encourage civil society actors to influence the decision-making process especially at critical junctures such as that time period between the promulgation of Defence Order No. (6) and the promulgation of Communiqué No. (7).

7 Recommendations

The COVID19- pandemic has highlighted the vulnerability of a large proportion of the Jordanian population to livelihood insecurity as well as job insecurity with second-order effects on development goals including those related to health, hunger, and education. The following recommendations are being proposed as a proposed method to mitigate the negative impact(s) of the Defence Law by ensuring greater levels of human security across the Kingdom. The recommendations are aimed at guaranteeing fairer labour rights, enhancing levels of legal literacy, and encouraging the process of legal reform. The recommendations also include post-crisis options to encourage a fairer, more just, and thus better economic recovery in the long-run.

1. The provisions of Defence Ordinance No. (6) allow for revisions to the Ordinance when and where necessary. The government should therefore:

²⁰“What Is Legal Literacy?” athabascau, December 21, 2011.
https://www.athabascau.ca/syllabi/lgst/docs/LGST249_sample.pdf.

- a. Clarify and define who exactly is entitled to assistance under the provision of Communique No. (7) concerning assistance to and registration of informal labourers.
 - b. Reconsider policy priorities when outlining maximum thresholds for wage reductions. Reductions under Communique No. (7), No. (8), and No. (9) were very high. A just balance between employer interests and employee rights must be maintained.
 - c. Reconsider re-suspending Clause (B) and Clause (E) of Article 28 of the Labour Law if area-specific lockdowns might be imposed again in the future.
 - d. Play an active role in promoting issue-specific legal literacy rates among the most vulnerable segments of the workforce, including women and informal, day labourers.
2. Parliament should amend the Labour Law to include provisions that explicitly regulate the relationship between informal employers and informal employees. A bylaw to that effect may also be enacted by Government in place of amendments to the Labour Law. Greater regulation will protect vulnerable segments the workforce. For instance, contracts for taxi drivers may be written either in the form of employment contracts or as independent-work contracts although drivers are often obliged to guarantee a daily payment to the owner of a firm and work for a number of hours at the firm regardless of the type of contract signed between the two parties.
3. Civil Society Actors and Parliament should cooperate on introducing a Friend of the Court (FOC) system (*amicus curiae*). The International Court of Justice resorted to the Friend of the Court system in 2011²¹ as did the European Commission in *Morgan Advanced Materials vs. Deutsche Bahn* (2014).²² *Amicus curiae* allows a third party to intervene in a case brought before a court if the case affects the public interest and is related to fundamental issues and rights such as the environment, labour rights, other human rights, public health etc., wherein the party provides the court with its observations and memoranda.
4. Government and Civil Society Actors should cooperate on increasing legal literacy rates. Article 17 of the Constitution gives Jordanian citizens the legal right “to address the public authorities on any personal matters affecting them, or on any matter relative to public affairs, in such a manner and under

21 Aldmour , Abdullah. “Amicus Curiae in International and Comparative Law: The Possibility of Introducing It into Jordanian Legal System.” *Shari’a and Law Sciences* 46, no. 1 (2019): 361–89.

22 “Commission Observations to National Courts (*Amicus Curiae* Observations, Article 15(3)).” *Amicus curiae* - European Commission. Accessed October 2020.

https://ec.europa.eu/competition/court/antitrust_amicus_curiae.html.

such conditions as may be prescribed by law.”²³ And, as such, the Constitution thus allows Jordanians to take part in the decision-making process. However, to influence the process, civil society actors must acquire legal literacy skills. Legal literacy rates may be raised as well through the introduction of legal concepts in school curricula and the introduction of a mandatory legal literacy subject in higher education institutions. A civil society with legal literacy skills may also put into play effective awareness campaigns and community engagement programmes with the assistance of the European Union (EU) to help and ensure that the broader working public is fully aware of rights and obligations as well as options for redress in case of violations.

5. Jordan and the European Union (EU) may also negotiate an agreement protecting labour rights. In Jordanian law, bilateral and multilateral agreements struck with third parties are superior to ordinary legislation. In fact, and within the context of the Defence Law, an agreement might even take legal precedence over ordinances promulgated under the Law.

²³ “Jordanian Constitution.” cco, 2020. <http://www.cco.gov.jo/en-us/Jordanian-Constitutional>.



Renewable Energy and Cyclic Operation of Conventional Power Plants

Mohammad F. Zyoud

Abstract

Jordan is one of the most foreign energy-dependant countries in the world, in which it imports around 96 per cent of its energy needs.¹ Jordan faces massive challenges in securing its energy, and lacks the basic requirements to generate and maintain its electrical network. Jordan has limited resources and generates electrical energy through different generating units. In 2019, the contribution of conventional power plants was 74.4 per cent of the general mixture of the generative map² and 85.1 per cent of the total consumed energy³, of which the combined cycle units (the most affected by cyclic operation) constituted 69.06 per cent⁴ of the entire conventional generators.

Alternatives are difficult to secure due to the limited quantities of natural gas in Jordan. Jordan extracts from the Risha field 16 million cubic meters daily⁵ while the amount of gas required for daily electricity generation is 330 million cubic meters⁶. Thus, Jordan has to import liquified gas from external parties, namely Egypt - through its gas pipeline - and Israel. Moreover, the key element of the electrical network's stability is its connection with the Egyptian electrical network, from where Jordan bought approximately 239 gigawatt hours of electricity in 2018⁷.

Aim of the Paper

In light of the vulnerability associated with high energy imports, this paper aims to promote the use of renewable energy sources to generate electricity in a manner that preserves the safety of the conventional power plants and raises the efficiency of the electrical system as a whole. Specifically, it aims to find a national strategy that reduces the cyclic operation of conventional power plants through renewable energy sources, in a way that ensures the stability of the electrical network and increases the efficiency of generating stations by reducing the start-up costs of the conventional power plants. This would be done by maintaining a constant minimum load of generating units at all times, as well as keeping stores of surplus energy (over demand) when the load is at a minimum, and using it with the energy generated through renewable energy sources at peak times without the frequent operation of conventional power plants.

1 Energy Security Analysis for a 100 per cent Renewable Energy Transition in Jordan by 2050 /Abdelrahman Azzuni*, Arman Aghahosseini, Manish Ram, Dmitrii Bogdanov, Upeksha Caldera and Christian Breyer/may 2020

2 Annual report / national electrical power company-2019

3 Annual report / national electrical power company-2019

4 Annual report / national electrical power company-2019

5 Minister of energy and mineral resources / <https://www.youtube.com/watch?v=bbmOXENgXSk>

6 Minister of energy and mineral resources / <https://www.youtube.com/watch?v=bbmOXENgXSk>

7 Annual report / national electrical power company-2019

Keywords

Cyclic operation, cyclic operation of conventional powerplant, energy storage, grid stability, grid map in Jordan.

Acknowledgment

I would like to thank the SAMRA Electrical Power Company (SEPCO) Amman-Jordan for their endless support.

1 Introduction to Renewable Energy

Since taking off, the renewable energy revolution has encouraged countries from all over the world to explore sources of renewable energy and devise strategies that consolidate their use by increasing the percentage of renewable energy generated in their general mixtures. The economic incentive of doing so is high, especially in the shortage of conventional energy sources such as gas and oil, which is used to run gas turbines, steam turbines and diesel generators.⁸

Jordan has huge potential for renewable energy utilisation, especially in wind and solar, with 7-5 Kwh/m² solar radiation per day and wind speeds of 11-7 m/s⁹. These assets become all the more critical in light of the regional and national developments that have caused energy costs to rise over the last decade. Most importantly, Jordan's energy bill has soared in the aftermath of the 'Arab Spring' uprisings in neighbouring countries such as Egypt. Due to the frequent explosions that have occurred along the Egyptian gas pipeline supplying the Jordanian generating stations, the pipeline is no longer in use. Consequently, to operate power plants, the Jordanian government has relied on alternating Egyptian gas with diesel and heavy fuel oil, all of which came at an extra cost of JD 4 billion in the year 2012 alone.¹⁰

The use of diesel has led to a decrease in the life of the generation units that are designed to work mainly on gas fuel – and only on diesel in emergency cases – has led to shortened life for these units by a third. This is because each operating hour on diesel fuel is equivalent to an hour and a half of operation on gas fuel.¹¹ So for gas turbines, five operating years on diesel fuel equals seven and a half years on gas fuel. Additionally, the schedule for preventive maintenance of gas units has been delayed in the generating stations based on the consumption of units in a short period of time, as a result of more demanding maintenance work on diesel fuel units. This has led to programmed shutdowns and additional costs

⁸ Renewable energy potential in Jordan /Ali M baniyounes- Applied science private university

⁹ Energy situation in Jordan/Ministry of planning and international cooperation /mojahed Elsagheer

¹⁰ Renewable energy potential in Jordan /Ali M baniyounes- Applied science private university

¹¹ SEPCO phase 3 operation and maintenance manual for GT13E2 gas turbine from ALSTOM.

for the generation companies to replace damaged parts and perform major maintenance. As a result, Jordan has begun a national conversation on the necessity of investing in renewable energy sources such as solar energy, wind, and other energy sources. In this light, the Ministry of Energy and Mineral Resources launched several bids for the establishment of renewable energy projects that resulted in the current production of approximately 1470 MW from sun and wind sources.¹² This production is equivalent to approximately 25 per cent of the total generation capacity and 15 per cent of the Jordanian electrical load.¹³

2 The Stability of Jordan's Grid

2.1 Mapping Jordan's Grid

Compared to the rest of the world, Jordan is considered to be a country of 'average'¹⁴ electrical consumption due to its basic economic activity. In numbers, the total generating capacity of the Kingdom by the end of 2019 was 5728 MW¹⁵, distributed between conventional units and renewable energy plants. They were distributed in Jordan as follows:

Conventional Power Plant

The Energy and Minerals Regulatory Authority granted licenses to companies to generate electric power using conventional energy sources, and the number of licenses reached 9. They are:¹⁶

- Oman Asia Company Generation License (IPP3): The electric power is generated by technology of conventional energy sources (diesel fuel engines) with a total capacity of 573 MW.
- AES Levant IPP4 Generation License: Electric power is generated by technology of conventional energy sources (diesel fuel engines) with a capacity of 241 MW.
- Amman East Power Plant Generation License - Al-Manakher (AES, IPP1): Electric power is generated by technology of conventional energy sources (Combined cycle power plant: gas and steam) with a total capacity of 370 MW.

12 Annual report / national electrical power company-2019

13 Annual report / national electrical power company-2019

14 Jordan is ranked 76th in the world in terms of electricity consumption /The world factbook / <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2233rank.html>

15 National electrical power company /dispatch centre

16 The Jordan Energy and Minerals Regulatory Authority/Jordan

Renewable Energy and Cyclic Operation of Conventional Power Plants

- Central Electricity Generating Company (CEGCO) Generation License: This license was granted to three electric power generation plants by means of conventional energy sources technology:
 - Aqaba thermal station (steam) with a capacity of 656 MW
 - Rehab (combined cycle) station with a capacity of 360 MW
 - Risha (gas) station, with a capacity of 150 MW.
- Al-Samra Electricity Generation Company: The electric power is generated by technology of conventional energy sources and in various units (gas and steam) with a total capacity of 1175 MW, approximately 40 per cent of the Kingdom's load.
- Zarqa Electricity Generation Company Generation License: The electric power is generated by technology of conventional energy sources and in various units (combined cycle: gas and steam) with a capacity of 420 MW.
- Korean company KEPCO Al-Qatraneh (IPP2) Generation License: The electric power is generated by technology of conventional energy sources and in various units (combined cycle: gas and steam) with a capacity of 371 MW.
- Enefit (Al Attarat) Generation License: electric power is generated by conventional energy sources technology (by direct burning of oil shale) with a capacity of 470 MW, where the commercial operation will start by the end of 2020.¹⁷
- Jordan Indian Fertiliser Company Generation License: The electric power is generated through conventional energy source technology (diesel fuel) with a capacity of 30 MW.

Renewable Energy

The total nominal capacity of renewable energy generation plants in Jordan increased to 1470 at the end of 2019, divided between 1100 MW of solar energy and 370 MW of wind energy.¹⁸ The Energy and Minerals Regulatory Commission granted licenses to the following companies according to the direct offers system.¹⁹ The table below (Table 1) shows the most important and prominent renewable energy projects in Jordan, and it is worth noting that the generating capacity in the table below is the nominal capacity as generation is affected by weather factors (solar radiation and wind speed).

17 Ministry of Energy and mineral resources /petroleum and oil shale directorate

18 Annual report / national electrical power company-2019

19 The Energy and Minerals Regulatory Commission & the ministry of energy and mineral resources / https://www.memr.gov.jo/EBV4.0/Root_Storage/EN/Project/RE_Projects-Jordan_Eng.pdf

No.	Technology Used	Project name	Project capacity in MW
1	Photovoltaic	Shamsna (our sun)	10
2	Photovoltaic	Sun Adison – Italy Jordan	20
3	Photovoltaic	Anwar Al-Ordon (Jordan Lights)	20
4	Photovoltaic	Ard Al-Amal (The Land of Hope)	10
5	Photovoltaic	Zahrat Al-Salam (Peace Flower)	10
6	Photovoltaic	Al-Zanbaq (Tulips)	10
7	Photovoltaic	Al-Arabya Al-Oula (First Arabic for Power Investment)	10.08
8	Photovoltaic	Shams Ma'an (Ma'an Sun)	52.5
9	Photovoltaic	Al-Ward Al-Juri (Damask Rose)	10
10	Photovoltaic	Jordan Solar One	20
11	Photovoltaic	Solar ASE	10
12	Photovoltaic	Al-Badyah Project	10
13	Wind energy	Riah Al-Orddon (Jordan Wind)	116.85
14	Photovoltaic	Saqer Ma'an (Ma'an Falcon)	20
15	Photovoltaic	FRV Solar Holdings IX B.V./Jordan	50
16	Wind energy	Green energy	86.1
17	Wind energy	Al-Fjaij	89.1
18	Photovoltaic	Local Company for Water and Power Labour	50
19	Photovoltaic	FRV+Hareon Swiss holding	50
20	Photovoltaic	Al-Safawi for Green Energy (FRV+ATC)	50
21	Photovoltaic	Jordan Armed Forces	10
22	Photovoltaic	Baynonah - wind	200
23	Photovoltaic	Al-Shobak - wind	45
24	Photovoltaic	Al-Rishah for Renewable Energy	50
25	Photovoltaic	AM Solar PV	40
26	Wind energy	Ma'an – 2016	66
27	Wind energy	Ma'an – 2017	14
28	Photovoltaic	ACWA	51
29	Photovoltaic	AES/Mitsui	40

Table 1

For transmission lines, the National Electric Power Company is the sole operator of the electrical grid in Jordan and is licensed to sell wholesale,²⁰ The interconnected system in Jordan consists of the main generating power stations, 132 kV/400 kV transmission network. This transmission network interconnects the power stations with the load centres and different areas in the kingdom, with a connection between these two lines to guarantee grid stability. The system also includes the 230 kV/400 kV tie lines with Syria and a -400kV tie line with Egypt and the distribution networks, all of which serve about (99.9 per cent)²¹ of the total population in Jordan.

2.2 Grid Stability

The stability of the electrical network is represented by the matching between the amount of energy generated and the amount of energy consumed (demand). This is checked by the control centre of the National Electricity Company, where it monitors the consumption of electrical loads and controls the reduction and raising of the loads on the operating generating units, and instructs to switch off and start up the generating stations where needed.

In detail, the following four factors contribute to the stability of the Jordanian electricity Grid:

1. The connections with the electrical networks of neighbouring countries have a lot of benefits to the Jordanian system like helping in balancing the frequency of the interconnected system and reducing the renewable energy forecast error and sharing flexibility resources²². Furthermore the electrical connection with countries of huge size of electrical consumption makes the effect of losing the generating unit less on the grid which means higher stability, for example the following table (Table 2) shows the maximum and minimum electrical load in Egypt²³ and Jordan for Wednesday 2020/9/9.

Country	Max Load (MW)	Min Load (MW)	Ambient temp.(C)
Egypt	29900	23992	36
Jordan	3100	200	42

Table 2

This means if a sudden failure occurs in Phases 1 or 2 in Samra power plant, the loss would be around 550 MW, and if this happened on 2020/9/9 - during the peak - without connection to the Egyptian grid, it would have meant a loss of)

20 Energy & Minerals Regulatory commission

21 National Electrical Power Company / <https://www.nepco.com.jo/>

22 Assessment of Implementing Jordan's Renewable Energy Plan on the Electricity Grid / Ahmad T. Abu Dyak a, Emad O. Abu-Lehyeh b , Suhil Kiwan.

23 Ministry of Power – Egypt

17.7 per cent of the whole grid capacity, which may lead to more alarming results, while normally the loss would be just 1.6 per cent if it were connected. (See figure 1,2

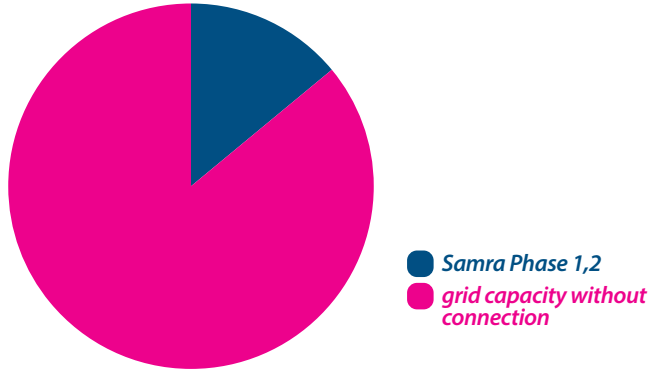


Figure 1: Samra PH1,2 participation in the grid capacity without connection to Egyptian grid

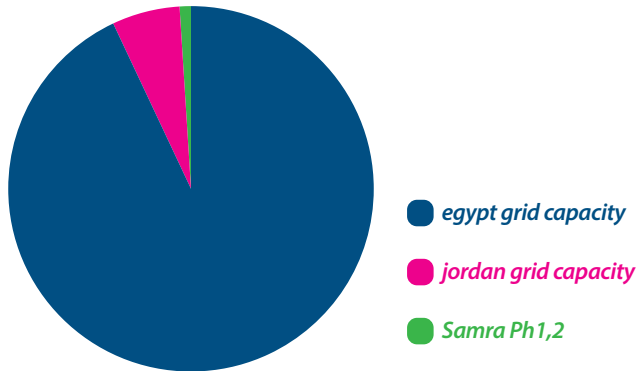


Figure 2: Samra PH1,2 participation in the grid capacity with connection to Egyptian grid

The Jordanian electrical system is currently connected to the Egyptian and the Syrian power grids, as well as the Jordanian-Palestinian electrical connection (Jericho area). Besides that, NEPCO is currently working on the implementation of the electrical interconnection project with the Saudi system, and it is expected to complete the implementation of this project within 2022.²⁴

24 Annual report / national electrical power company-2019

2. The generated power and its ability to match with the electric demand. From the generation side, this can be ensured by maintaining the readiness, efficiency, and reliability of the generation turbines. This is because a sudden disconnection in one of the generation units leads to a sudden decrease in the frequency as a result of the decrease in the generated energy compared to the demanded energy. Instability from the load side can be caused by the sudden stopping of large loads (iron factories, for example), which then leads to a surplus in the network and higher frequency. This may also happen as a result of a sudden and rapid rise in the demand for electricity outside the peak times, which necessitates a rapid increase in the generated energy to catch the sudden increase in demand.

3. Ensure that the transmission system is ready, and maintain the integrity of the high voltage transmission lines and the step up and down transformers. This is necessary because any fault in these electrical transmission system components may have catastrophic consequences on the electrical network.

4. Renewable energy resources fluctuate strongly on time scales as small as seconds.

Moreover, the inverter-connected wind turbines and solar cells provide no inertia.²⁵ This is in contrast to conventional generators, whose rotating masses hold inertia and thereby momentary power reserve available for the grid, which makes the grid resilient and prevents strong fluctuations of the grid frequency on time scales of several seconds.²⁶

3 Renewable Energy Effect on Grid Stability

Generation power plants that depend on renewable energy sources affect the stability of the electrical grid in more than one way. The problem mainly lies in the dependence of these stations on the state of the atmosphere. The expansion of renewable energy projects is accompanied by more instability on the electric grid and the difference that these stations make between the electricity demand curve and the generation curve - especially during peak time. This constitutes an additional obstacle to the stability of the grid.

The demand for electricity increases in the morning with the spike in activities before sunrise. This requires drawing electricity from conventional stations to match the required demand. However, with the increase in solar radiation, the increase in the participation of solar power stations in the total energy mixture begins and continues until sunset, which marks peak demand time. This necessitates the operation of conventional power plants with short start-up time to match the difference between the amount of generation and demand,

25 Ulbig, A., Borsche, T. S. & Andersson, G. Impact of low rotational inertia on power system stability and operation. IFAC Proceedings Volumes 14(3), 7290–7297 (2014).

26 . Kundur, P. Power System Stability and Control. (Mc Graw Hill, 1994)

which negatively affects the stability of the electrical network, especially if some of these turbines trip during start up.

This issue appears clearly when the overall load is low during daylight hours. That is when renewable energy contributes highly to the overall generated megawatt, such as holidays, official holidays and closing days. To elaborate, the maximum load on one of the days of lockdown during the COVID-19 pandemic (April 2020) reached 1200 MW according to NEPCO's Control Centre, of which 700 MW was renewable energy²⁷. This means that approximately 60 per cent of the network load is under the influence of change in the atmosphere, and that constitutes a major obstacle to maintaining the stability of the electrical network.

Furthermore, the lack of momentum for renewable energy generators also represents an obstacle to the stability of the electrical network, as the low momentum means the lack of flexibility of the generating unit and its weak absorption of any frequency fluctuation and change on the network. This is in contrast to the conventional generating stations that are managed by gas or steam turbines, which makes these units absorb the changes due their high prime mover momentum and therefore yield more stability on the electrical grid.

4 Cyclic Operation Conventional Power Plants: A Case Study of The Samra Power Plant

The total load of the Kingdom and the participation of conventional power plants can be represented by the duck curve shown in Figure 3 below.²⁸ Here, the gap between the two curves increases from morning until sunset, which means the contribution of solar power plants increases after sunrise, stopping or reducing the loads of conventional power plants, which in turn leads to cyclic operation of these units, negatively affecting the life of the generating units with its various components and the efficiency of the entire network.

²⁷ National Electrical Power Company

²⁸ Average demand between summer and winter according National Electrical Power Company

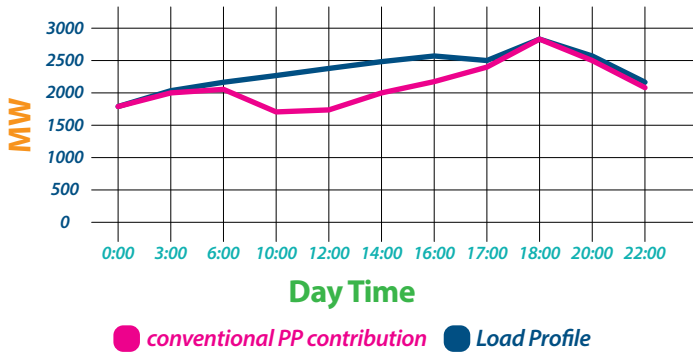


Figure3: Jordan Duck Curve

The Samra power generation plant (combined cycle plant 1350 MW) will be addressed as an example of the efficiency drop resulting from the cyclic operation of conventional power plants, and the most prominent aspects of the damage can be summarised in the following points:

1. Boilers are subjected to thermal stresses as a result of frequently operating and stopping the gas turbines, which leads to the occurrence of cracks in the different parts of the boiler which finally lead to boiler tube puncture, which requires significant maintenance effort and money and affect its availability. For example, gas turbine numbers 1 and 2 (GT1&2) were started up more than 28 times in less than two months²⁹ (September and October, 2020).
2. The periodic operation of the boiler feeds water pumps, which leads to high starting current each time it starts and additional other faults on the pumps such as mechanical seal and other faults related to changing the pump temperature up and down periodically.
3. There are high operating costs each time the gas turbine or combined cycle is run, and the cost varies according to the agreement concluded between the National Electric Power Company and the generation company. For example, when operating any of the gas turbines at Samra/Phase 1, an amount of 3,000³⁰ Jordanian dinars is paid for a cold or warm operation,³¹ while 20,000 are paid for a hot start, in addition to the loss of approximately 80 tons³² of treated water before combining steam into the steam turbine,

²⁹ Smara power plant / operation department /operation planning department

³⁰ Smara power plant / operation department /operation planning department

³¹ Modes of operation (how many hours since last shutdown of the turbine ,hot start if less than 8 hours since last shutdown, warm(816-), and cold if the turbine start if more than 16 hour of last shutdown/Operation department.

³² Smara power plant / operation department /operation process department

and according to the chemical treatment department, the cost per meter of treated water ranges between 1520- dinars³³, which means a loss of 12752000- JOD In addition to the operating cost of 3,000 dinars (assuming cold start), which means a loss of approximately 5,000 dinars in each operation. For example, the gas turbines were operated on the Samra/Phase 1 60 times during the last three months³⁴, which means a loss of approximately 300,000 thousand Jordanian dinars in only Samra phase 1 generation units.

5 Recommendations

It is clear that the change of loads in the Kingdom and the change of the renewable energy contribution from the total load - as a result of the change of the weather - leads repeatedly to shutdowns, start ups, and change the loads of the conventional power plants continuously to accommodate the load change and to maintain the stability of the grid. This paper proposes to maintain a fixed generating megawatt generated by conventional power plants on the network, store the surplus of this capacity at times of low load, store the energy generated from renewable energy sources, and use them at peak times as follows:

Daily profile in Jordan at 102020/9/ where the air ambient temperature was 42 at daylight -25 at night and wind speed was 3.5m/s as follows:

Time	Conventional	Renewable	Time	Conventional	Renewable
1:00	2010	40	13:00	2390	750
2:00	1920	45	14:00	2460	705
3:00	1850	45	15:00	2470	590
4:00	1800	35	16:00	2510 (Morning Peak)	550
5:00	1790 (Min Load)	40	17:00	2430	500
6:00	1830	360	18:00	2550	425
7:00	1910	405	19:00	2680 (evening peak)	45
8:00	2090	430	20:00	2560	50
9:00	2150	560	21:00	2350	45
10:00	2210	750	22:00	2200	45
11:00	2290	800	23:00	2150	41
12:00	2350	820	24:00	-	-

33 Smara power plant / operation department /chemical department

34 Smara power plant / operation department /operation planning department

From the table we can observe that the demand after midnight becomes low while it increases gradually after sunrise. At that time, solar energy comes in and remains in service until around 7 pm and disappears after that. During day hours, the control centre in NEPCO requests the power plant to start, stop, load, or deload the turbines to match the demand, and the most critical point is the evening peak (around 7 Pm/ 5 pm at winter), where we have peak demand and loss of solar MW contribution due to sunset, which affects grid stability.

To solve this case, it is proposed to calculate from the table above (Table 3) the average daily demand which is 2200 MW (shown in graph 4 line 1), and calculate the average generation from Renewable Energy Sources (RES), so the result is 300 MW (line 5). This means that if maintained, the 1900 MW (graph 3) – i.e. the difference between average demand and averaged RES generated power – then the surplus can be stored (green region), if we have load less than 1900, and use it again if the load exceeds 1900 (yellow region). **Consequently, the result is eliminating the periodic operation of a conventional power plant, increasing the efficiency of the entire system by reducing the start up and operation cost, and avoiding the aging that happens to the combine cycle due to cyclic operation.**

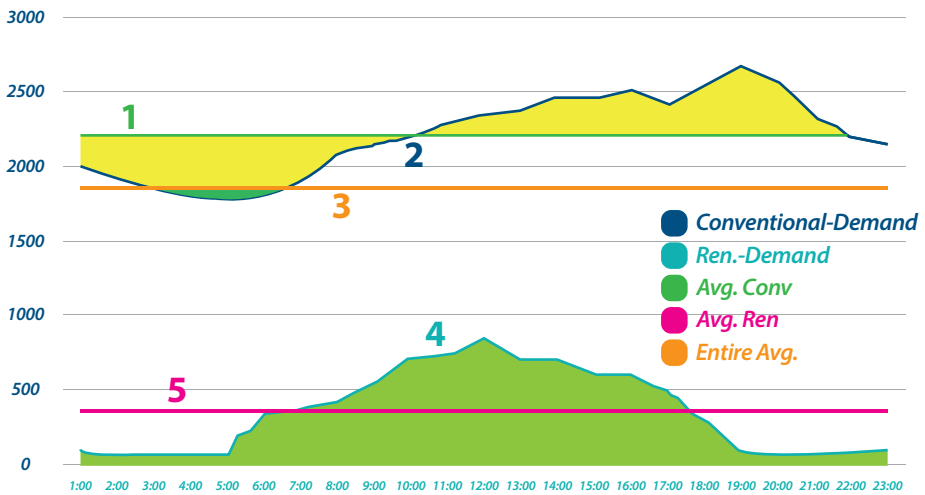


Figure4

5.1 Energy Security in Jordan

Globally, many methods are used to satisfy energy security and to store electrical energy, but Jordan is considered very low profile in terms of electrical energy storage and energy security. A quantitative analysis on energy security was done by the World Energy Council (WEC),³⁵ ranking Jordan in 108th place for the year 2019, with a value of 48 per cent.

There has yet to be a real analysis of energy security for the current energy system in Jordan. El-Anis³⁶ analysed energy security from the perspective of nuclear energy and its policies, and concluded that nuclear energy can ensure a more diverse system and less reliance on energy imports. But energy security also depends on several other dimensions. For instance, Ramana and Ahmad³⁷ found that nuclear energy will not be beneficial to the overall energy security because - apart from diversifying the energy mix and reducing imports - the environmental impacts, cost structure, and other dimensions of energy security would be negatively affected.

5.2 Energy Storage Technologies

In Jordan, the economic feasibility of storing electrical energy using hydropower from the Wadi Al Arab dam, the Mujib dam and the King Talal dam is being studied in cooperation with the European grant (II REEE).³⁸

Generally, no single energy storage technology can meet the requirements for all applications, which creates a need for a comprehensive analysis of the different EST. The following chart displays the main technology used to store energy:

35 World Energy Council (WEC). World Energy Trilemma Index; World Energy Council: London, UK, 2019

36 El-Anis, I. The political economy of energy security and nuclear energy in Jordan. *Cent. Eur. J. Int. Secur. Stud.* 2012, 6, 13–35.

37 Ramana, M.V.; Ahmad, A. Wishful thinking and real problems: Small modular reactors, planning constraints, and nuclear power in Jordan. *Energy Policy* 2016, 93, 236–245.

38 Ministry of Energy and Mineral Resources (MEMR). Annual Report 2018; MEMR: Amman, Jordan, 2018. Available online: https://www.memr.gov.jo/ebv4.0/root_storage/ar/eb_list_page/56dcb6834-4621-dfd-8a15-b0ce6904f501.pdf

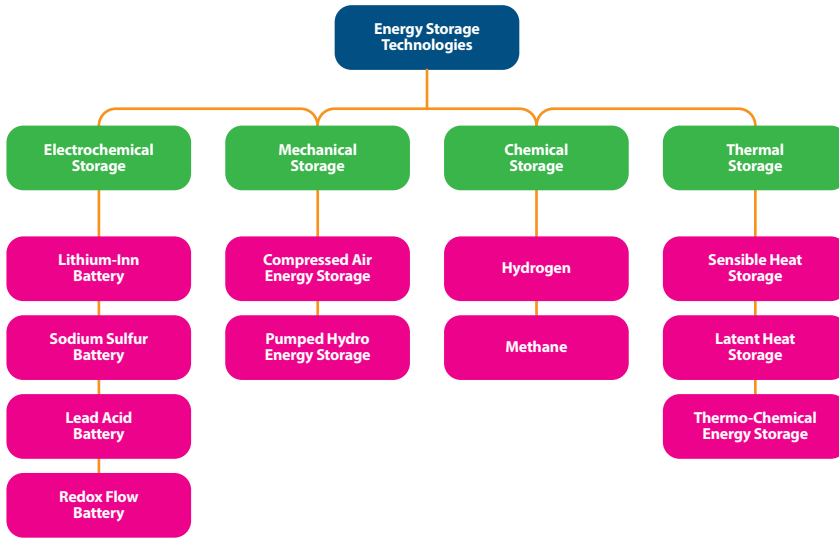


Figure 5: Schematic illustration of energy storage technologies categories³⁹

These technologies differ from each other in many aspects: storage capacity, time to restore, geographical restriction, cost, and environmental impact. In a mega scale project like the one addressed in this paper, mechanical storage may be a good option if we consider the mentioned criteria. However, the suitable storage technology should be selected only after a deep analysis of each generation plant.

6 Recommendation

The Jordan Energy Master Plan issued for 2020-2030- the necessity of developing storing facilities. With this in mind, this paper’s recommendation comes through two perspectives.

1. Technical Perspective:

- Carrying out a deep study and a technical analysis of the renewable energy storage technology and determining the appropriate storage systems for the different currently installed generating units, considering the energy generated in each unit and the geographical factors in the area of the generation plant.

³⁹ Energy Storage Technology Comparison - A knowledge guide to simplify selection of energy storage technology Johanna Gustavsson

- A deep study of the Jordanian electrical load and determining the electrical load that will be transferred across the electrical network directly, considering not to load the generating units to the maximum limit to preserve their use in emergency situations and sudden trips.
- With regard to the geopolitical restrictions, study the agreements signed with the conventional fuel providing companies and ensure that the electrical load supplied directly to the network is stable and within the agreed fuel quantities.
- Requiring renewable energy projects that will be established henceforth to install storage systems and not directly feed the electrical grid.
- The necessity of including all parties in the comprehensive studies, from NGO experts, think tanks researchers, policy paper writers, and academics.

2. Market Perspective:

- Encouraging investment and reducing taxes and fees for the company applying for the implementation of renewable energy storage projects, which will create a competitive environment and thus multiple technology options at competitive prices.
- Reshaping the electric market by reducing the electrical tariff out of the peak period to reduce the capacity of storage system required, which will increase the entire system's efficiency.

7 Conclusion

This paper aimed to solve the problem of cyclic operation of conventional power plants through a strategy based on calculating the average of the Kingdom's demand and subtracting it from the average generated load of renewable energy sources in Jordan, maintaining the subtraction as a generating capacity on the grid from conventional power plants, and storing electrical energy when the load is less than the calculated energy generated, and from renewable energy sources, and consume the stored energy when the load is more than the calculated power exported to the grid.

Furthermore, the paper presented the energy storage technologies and recommended comprehensive methods to select the appropriate storage technology depending on the system parameters.

8 References

- Annual report / national electrical power company-2019
- Assessment of Implementing Jordan's Renewable Energy Plan on the Electricity Grid / Ahmad T. Abu Dyak a, Emad O. Abu-Lehyeh b, Suhil Kiwan /
- El-Anis, I. The political economy of energy security and nuclear energy in Jordan. Cent. Eur. J. Int. Secur. Stud. 2012, 6, 13–35.
- Energy Security Analysis for a 100 per cent Renewable Energy Transition in Jordan by 2050 /Abdelrahman Azzuni *, Arman Aghahosseini, Manish Ram, Dmitrii Bogdanov, Upeksha Caldera and Christian Breyer/may 2020
- Energy situation in Jordan/Ministry of planning and international cooperation /mojahed Elzagheer
- Energy Storage Technology Comparison - A knowledge guide to simplify selection of energy storage technology Johanna Gustavsson
- <https://www.azelio.com/investors/press-releases/2020/azelio-signs-mou-for-energy-storageproject-in-jordan/>
- Kundur, P. Power System Stability and Control. (Mc Graw Hill, 1994)
- Ministry of Energy and mineral resources /petroleum and oil shale directorate
- Minister of energy and mineral resources /
<https://www.youtube.com/watch?v=bbmOXENgXSk>
- Ministry of Energy and Mineral Resources (MEMR). Annual Report 2018; MEMR: Amman, Jordan, 2018. Available online:
https://www.memr.gov.jo/ebv4.0/root_storage/ar/eb_list_page/56dcb683214-4-6dfd-8a15-b0ce6904f501.pdf
- Ministry of Power – Egypt
- National electrical power company /dispatch centre
- Ramana, M.V.; Ahmad, A. Wishful thinking and real problems: Small modular reactors, planning constraints, and nuclear power in Jordan. Energy Policy 2016, 93, 236–245.
- Renewable energy potential in Jordan /Ali M baniyounes- Applied science private university
- SEPCO phase 3 operation and maintenance manual for GT13E2 gas turbine from ALSTOM.
- Samra power plant / operation department /chemical department
- Samra power plant / operation department /operation planning department
- Samra power plant / operation department /operation process department
- The Energy and Minerals Regulatory Commission & the ministry of energy and mineral resources
[/https://www.memr.gov.jo/EBV4.0/Root_Storage/EN/Project/RE_Projects-Jordan_Eng.pdf](https://www.memr.gov.jo/EBV4.0/Root_Storage/EN/Project/RE_Projects-Jordan_Eng.pdf)
- The Jordan Energy and Minerals Regulatory Authority/Jordan

- The world factbook / <https://www.cia.gov/library/publications/the-worldfactbook/rankorder/2233rank.html>
- Ulbig, A., Borsche, T. S. & Andersson, G. Impact of low rotational inertia on power system stability and operation. IFAC Proceedings Volumes 14(3), 7290–7297 (2014).
- World Energy Council (WEC). World Energy Trilemma Index; World Energy Council: London, UK, 2019



Activation of the Agricultural Development Strategies to Enhance Food Security in Jordan

Eng. Mazen abu Qamar

1 Introduction

The agricultural sector is considered one of the most important sectors at the global level because of its massive contribution to social and economic development, raising the value of gross domestic product (GDP), and most critically, providing people with its food and dairy products. This sector was thus one of the most critical sectors during the COVID-19 pandemic as well as before, since it contributes to securing individuals' basic dietary needs.

The agricultural sector is intimately linked to food security. According to the (FAO, 1996), food security is defined as providing food for all members of society in the quantity and quality necessary to meet their needs on an ongoing basis for a healthy and active life). In countries across the world, food security has become increasingly difficult to attain in light of increased food demand, low productivity of agricultural lands, and climate change. These factors often lead to insufficient food quality and availability. In response, countries have sought to create agricultural development strategies to ensure food security. This includes upgrading, sustaining, preserving, and maximising the benefits of natural resources.

As a developing country, Jordan lacks food security. This is primarily because it suffers from water scarcity, an obstacle to realising its agricultural potential.¹ In 2010, Jordan's Department of Statistics surveys showed the reality of food security in Jordan; 3 % of Jordan's families were food insecure and 2.1% of them were considered vulnerable because of the food insecurity. About 64% of the food insecure families were below the poverty line. There have been no official statistics on the reality of food security in Jordan since then, but circumstantial evidence points to the trend that the number of food insecure and vulnerable has risen with the COVID-19 pandemic.² According to the rankings of The Economist's Economic Information Unit on Food Security, Jordan ranks thirteenth for overall food security in the Middle East and North Africa – above Syria and below Egypt – and ranks sixty-fourth in the world.³

The agricultural sector in Jordan contributes minorly to the GDP, having reached 4.4% in 2015, and increasing in 2019 to reach 4.9%. From the agricultural sector, Jordan's exports reached 920,127 JD in 2015, while agricultural imports reached 1,114,315 JD. In 2019, exports from the agricultural sector were 668,138 JD while agricultural imports were 1,107,883 JD.⁴

1 <http://dosweb.dos.gov.jo/ar/product-category/agricultural-census-ar/>

2 http://dosweb.dos.gov.jo/wp-content/uploads/201708//sec_Food2010.pdf

3 <https://foodsecurityindex.eiu.com/Index>

4 The Central Bank of Jordan (2020) Monthly Statistical Bulletin

2 The Issue

The agricultural sector in Jordan lacks the application of clear strategies for agricultural development in light of food security. Despite the existence of some strategies that the Jordanian government seeks to develop continuously, these strategies are mostly characterised by a gap between reality and strategies. Alternatively, some agricultural development strategies are not applied on the ground for technical, administrative, or financial reasons. Accordingly, this paper aims to include agricultural sector priorities and activate agricultural development strategies to achieve food security in Jordan.

3 Paper objectives

- 1- The activation of agricultural development strategies to achieve food security in Jordan.
- 2- Identify the priorities of agricultural development to achieve food security in Jordan.
- 3- Coming out with a set of recommendations to activate agricultural development strategies to enhance food security in Jordan.

4 Paper methodology

This paper adopted a qualitative research methodology by conducting in-depth interviews with officials, policy-makers, academics, and experts. The structured interview method was used by asking an open question about the priorities for developing the agricultural sector and achieving food security at the public and private levels. After analysing the answers, the results were as follows:

4.1 First: Priorities for agricultural development to achieve food security in Jordan:

From experts, policy-makers and academics point of view, priorities were mostly conveyed as:

- Increasing the contribution of local agricultural products to cover Jordan's food product needs.
- Formulating and adopting comprehensive agricultural policies to achieve food security.
- Supporting the agricultural sector and expanding non-traditional agriculture through the use of different plants with improved productivity and animals with high export potential and low water requirements.
- Developing scientific research and agricultural extension programmes,

adopting the application of modern agricultural technology, and supporting agricultural scientific research.

In the same context, experts and policy-makers emphasised:

- The importance of taking into account the necessity of building agricultural insurance networks.
- Expanding Jordan's Agricultural Risk Fund.
- Developing study programmes in the Jordanian universities and increasing their reliability in practical application.
- Activating agricultural financing programmes.
- Directing the external funding for agricultural projects and establishing small income-generating agricultural projects.
- Developing social protection programmes for agricultural labour.

On the infrastructure level, experts and policy-makers emphasised:

- The importance of improving government services to support the agricultural sector.
- Building a comprehensive national database for the agricultural sector.
- Emphasising the importance of expanding the organisation of agricultural work by establishing cooperative societies and agricultural societies and investing in agricultural production inputs and agricultural equipment, including covering the needs of the agricultural sector.

At the level of general procedures, the experts emphasised:

- The importance of developing laws and legislations that regulate the agricultural sector.
- Building the capacity of workers in the agricultural sector.
- Supplying the sector with skilled workers.
- Exemption of production inputs from taxes.
- Supporting high quality agricultural products.
- Supporting small farmers, youth, and rural families.

Confirmed by experts and policy-makers the need to:

- Support domestic exports.
- Create an air and land transport network at minimal costs.
- Develop agricultural value chains and supply chains.
- Increase water use efficiency, implementing programs for water harvesting, and rainwater harvesting.
- Adopt rural development programs, empower women and youth in disadvantaged areas, preserve ecosystems, water resources, and implement soil conservation measures.

4.2 Second: Activating agricultural development strategies to achieve food security in Jordan:

Experts and policy-makers suggested the importance of special measures considering the following:

4.2.1 The first topic: agricultural resources

Experts and policy-makers emphasised:

- Moving towards the use of modern agricultural technology systems.
- Improving and developing post-harvest methods.
- Reducing the percentage of losses in agricultural production.
- Producing high-yielding seeds and seedlings that are resistant to drought and disease.
- Developing the agricultural extension network and raising the efficiency of agricultural extension workers.
- The need to expand support for agricultural projects that produce vegetable crops, protect local plant products, and support agricultural exports.

4.2.2 The second topic: livestock

This topic related to the need to:

- Improve veterinary services catering to livestock.
- Support the production of forage crops.
- Support fodder production, and raising livestock with high productivity and disease resistance.
- Support and develop the fisheries sector, and sustain, develop, and preserve natural pastures.
- Protect local livestock products and expand support for livestock projects.

4.2.3 The third topic: Environmental Systems, Natural Resources and Water

In this topic, experts and policy-makers emphasised:

- The importance of rehabilitating and restoring degraded environmental systems.
- Raising the awareness of societies to preserve the environment.
- Supporting community initiatives concerned with preserving the environment, increasing forest areas, developing forests and wooded lands, and preserving their sustainability.

- Improving eco-tourism systems.
- Promoting community participation in forest management.
- Supporting water harvesting projects at the household level, increasing the number of dams, and reducing rainwater losses.
- Developing programmes for soil conservation and conservation measures.

4.2.4 The fourth topic: Agricultural Marketing and Funding

This topic includes:

- Improving the infrastructure of land and air transport to increase the opportunities for exporting agricultural products.
- Establishing chilled units to store agricultural products.
- Establishing centres for direct marketing from farms to consumers, which are owned by agricultural cooperatives.
- Financing agricultural projects that adopt modern agricultural systems.
- Establishing centres for packaging and packing agricultural products.
- Limiting the level of guarantees that must be provided to grant loans provided by the Agricultural Credit Corporation.
- Increasing control over loans provided for the purpose of establishing agricultural projects.
- Regulating the procedures for selling and trading agricultural commodities in the wholesale and traditional markets.

4.2.5 The Fifth topic: Food Industrialisation and Rural Development

In this topic, experts and policy-makers emphasised:

- The importance of supporting agricultural sector factories and establishments.
- Holding permanent exhibitions for rural products and agricultural processing.
- Supporting the establishment of agricultural projects for youth, women, and rural families.
- Supporting the products of small and medium agricultural projects.
- Strengthening technical and administrative training programmes.
- Building the capacity of small business owners.
- Establishing agricultural cooperative societies for farmers and women of a sectoral nature.
- Supporting cooperative societies and agricultural societies to implement small income-generating agricultural projects.

4.2.6 The Sixth topic: Investment in the agricultural sector

In this topic, experts and policy-makers emphasised:

- The importance of applying contract farming systems.
- Applying effective models in agricultural insurance, and investing in agricultural production inputs.
- Supporting factories that produce agricultural equipment.
- Providing grants and loans for agricultural establishments, and reducing taxes on establishments that invest in the agricultural sector.
- Attracting Arab and foreign investment to Jordan.

5 Paper recommendations:

In light of the previous results, the paper recommends the following:

- 1- Building applicable strategies rooted in the Jordan's agricultural reality, and following up on their implementation.
- 2- Continuous evaluation of agricultural development strategies to know the strengths and weaknesses of the application.
- 3- Increasing the funding of the agricultural projects.
- 4- Providing training programmes for unemployed agricultural engineers and supporting their projects.
- 5- Executing studies and surveys for the agricultural sector.

6 References

- Institutional strategy of the Ministry of Agriculture (2016/2025-), Ministry of Agriculture, Amman, Jordan.
 - The Strategy for Agricultural Development (2020/2025-), Ministry of Agriculture, Amman, Jordan
 - The Central Bank of Jordan (2020) Monthly Statistical Bulletin.
 - The National Agricultural Development Strategy Document (2016/2025-), Ministry of Agriculture, Amman, Jordan
- <http://dosweb.dos.gov.jo/ar/product-category/agricultural-census-ar/>
http://dosweb.dos.gov.jo/wp-content/uploads/201708//sec_Food2010.pdf
<https://foodsecurityindex.eiu.com/Index>



**Konrad-Adenauer-Stiftung
Jordan Office**

**23 Isma'eel Haqqi Abdoh St.
P.O. Box: 831025 Amman
11183 - Jordan
Info.Jordan@kas.de
www.kas.de/jordan**



West Asia-North Africa Institute

**70 Ahmad Al-Tarawneh St.
P.O. Box: 1438 Amman
11941 - Jordan
info@wana.jo
www.wanainstitute.org**